

# OVIDIUS UNIVERSITY ANNALS

## ECONOMIC SCIENCES SERIES

Volume XXIII  
Issue 1

Year 2023

ISSN-L 2393-3119  
ISSN 2393-3127

**OVIDIUS UNIVERSITY ANNALS**  
**ECONOMIC SCIENCES SERIES**

**Volume XXIII**  
**Issue 1**

**2023**

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**Section I**  
**International Affairs**  
**&**  
**Section II**  
**Regional Development,**  
**Integration and Globalization**

## Intellectual Property versus Artificial Intelligence

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### Abstract

*A topic that is increasingly discussed today, it brings into discussion the advantages and disadvantages of using in the academic environment, the ways in which artificial intelligence can intervene in the process of teaching, learning and developing skills in research / innovation (know-how) and finally, lead to the creation of original products with scientific content.*

*We intend through this study to see if it is necessary to propose the adoption of a set of rules, limiting imposed by the academic environment, or to encourage the freedom of access to artificial intelligence, given that, from a legal point of view, we do not know of any prohibition in this sense, than collateral through the provisions of Law no. 8/1996 on copyright and related rights, supplemented by legislation in the field of industrial property and rules related to academic ethics and deontology, originating from the university charter and the legislation regulating academic research.*

**Key words:** intellectual property (PI), artificial intelligence (AI), ChatGPT

**J.E.L. classification:** O30

### 1. Introduction

International practice has increasingly imposed the specialization and over-specialization of the academic environment, with the allocation in their personal name of huge investments in units of time, even pecuniary, on their part, for the documentation and publication of scientific research, but also through exchange of experience through dialogue held at the highest scientific level.

Not infrequently, dialogue was hampered by long distances between partners, inaccessible language, differences in culture and legislation.

At the same time, for any scientific problem, the only way to fill some gaps in various fields, on the edge of deepening some scientific topics, are still within reach of partnerships between university environments at national and international level.

Today we think more and more, if we will use artificial intelligence to solve research problems or those in the academic environment of teaching and evaluation.

In the legal university environment, one of the main concerns considered is about understanding as closely as possible the will of the legislator, which is in continuous change, in order to adapt to the political will at a given moment, or of a specific period.

The premises from which we start, is that no one can be considered omniscient, more than that, in the legal environment, a field that most often calls on legal specialists/experts approved by legal institutions and who come from all social fields or technical, for carrying out expertise.

### 2. Literature review

The concept of Artificial Intelligence has seen a constant evolution after 1950, reaching today a stage when computers use certain algorithms, which allows them to self-improve through continuous learning, reaching the possibility of quickly answering the questions asked and even creating creative works intellectual property both in the field of copyright and in the field of industrial property.

Jurists have always emphasized the importance of copyright protection over intellectual creation in the historical evolution of humanity, from the first elements of protection to the works created by Artificial Intelligence, insufficiently regulated at the moment.

The rapid tendency to exceed the scope of legal regulations regarding the importance of protecting the act of intellectual creation, from a moral, cultural and economic point of view, affects economic development in general, as long as Artificial Intelligence is not unanimously legislated.

In the field of intellectual property protection with its two branches, copyright (Law No. 8/1996 and the Berne Convention of 1886 revised in 1971) and industrial property (all objects protected and regulated in national legislation - with those regulated by the Paris Convention of 1883), ensure all countries adequate national and international protection. The same cannot be said about Artificial Intelligence (Brăsoveanu 2011).

### **3. Research methodology**

The theoretical context of the study regarding the researched topic, took into account the opinions of some specialists in the field and the research results regarding the evolution of Artificial Intelligence, taking into account the complex nature of development and implementation in social and economic life at the level of the entire society.

The research method took into account the logical analysis between the current regulations regarding the respect of copyright and industrial property and the absence of regulations regarding one of the greatest pressures on humanity - that of globalization, with the component of the information society whose evolution led to the launch of a liberating force of ideas and intellectual creations through the development of Artificial Intelligence (Drăguleanu 2017).

### **4. Findings**

From a legal point of view, the implementation of traditional methods of intellectual property protection faces challenges that highlight the absence of regulations that ensure in the online environment, tools and mechanisms designed to lead to the removal of any violation of rights that can be sanctioned, according to the legislation in the field of intellectual property law, of civil, contraventional law or criminal law.

#### **4.1. Replacing some professions towards a new normality**

The progress of artificial intelligence advances at a dizzying speed, which will lead you to a series of social and economic changes as happened once with the appearance of the computer and the Internet (Preotescu 2023).

If the working class working in manufacturing can rest assured about job security, on social media, opinions are conveyed about a future with visible changes in some intellectual activities, such as: the profession of human resources officers, writers, performers, programmers and even lawyers.

If we speak from the point of view of some legal professions, especially that of a lawyer, the use of artificial intelligence products can contribute to the construction and shortening of the time of creating pleadings for or against and putting written conclusions in a certain subject, but for now there can be no question of replacing them, as is still predicted with their disappearance. Also, chatGPT will not be able to be used soon as a means of evidence in trials, the reluctance of judges being due to doubts about the correctness of the information and the manipulation of that data (Murariu 2023a).

Continuing with the legal profession, which many students dream of as a future based on the knowledge acquired in college and developed through a long practice, is in constant adaptation to current changes.

Life has proven that there are professions that have always changed their status, adapting to real life, especially the body of lawyers who can no longer practice their profession individually, but or organized in Law Firms and now they will have to coexist with artificial intelligence (Murariu 2023b). ChatGPT could not replace you with a lawyer whose qualities of spontaneity in the legal process and presence of mind in concrete situations.

It is also predictable that research in the field of artificial intelligence will continue both nationally and globally in an exponential way, and for now, attempts to cheat on assessments and exams can escape their sanction, for the reason that already, these intentions are one step ahead of the regulations through appropriate legal instruments, to prevent and sanction deviations from the norms of academic ethics and deontology.

The new chatbot with Artificial Intelligence, has the ability to minimize human commands and is defined: "AutoGPT". While ChatGPT is an AI tool that has developed a process capable of generating written content and needs human help to respond to commands, AutoGPT assumes the ability to initiate some searches by itself, can correct itself from mistakes previous and by way of consequence, it is appreciated that it surpasses any human brain.

This discovery could rightly affect the professions mentioned in the previous title. In theory, it is not wrong to mention that "ChatGpt has speeded up work, and AutoGPT will revolutionize it" (Euronews 2023).

"ChatGPT will redefine the future of academic research. But most academics don't know how to use it intelligently," recently wrote Mushtaq Bilal, a postdoctoral researcher at the University of Southern Denmark (). Further author Mushtaq Bilal, researcher stated: "There are two camps in academia. The first is early adopters of AI, and the second is professors and academics who believe AI is corrupting academic integrity" (Bello 2023).

#### **4.2. Intellectual property at the intersection with artificial intelligence**

In the framework of intellectual property, two major areas are considered that compose it - copyright (over literary, artistic and scientific works, including software and databases) and industrial property right [Technical creations (inventions, utility models), Aesthetic creations (designs, distinctive signs associated with products, brand, trade name, geographical indication) and Protection against unfair competition] (Anechitoae 2019).

The protection of intellectual property is an essential element of the development process, a condition of human progress. The activity of creation, of making products of the spirit is the condition of development (Roş V. 2016).

There is currently no universal legal definition of artificial intelligence. It is appreciated in the specialized literature as a discipline of computer science, for which it is considered that the intervention of human intelligence is needed (Tas Agency 2021).

On Wednesday (14/06/2023), the European Parliament adopted its negotiating position on the Artificial Intelligence (AI) Law by 499 votes to 28 with 93 abstentions ahead of discussions with EU member states on the final form of the law. The rules would ensure that artificial intelligence developed and used in Europe is fully in line with EU rights and values, including human supervision, safety, privacy, transparency, non-discrimination and social and environmental well-being (News European Parliament, 2023). Negotiations with the Council are now expected on the final form of the law, which looks at the future of Europe in the processes related to Artificial Intelligence

Specifically, Artificial Intelligence refers to algorithms based on which a computer is helped to develop its answer to calculation tasks, using machine learning methods.

Artificial intelligence is currently fueling major innovations in technology and business, being used in a wide range of industries and impacting almost every aspect of intellectual creation.

For legal reasons, the two fields cannot be confused: the intellectual creation of humans with artificial creation, in terms of works/inventions created by humans and those created with the help of AI.

Human-made intellectual creations are already protected through existing IP legislation, such as patents, copyrights, industrial designs, trade secrets, etc.

From this perspective, IP5 representatives (IP5 Members) provided a Report on Artificial Intelligence in which they expressed their viability for three categories of inventions that are created with the help of artificial intelligence: 1) inventions created by a natural person, who use artificial intelligence to verify and certify a technical result; 2) inventions created with the help of artificial intelligence, because the natural person identifies the technical problem and artificial intelligence solves it, and 3) inventions created autonomously and independently by artificial intelligence. In practice, the difference between an assistant robot and a creator robot is clear (Dominte N. R. 2019).

However, the representatives of all IP5 jurisdictions have ruled that the inventor must be a natural person, even though it may sometimes be difficult for the office examining the patent application to identify precisely whether the author of the technical creation was a human being or artificial intelligence (Report of the IP5, 2018).

## 5. Conclusions

The Rector of the Timișoara Politehnica University, Mr. Ph.D. Eng. Florin Drăgan, appreciates that it is not possible to prohibit the use of ChatGPT or other similar applications to generate content in response to the requirements of taking exams, but a set of rules and application norms must be created so that students know how can use these tools, what is allowed and what is not allowed.

It remains the task of the teaching staff, when they have the suspicion that a student has used a text generated by artificial intelligence tools, without mentioning it according to the citation norms, they have the obligation to use applications that recognize this fact.

Students are helped by this advanced technology by shortening the time it takes to find an answer to a given problem with a single "search", but they lose the variety of answers found in multiple articles, thereby losing the opportunity to enrich their knowledge in the field approached, via Google search (which also released a replica titled "Bard").

In the academic environment, the teaching staff must adapt the ways of carrying out the activities, provided in the subject sheets, with additional measures for teaching and evaluating students, with additional time allocated to partial or final oral evaluations, and the use of content detection solutions generated by applications using artificial intelligence (Cybersecurity 2023).

While the authorities in public schools and universities in the USA, citing the intention to protect "academic honesty", have prohibited both pupils/students and teachers from using tools with Artificial Intelligence (Hângănuț R. 2023), we can say that most teaching staff with experience in the educational act, they have learned the ways in which their vigilance is tried to be deceived and they expect as a challenge to detect the intention to defraud the exams.

Artificial intelligence (AI) will develop a new tool for education and revolutionize education, but it will not be able to replace the concepts of learning about the world and life, in relation to the requirements of the areas addressed.

A quick intervention from a legal point of view is expected, from the European Union but also from the countries across the Atlantic for an urgent regulation in this field.

The negotiations started between the European Parliament and the member states, on 14.06.2023, for the adoption of a law in the field of Artificial Intelligence, as a result of the development of Artificial Intelligence, there are good chances that an agreement will be reached by the end of 2023, but which will only come into force after 2026.

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- \* \* \* IP5 members are: European Patent Office, Japan Patent Office, Korean Intellectual Property Office, National Intellectual Property Office of the People's Republic of China and United States Patent and Trademark Office.
- \* \* \* *Report of the IP5 expert round table on artificial intelligence*, EPO, Munich, 31 October 2018 [https://www.fiveipoffices.org/material/AI\\_roundtable\\_2018\\_report\\_](https://www.fiveipoffices.org/material/AI_roundtable_2018_report_) [Accessed 10.06.2023].



## The National Maritime Border – The Border of the European Union

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### Abstract

*The article analyzes the operational institutions established at the community level for the fight against clandestine immigration through fraudulent border crossing, with the intention of entering the European Union states and the measures required regarding the intensification of control and the strengthening of surveillance of their maritime borders.*

*The most important conceptual landmarks from a legal point of view are briefly analyzed, regarding the institutions entitled to take measures regarding the security of the maritime border, regarding the delimitation of the territorial sea as an institution of the international law of the sea in the context of the current significant challenges.*

**Key words:** territorial sea, border, Frontex

**J.E.L. classification:** O30

### 1. Introduction

With the accession of Bulgaria and Romania to the European Union (EU), on January 1, 2007, the eastern borders of these countries became the eastern borders of the EU, which implies a legal liability *ad litteram*, regarding , the execution of guarding, tracking and surveillance by the National Border Police, of the activities carried out in the border waters and in the territorial sea, with the support of the European Agency of the European Police and the Coast Guard (Frontex), for 7 days per week, 24 hours a day.

After the peak of migration in 2015, concrete measures were adopted and taken to combat clandestine migration, regarding the verification and control of EU external borders and especially wet borders.

In recent years, but especially after the military aggression launched by Russia on 24/02/2022, the pressure of clandestine migration on the European Union states has increased, together with the problems of asylum and migration. The analyzes of the phenomenon, its components and the development probabilities in the coming years attest to the redirection of clandestine migration channels, the permanent modification of the means used and the modes of operation used by the organizers of the traffic with these categories of people.

The constant trends of the last years are maintained, regarding the pressures of border penetration on the eastern border route, where a constant percentage with interests related to the institution of asylum is observed.

Considering the fact that illegal migrations are oriented only on a constant number of member states, the Council asked the Commission to establish and propose the necessary operational measures to counter them. This was the context for the preparation of the legislation, which we will focus on in what follows, regarding the main institutions and legal aspects regarding the EU's eastern border.

### 2. Literature review

The process of continuous development of international relations between the states of the European Union, contributed to the adaptation of the provisions of public international law to the European legislation and respectively to the national legislation, provisions applicable in a single

space related to the Schengen area of Europe.

This process precisely regulated the rights and obligations regarding the external borders of the European Union, but which is also accompanied by negative consequences, related to the emergence of several problems regarding illegal migration, the crossing of the state border in violation of the provisions of European international law and the security of the external border by the border states.

The Schengen Borders Code amended in March 2017 with measures regarding the completion of checks at external borders with the approach of 10 June 2022, which introduces a general reform of the Borders Code with new obligations applicable to maritime borders, as well as for land and air borders, in order to assure all people that they do not represent threats to internal security, public order and public health.

Or considered, mainly the operationalization of computer systems, able to perform early checks, regarding the history of travelers, an important pillar regarding the consolidation of internal borders, regarding the fight against terrorism or other crimes.

### **3. Research methodology**

In preparing the present study, points of view and research results from the specialized literature in the field of public international law were used (University courses, monographs, treaties, current legislation, scientific publications, etc.). Within the limits of this study, we analyzed the importance of the eastern border of Romania, fixed at the border of the Territorial Sea, whose points overlap the eastern border of the European Union.

### **4. Findings**

Starting from the realities of changes from a political point of view, international legislation (Brasoveanu 2011) caused major changes in terms of the rights and obligations of the European Community countries, with the responsibility of all EU states, for securing the space at the level of external borders.

Despite all the measures adopted at the European level, it can be said with certainty that illegal crossings of external borders still occur, especially by forcing maritime borders

#### **4.1. Conceptual milestones**

The territorial sea of littoral states was regulated by the Convention on the Law of the Sea from 1982, established to be up to a distance of 12 nautical miles (Mm), measured in straight lines, which overlaps with the border of states bordering the seas and oceans of the world . National law no. 17/1990, established it at the maximum distance allowed by the Convention as 12 Mm (22.224 km).

The straight baselines are indicated on maritime charts or, in their absence, on lists of the geographical coordinates of the points, with the obligation of the riparian state to ensure their publicity and to submit one copy to the Secretary General of the United Nations.

In this case, we consider the eastern border of Romania as being located at the outer limit of the territorial sea, being constituted by an imaginary line, with each point at a distance equal to the width of the territorial sea, from the closest point of the baseline.

If in the horizontal plane the maritime state border is very precisely regulated, controversial issues arise in the vertical plane, i.e. regarding the maximum height limit of the airspace border above the territorial sea and the maximum depth limit of the subsoil border below the bottom of the territorial sea.

However, these maximum limits were approximated by formulations such as "the maximum limit given by the technical conditions for the exploitation and exploitation" of these spaces, especially the resources that are found exclusively embedded in the subsoil of the submarine spaces.

The Convention on the Law of the Sea does not expressly provide for the maximum depth (in the seabed) up to which a state can exercise full sovereignty with effects on the exploitation and exploration of seabed resources such as liquid or gaseous hydrocarbons, sulfur or salt in these spaces.

By art. 85 stipulates the right of the riparian state to exploit the subsoil by resorting to digging galleries, whatever the depth of the water in that place.

Professor Dumitru Mazilu states that the underground is an important component of the terrestrial territory, the state exercising its full and exclusive sovereignty over it (Mazilu 2002), in the sense that it can explore and exploit its wealth, build tunnels, install pipes and cables, in order to realize or develop some economic (Mazilu 2001) or other activities, as well as unsuspected "mineral resources" (Magnus 1997).

The doctrine comes to clarify in part by specifying that borders are those real or imaginary lines that separate the territories of two states or, as the case may be, from the contiguous sea and that extend deep, inside the earth, to the limits accessible to modern technology (Bolintineanu 2000)..

#### **4.2. Competences of the Coast Guard in the Territorial Sea**

If until 2001, the ships of the Romanian Border Police barely dared to summon and bring to a standstill for control or order the arrest of fishing vessels, usually under the flag of Turkey, which were caught poaching turbot in the territorial sea, after 2007 together with the amendment of the legislation in the field and the appropriate equipment of the operative vessels, today we can appreciate that the vessels of the Romanian Border Police (Popa 2010) can carry out arrest missions and bring safely to port the vessels subject to these kinds of sanctions and can he even uses a weapon.

Today, the Coast Guard represents the regional institution, whose general competence is to supervise the area within the radius of Tulcea and Constanța counties - that towards the interior of the country within the limit of 30 km and within the limit of 10 km from both banks of the Danube within the radius Tulcea and Ialomita counties, with control and supervision.

#### **4.3. Missions at the Eastern Border of Romania**

One of the most important missions of the Coast Guard, at Romania's eastern border, is the control of passage through the Contiguous Sea and the Territorial Sea over a distance of 193.5 km.

Securing the maritime border requires concrete measures to combat illegal migration by sea, on land by boat and the trafficking of migrants through all border points, identifying guides and discouraging traffickers from entering the Black Sea and their attempt to reach Romania, crossing the contiguous sea, territorial sea and territorial waters.

The track record of the search and rescue missions carried out by the Coast Guard Police in the waters of the Black Sea is complemented by specific missions within the Maritime Operations, organized under the auspices of the Frontex Agency.

Regarding illegal migration by violating Romania's eastern border, it does not represent a definite threat, the unstable weather conditions of the Black Sea contributing to this, making it difficult to navigate with small boats and with improper technical navigation conditions.

"The political life of the border" (Barna 2023) viewed from a geopolitical point of view, there may be a risk of forcing the maritime border by some organizers for migrant transports, with optimal capacity, to be able to enter the Black Sea, using expensive boats, with a good seaworthiness.

### **5. FRONTEX**

Responding to the requirement formulated by the Council, the Commission drafted and presented a document entitled: "Improving the management of the maritime border of the European Union", which represents, in the opinion of subject matter specialists, political scientists and lawyers, a daring attempt by the community institutions to revolutionized the field of securing the external maritime borders of the Community, with direct reference to their southern part.

We will try, in the following, to analyze the elements brought to the fore by the Commission in this regard, especially those that call into question the concrete technical actions that have been implemented, a much wider range of measures, including the modification of the legal framework, respectively of the international law of the sea and the accepted procedures for tracking maritime vessels, their interception, carrying out controls on board the vessels and carrying out maritime rescue operations.

We will also refer in principle to the objectives of the Community institutions in order to organizationally and functionally cover the needs to protect the common European space, institutions placed in the sphere of concrete action and direct reactions on border surveillance.

### **5.1. Maximizing FRONTEX activity**

The first of the Commission's objectives was aimed at the already functional FRONTEX and consisted in amending the content of EC Regulation no. 377/2004, through which the network of migration liaison officers was created, approved by EC Regulation no. 1240/2019.

The Romanian Border Police, through its structures and its liaison officers, made a consistent contribution to the detection of numerous networks of traffickers operating on the territory of Romania or outside the national space, in the member states of the European Union or in the countries of origin of the groups migrationists.

The recorded successes validated the system, as such, and encouraged community decision-makers to take the decision to expand it, exemplifying among the interventions whose mission was to save human life at sea, the action carried out in the waters of the Mediterranean Sea by the crews of the patrol vessels MAI 1106 and MAY 3066 which resulted in the rescue of 150 migrants (Thursday 23/03 a.c.) and on 8/04 a.c. of a number of 22 men and one woman (Opaschi 2023), after which the ships of the Border Police of Romania resumed their missions carried out in the framework of "THEMIS 2023".

The second ambitious objective of the commission, which constitutes a valuable innovative element for the concerns in this field, refers to the creation of the common network of coastal patrols, in which sense it advanced the following proposals:

- the creation of the permanent network of coastal patrols along the southern maritime border of the Union, proposed by the feasibility study entitled MEDUZA presented by FRONTEX on July 14, 2006. The study carried out proposes the unconditional coverage of the entire border, from the Atlantic to the eastern shore of the Mediterranean Sea, with operational elements of surveillance, tracking and control, permanently coordinated, interconnected and inter-conditioned with each other, capable of retaining in the imaginary net created any of the clandestine ships that would approach the southern border of the European Union;

- entrusting the administration of this coastal network to FRONTEX, with the additional task of reflecting on the possibility of establishing several regional command centers at the southern maritime border of the Union (Canary Islands, Western Mediterranean, Central Mediterranean and Eastern Mediterranean), each with the express task permanently cover his precisely defined area of responsibility. These centers will have, among others, the task of coordinating daily patrolling activities and of intervening in other maritime collateral activities.

The sharing of coordination responsibilities is imperative, say the authors of the study, given the length of the Union's southern border. Due to the nature of the operational activities that will take place, the management of actions requires quick decisions, close to the action area, as well as other intervention and support measures that cannot be provided from long distances;

- the establishment, within FRONTEX, of a specialized support office for each regional command center, set up according to the coordinates previously considered. The study considers these structures necessary for the proper functioning of the command centers, listing a series of logical arguments in support of the proposal that we will not insist on in our analysis.

### **5.2. The permanent FRONTEX body**

The seat of the matter is Regulation (EU) no. 1896/2019 which allowed the establishment of the Police and the Coast Guard at the European level.

The permanent body of FRONTEX (Asby 2021), has soldiers from the Border Police and the Coast Guard, specialized and equipped with advanced technologies, who can respond to border challenges and ensure the security related to the Schengen area of Europe and who act under the authority of the authorities of the seconding country and are divided into four categories: police officers employed as Frontex members, long-term staff, short-term staff and police officers at the

disposal of Frontex.

## 6. Concrete application of the international law of the sea

Ambitious community projects will not have the expected success and international recognition if the practical application of the actions will not comply with the precepts of international law, primarily international maritime law and the law of the sea.

The commission ordered and published an in-depth study on the elements of international law of the sea and international maritime law tangential to the project components, dedicated especially to the analysis of the shortcomings of the international legal framework and the rules that would prevent the concrete implementation of all the planned activities, in which a series of aspects are noted with respect to which the necessary amendments are proposed. In our opinion, from the wide range of aspects and proposals that caught the attention of the Commission, following their systematization, the following should be noted:

- more precisely defining the procedures to be followed during the interception of ships that transport or are likely to transport clandestine immigrants to the community space. In this sense, the conclusion of regional agreements was proposed to define and delimit the right to follow and intercept ships in the territorial waters of the countries of origin, and not only in the high seas, as well as the notion of supervised transit. These regulations aim to facilitate the joint control and surveillance operations carried out within the FRONTEX system and, in the future, by EUROSUP. Such agreements will have to give the right to the personnel of the coastal patrols to take appropriate measures at the place of interception of the ships regardless of whether it is in free space or in the areas under the jurisdiction of one or the other of the contracting states;

- examination of the scope of protection obligations incumbent on states, by virtue of the principle of non-refoulement, in the case of multiple situations in which national ships must apply interception, search or rescue measures. The Commission proposed the development of practical instructions to establish the cases in which a state is required to assume responsibility for examining an asylum application during the time it participates in joint operations taking place in the territorial waters of another member state or in the high seas. The Commission rightly and justifiably emphasized the importance of the ratification by the member states, as well as by the African states, of the Palermo Protocol against the illegal trafficking of migrants by land, sea and air.

In this context, we are obliged to state and affirm that such regional agreements, considered in the matter of surveillance, tracking, interception and control of ships that transport or are suspected of transporting illegal immigrants, will only be applicable in the sphere of bilateral relations or multilaterals of the signatory states. It is therefore necessary to expand the geographical area of the signatory states, in order to cover as wide as possible the areas of applicability of the new regulations..

## 7. Conclusions

Crossroads between Europe, Asia and the Middle East, the Black Sea - an intercontinental sea, which separates Southeast Europe from Asia Minor and the Caucasian countries (Simileanu 2022), is the scene of intense exchanges: energy, transport, economic flows, but also migrations, drug trafficking, human trafficking, illegal immigration, terrorist threats, all of which have a point of departure or arrival at the state border of Romania.

The Eastern Border of Romania overlaps with the Eastern Border of the Republic of Bulgaria, whose supervision requires cooperation with neighboring states.

In the Black Sea, since 2007, the "Cooperation Forum of Border Agencies/Coast Guards of the Black Sea Coastal States (Romania, Ukraine, Russia, Georgia, Turkey and the Republic of Bulgaria - FCMN)" has been operating, which is a multilateral legal instrument in the field of responsibility, whose objective should be that of intensifying specific cooperation, including on the operative component.

Our country is a founding member of the Black Sea Economic Cooperation Organization (OCECMN), established with the aim of stimulating interaction and harmony between member states, as well as ensuring peace, stability and prosperity in the area.

From the point of view of compliance with the provisions of crossing the national maritime border, the Coast Guard collaborates mainly with the General Staff of the Romanian Naval Forces within the Ministry of National Defense, together with which it uses a Complex System of Observation, Surveillance and Control at the Black Sea (SCOMAR).

In this context, our country has respected and fulfilled the duties received upon joining the European Union, but also to the future Schengen area, including the obligation assumed regarding the supervision and control at the external border of the European community.

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## **Fostering Business Internationalization and Resilience for Business and Companies: Risks and Resilience in Globalization**

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### **Abstract**

*This paper investigates and presents the importance and usefulness of building resilience in business and companies especially during the frequent processes of business internationalization. The paper describes as well the importance and role of fostering resilience as well to mitigate and deal with the possible controlled and uncontrolled risks that may occur and hit companies and business during internationalizing their products and services. The research questions are "how important is business resilience for business and companies?" and "what risks may companies and business face during their business operation and internationalization?" The used research method to fulfill this research started from an initial literature review that was conducted and developed concerning the concepts of this research. As the used method is more qualitative, in order to analyze the mutual connection between business, internationalization and resilience a case study was conducted. The results showed that fostering business resilience needs to start with business resilience model as suggest in the results to mitigate the anticipated and unanticipated risks, some of the highest unanticipated risks are cyber-attacks, geopolitical, nature disaster risks business To sum up, internationalization can be a key to expand the revenue and company's business but to internationalize, it is important to follow a business resilience model.*

**Key words:** globalization, internationalization, resilience, business, companies, risk

**J.E.L. classification:** F2, F20, F23, F60, G32, L20, L21, L24, M10

### **1. Introduction**

Internationalizing a company has become almost very necessary and mandatory, not just for large companies but for Small and Medium Sized Enterprises (SMEs) as well. The international economic flow has undergone dynamic changes and challenges in the geographical structure of internationalization. The pandemic in 2020 showed that there were major risks that caused a global economic slowdown due to the decrease in demand and the increase restrictions and lockdown measures. However, as powers compete for dominance in a new era of geopolitical upheaval, the year 2022 was very significant in terms of some major events defining the cost of the future, events such as armed conflict in Europe since world war 2 and the demonstration of friction between the US and China,...etc.

All this has led to disturbing geopolitical situations, businesses that have become familiar with unrestricted international trade, now face growing challenges like export limits. As major powers are still vying for control of the future, the risk have become something that needs fast resilience and significant measures. Geo-economic risks and conflicts are considered a major threat to companies and business at the international level, companies that move towards internationalization could face problems to resist and survive in times of risks and precisely in periods of geo-economic risks. Some other top three risks that could be a danger to economies, markets, companies and business are cyber-attacks and natural disasters as main near term risk.

Companies and business holders need enhance their resilience abilities especially when will to operate within the process of internationalization. Thus boosting enhancing resilience abilities should go through specific suitable adjusted policies to promote cooperations, frameworks, comfortable

friendly teamwork, training skills and learning opportunities, recognition of efforts. In addition to this, there should be a quality internal communication with different measures.

## 2. Literature review

The Cambridge dictionary (2023) defines resilience as the ability to be happy, successful again after something difficult or bad has happened, the ability of a substance to return to its usual shape after being bent, stretched, or pressed. (Cambridge dictionary, 2023). Resilience is the quality of being able to return quickly to a previous good condition after problems. (Cambridge dictionary, 2023).

The Cambridge dictionary defines internationalization as the action of becoming or making something become international (Cambridge dictionary, 2023). The Cambridge dictionary mentions risk as danger, or the possibility of danger, defeat, or loss. (Cambridge dictionary, 2023). A risk is the possibility that an investment will lose money (Cambridge dictionary, 2023). Internationalization involves the expansion of companies across national borders with the goal and objective of producing and selling products and services (Hitt *et al.*, 1997). Others mainly consider internationalization as a growth and business development strategy for organizations (Luostarinen, 1979). On the contrary, there are research papers that highlight that, through internationalization that companies is exposed to greater learning in social and environmental and consider that internationalization can allow them to acquire valuable knowledge from different markets that results in a substantial improvement in their social performance (Strike *et al.*, 2006). Technology and digitalization have been reshaping global business. Resilience is built over time and can be lost. Everyone can name at least one powerful company that no longer exists where the shuttered company's once strong resilience crumbled. When attending to multiple capitals, the focus is often on preserving and enhancing capitals in the current situation and into the future (Berger-Schmitt & Noll, 2000).

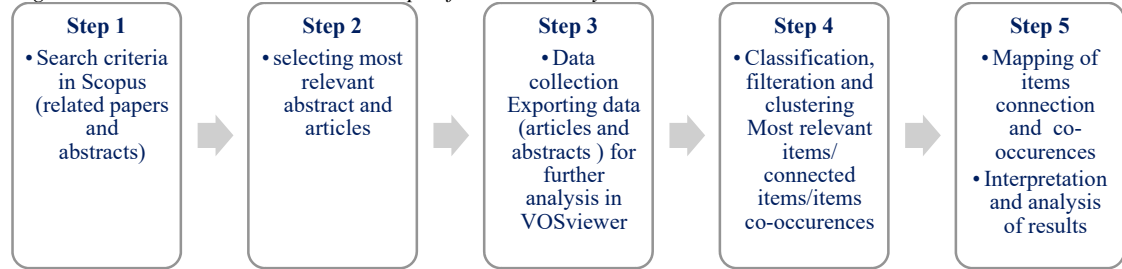
Globalization is the increase of trade around the world, especially by large companies producing and trading goods in many different countries. (Cambridge dictionary, 2023). Globalization is the development of closer economic, cultural, and political relations among all the countries of the world as a result of travel and communication becoming easy. (Cambridge dictionary, 2023). The internationalization process has the potential to render benefits to all kinds of firms. In fact, it allows for the improvement of organizational competitive advantage and business sustainability performance (Kok, 2007), and it constitutes one of the means by which SMEs can react to environmental challenges in order to survive (Freixanet *et al.*, 2020).

## 3. Research methodology and research questions

The research methodology mainly focused on a descriptive analysis of the data starting from a qualitative quantitative approach. The research questions are "*how important is business resilience for business and companies?*" and "*what risks may companies and business face during their business operation and internationalization?*" To fulfill this research an initial literature review was conducted and developed concerning the concepts of business, resilience and business internationalization, globalization and risks. As the used method can be considered more qualitative, in order to analyze the mutual connection between business, internationalization and resilience a case study was conducted using VOSviewer for bibliometric analysis that was followed by data interpretation (See figure no 1, tables no 1 and 2).



Figure no. 1. Research criteria and steps of the case study



Source: Author's design and research, 2023

#### 4. Findings

The first reasons of internationalization are related to the income size, companies and businesses want to expand their business and market size in order to have more revenue to be able to keep on growing faster. Costs are very important also within the processes of internationalization, that's why, companies try to fix their costs and try to balance their position with the fluctuation of commodities and it purchases before the production or customizing the products. There are many types of risks that are involved in internationalization and others may be uncontrolled or unanticipated such as cyber-attacks, natural disasters, geopolitical conflict..., etc. (See figure 4). However, if the company and business are geographically diversified, they can handle with the majority of risks. Companies' subsidiaries and locations in various areas, markets and countries may be alternatives to the company's area where the risk or crisis occurred. If the company is active in many more places, it will face less disruption.

If the company or business is active in many locations, customers will be able to trust it more because of its frequent and strong appearance. This is very important for the brand and services recognition since the goal of production, development, sales and various kinds of services is reach satisfaction in the market. If the company enhances its image and performance in many geographical areas, especially where customers would like to know more about its frequently developed products, its business will get more success and it will even reach more trust in markets and with customers, the thing that will be helpful and useful for its future proposals and business cooperations. Marketing is very important for the company for the company's promotion and image, it is a very important business instrument to promote services, products, sales or operations. So, it is very important for business internationalization and entering other markets but should be compatible with legislations and preferences of customers and the areas where companies operate.

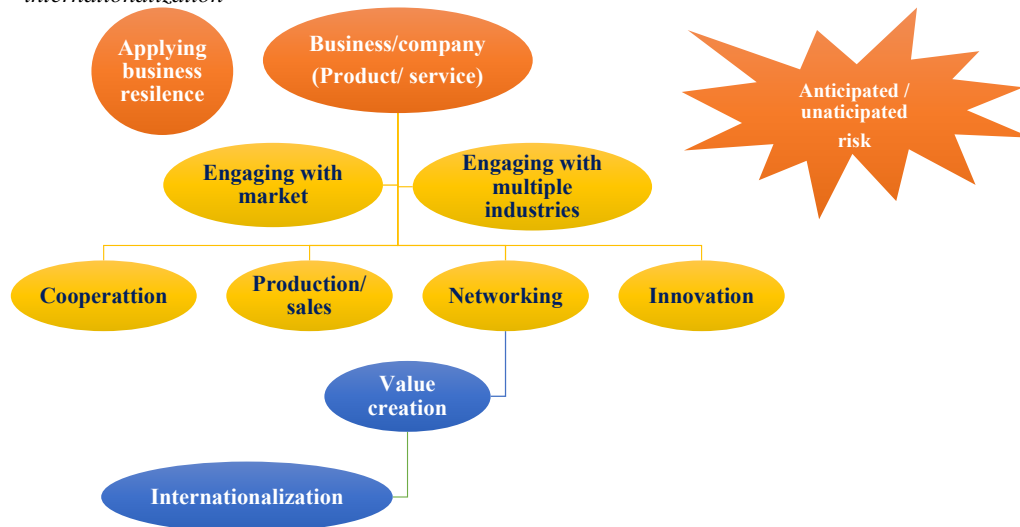
Companies need to focus on the quality and quantity of workforce and where it is better available so that it will be to extend its location in the areas where there is suitable workforce and better labor market. For business and companies, it might be better to operate where there is cheap workforce but for others it might be better to hire skilled workforce. Dealing with the workforce is not easy because when it comes to salary and conditions, it can be difficult to resist. That's why resilience is important for business existence and continuity.

Doing business from distance is different than in a based location, it is important for the company and business to be seen and able to buy its presence for more commercial opportunities as a business to business or a business to customers and clients. One of the other benefits of internationalization is the benefit of resources in other markets. There are some resources like human capital that might not be distributed equally in all countries. Some countries have a better human capital or a cheaper labor. If the company cannot find enough workforce or skills for its operations and business, internationalization would be a better option for it. The company might need to internationalize where it will need to open and promote its business operations in the new location(s). There are other important resources for internationalization such as energy resources, internationalizing in areas where commodities and energy resources are available or cheaper such oil, gas, electricity...etc. All these might be important for its continuity and revenue.

In order to create value from business companies mainly prefer to internationalize where the degree of sales is high and where customers buy more, it is important for the company and business to internationalize and trade where their products is not available or not similar. Business holders and companies should apply a business resilience model in their business to mitigate risks that could be anticipated or unanticipated during engage with multiple industries and markets. As internationalization is important to expand business, it needs to rely on business resilience to the exposed risks because it is not easy to internationalize and keep up with it especially in times of crisis.

The resilience model should touch the fields of cooperation, production, sales, networking and innovation. Through networking or one of the skills of internationalization a company may create value with resilience towards and within internationalization. (See Figure no. 2).

Figure no. 2. Creating value by avoiding risks and applying business resilience towards internationalization



Source: Author's design and research, 2023

A business risk is something that may affects the company's income and threatens its performance. However, companies, and business may identify the quality and type of risk so that I may be able to reduce its exposure to losses. The most common internal risks that a company may face are operational risks that occur from time to time where the company operates. Internal operational risks are the risks may lead to financial losses or lower profits.

Developing a risk management plan may help the company categorize risks, there is no way or full plan that eliminate risks but companies may mitigate them or get ready to face or prevent them before they occur. Companies may anticipate some risks and leave the period of crisis if it follow a resilient strategy. Crises and periods of risks may generate disruptions and breakdowns especially if we are talking about global economic crises or the various types of risks that may hit companies and business in vulnerable moments. Risks may affect also business opportunities and the potential of business internationalization beyond the borders. However, there is always the opportunity to recover, resist and innovate with resilience. In my opinion, business resilience or resilience in the field of business is the ability of a company or a business to find possible fast solutions and leave the period of risk or crisis successfully without harming its intern and extern stutcture. A company or business may go resilient at the international or local levels if it adopts the ability to respond to risks and readjust to go on the path of growth. Resilience in business and companies may be enhanced when the followings are achieved:

- a) **Resistance to pressure:** Business resilience starts from the ability of living periods of pressure as a possible positive experience. Leaders may normalize the pressure and find a way to resist or tackle it.

- b) **Resilient decisive attitude:** the midst of risks, manager and business leaders should seek possible solutions to save the revenue by consulting the decision with the team of the company and business without eliminating employees and shutting down the company.
- c) **Resilient communication:** Business holders should have a good communication with the team members in the field of business or marketplace.
- d) **Resilient work** are the ones that treat their employees with fairness and offer their comfort and opportunities so that they can prove and boost their skills before or during the risks with usefulness and motivation.
- e) **Health care:** Resilience needs to ensure the health care for both companies and employees in times of risks.

### ***Possible consequences of risks that may hit business and companies' operations***

Resilience is important to applied and boosted so that there will no major damages from the controlled or uncontrolled risks and to avoid any of their possible consequences. Some of the possible consequences that may result from the occurrence(s) of a risk companies and business may cause a production outage, a reduction in the available workforce, a possible loss of the executive team members, a probability to lose suppliers and market attraction, a possible loss of facilities and office space. (See Figure no. 3).

*Figure no. 3. Possible consequences of risks that may hit business and companies' operations*



Source: Author's design and research, 2023

Companies and business holders need enhance their resilience abilities especially when will to operate within the process of internationalization. Thus boosting enhancing resilience abilities should go through specific suitable adjusted policies to promote cooperations, frameworks, comfortable friendly teamwork, training skills and learning opportunities, recognition of efforts. In addition to this, there should be a quality internal communication with different measures.

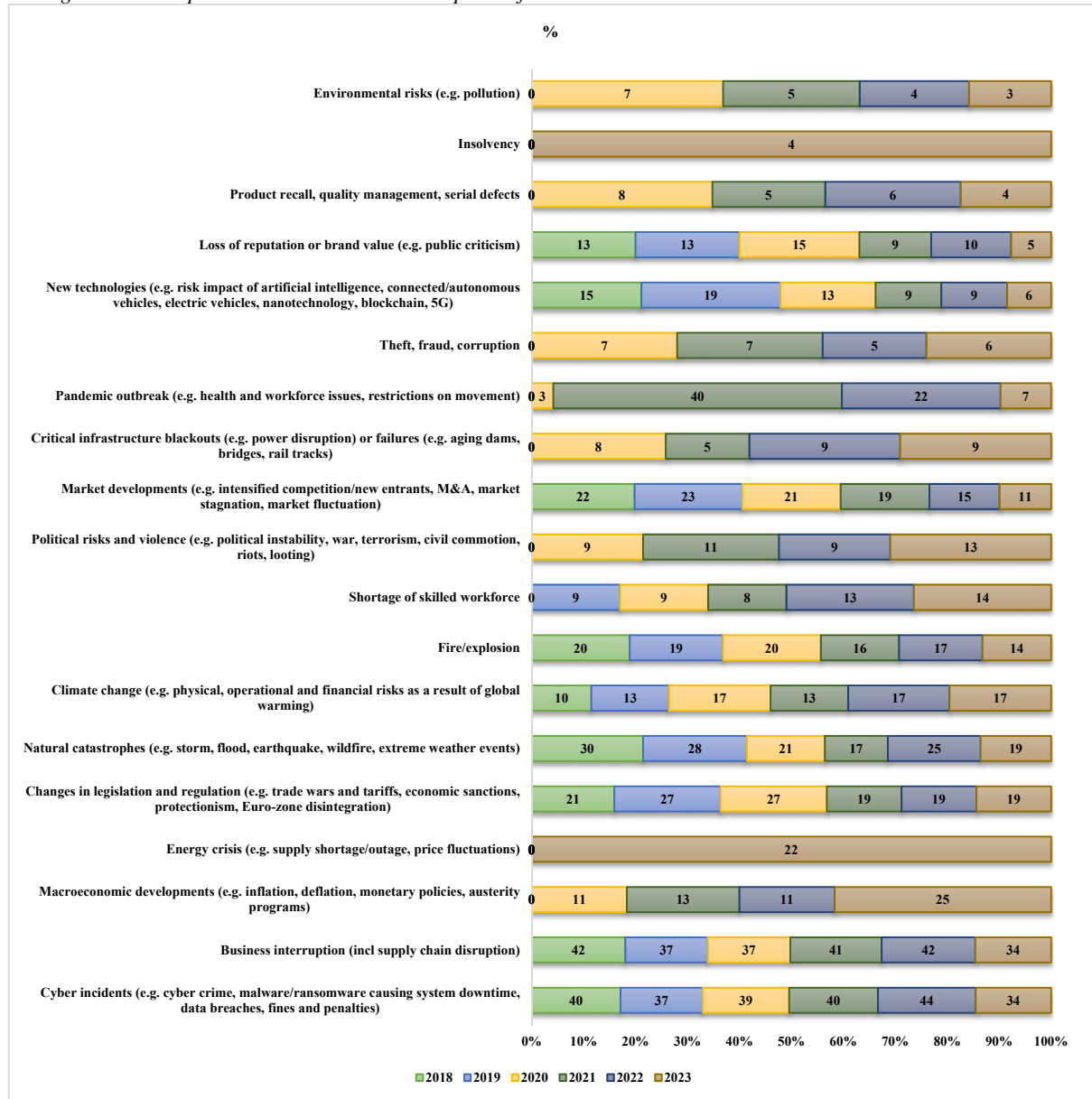
A business risk is something that may affects the company's income and threatens its performance. However, companies, and business may identify the quality and type of risk so that I may be able to reduce its exposure to losses. The most common internal risks that a company may face are operational risks that occur from time to time where the company operates. Internal operational risks are the risks may lead to financial losses or lower profits.

### ***Top risks that business and companies face at the Global and local levels***

The main global risk to business are different from time to time and from a region to another. By taking the period 2018-2023 (Q1), we may observe that Business interruption and supply chain disruption could be considered as one of the top risk at the global level for business, its level of risk varied from 42% in 2018 to 34% in 2023(Q1) but it remained high in 2022 with 42%., this is due to

factors such the global economic recession, the increase in inflation rate and the decrease in demand and the possibility of low investments. The major risk to business at the global level in 2022 was the risk of cyber incidents that was high with 44% and with a slight fluctuation from 40% in 2018. In 2021, the pandemic outbreak of 2020 was considered as a 40% high risk to business. The level of natural disaster risks including extreme weather conditions decreased from 30% in 2018 to 19% in 2023(Q1) and 25% in 2022. Furthermore, the risk of economic sanctions, wars, changes in regulations, legislations fluctuated with a slight decrease from 21% in 2018 to 19% in 2021 and 2023(Q1). Political risks and instability have increased slightly since 2018 from 9% to reach 13 in 2023(Q1). Furthermore, the risk of inflation, monetary policies and various macroeconomic developments has increased to reach 25% in 2023(Q1). (See Figure no. 4).

Figure no. 4. Top risks that business and companies face at the Global and local levels in %



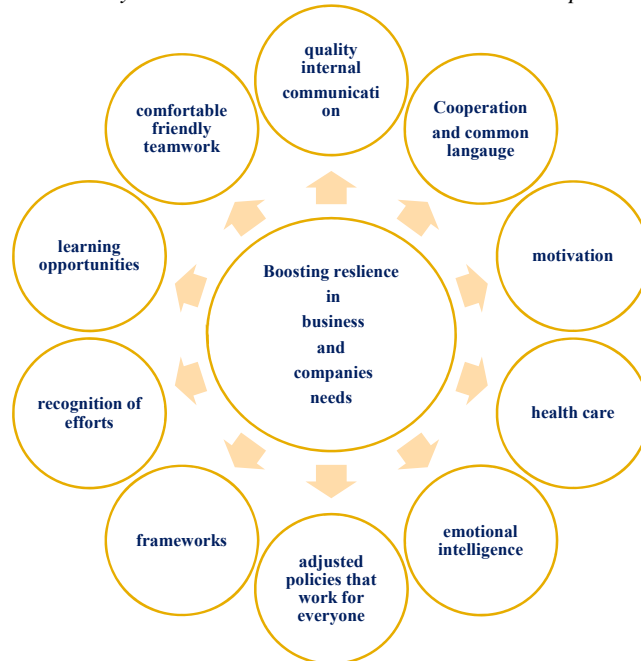
Source: Author's contribution, Statista data, 2023

### ***Enhancing resilience in business and companies within internationalization***

Business consultants have to help clients understand some of the risks that may occur and how they may provide safe measures for protection and any future cooperation or engagement. A risk is uncertainty that may impact a company's objectives and business opportunities, it has threats and opportunities. So, risk is mainly the two sides. We can respond to risks if we have time, and if the risk is emerging and the consequences are emerging very quickly as they do these days then the resilience is the way to keep and thrive business. With the speed of change ever accelerating and in uncertain times their specific risks that companies should get ready to mitigate them with a resilience model or plan or prevent them before they happen. Thus, employers should focus their attention on risks in times of internationalization and moving their business abroad. (See figures no. 3, 4 and 5).

Companies and business holders need enhance their resilience abilities especially when will to operate within the process of internationalization. Thus boosting enhancing resilience abilities should go through specific suitable adjusted policies to promote cooperations, frameworks, comfortable friendly teamwork, training skills and learning opportunities, recognition of efforts. In addition to this, there should be a quality internal communication with different measures. (See Figure no.5).

*Figure no. 5. Keys to enhance resilience in business and companies within internationalization*



Source: Author's design and research, 2023

### ***The main goals of enhancing business resilience in business and companies***

The need to internationalization and expanding business should an important occasion for companies to think about resilience in order to protect the ongoing operations and preserve revenue. Business holders and companies should focus on the way they ensure health care, security and safety. It is very important also to take into consideration securing data and proving the possible necessary services inside and outside the company and business to balance the business need with the environmental, economic and social aspects. (See Figure no. 6).

Figure no. 6. The goals of enhancing business resilience in business and company

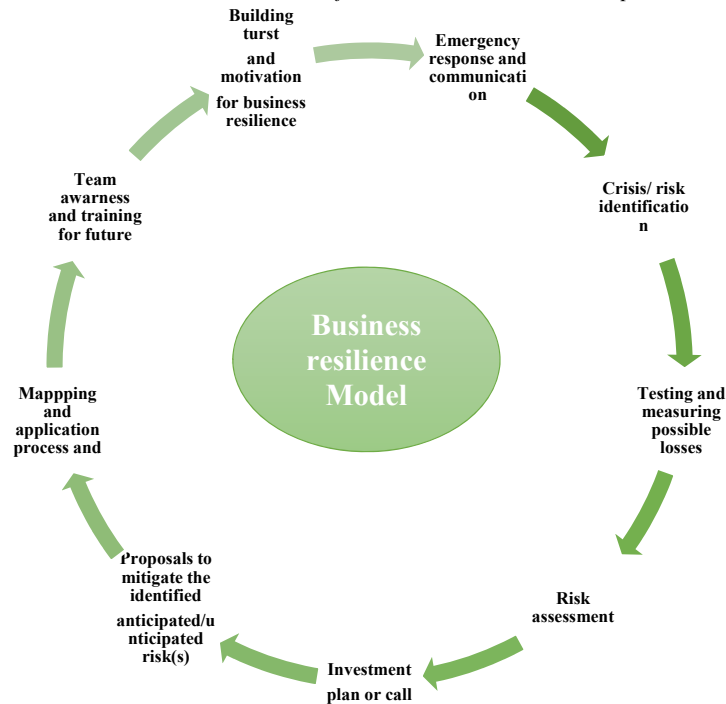


Source: Author's design and research, 2023

### ***Business resilience model for SMEs, business and companies***

Building resilience in business and companies is useful and it can be achieved and applied before and during periods of risks. Since risks can be controlled or uncontrolled, the suggested business resilience model ( figure no. 7) proves that in times of a sudden risks the business holder or company should started with an emergency response and communication and identify the risk and types of crisis, the business resilience providing that possible losses should be measure and estimated, followed a risk assessment. In order to go further with resilience, the company or business need to focus on resources and ways of investments by have an investments call or plan for emergency situations in a proposal so that it will be useful during anticipated or unanticipated risks. The company or business should map where it is urgent or need to focus on enhancing resilience by increasing awareness, providing training, building trust and motivation with and in business members and teamwork. (See Figure no. 7).

Figure no. 7. Business resilience model for SMEs, business and companies



Source: Author's design and research, 2023

### ***A business case study about the connection between business, internationalization and resilience***

30 bibliographic data (abstract and papers) were successfully extracted, the obtained collected data contain research and the keywords "business, resilience and internationalization", the data were collected and obtained from Scopus. Using VOSviewer a map based on text data could be successfully visualized by focusing on common items and the connection between business, resilience and internationalization. . (See figure 4, tables no. 1 and 2).

*Table no. 1. Bibliometric data and common links between "Business, resilience, internationalization"*

Number of relevant bibliographic data (documents)	30
Supported file types	Scopus
Fields from which terms where extracted	Abstracts/papers
Minimum number of occurrences of an item (chosen)	1
Total reached items	1400
Counting method	Full counting
Relevance score (%)	60%
Final reached items by relevance score	840
Final filtered items by relevance	93
Number of clusters	15

*Source:* Author's elaboration and research, 2023

The fields from which terms were extracted are abstracts and some papers by ignoring the structured abstract labels and copyright statements to proceed with the research. The counting method was full counting and the minimum number of occurrences of a term was chosen to be just 1. As a result, 1400 matching items could be reached. With a 60% relevance score for most relevant items, the number of final selected terms was 840 .By filtering them to reach the main words that represents the connection and common concept of "business, resilience and internationalization" by relevance. The final list of filtered matching items contains 93 and they clustered in 15 clusters. (See 4, tables no.1 and 2).

*Table no. 2 Number of clusters and final filtered items by relevance and co-occurrences*

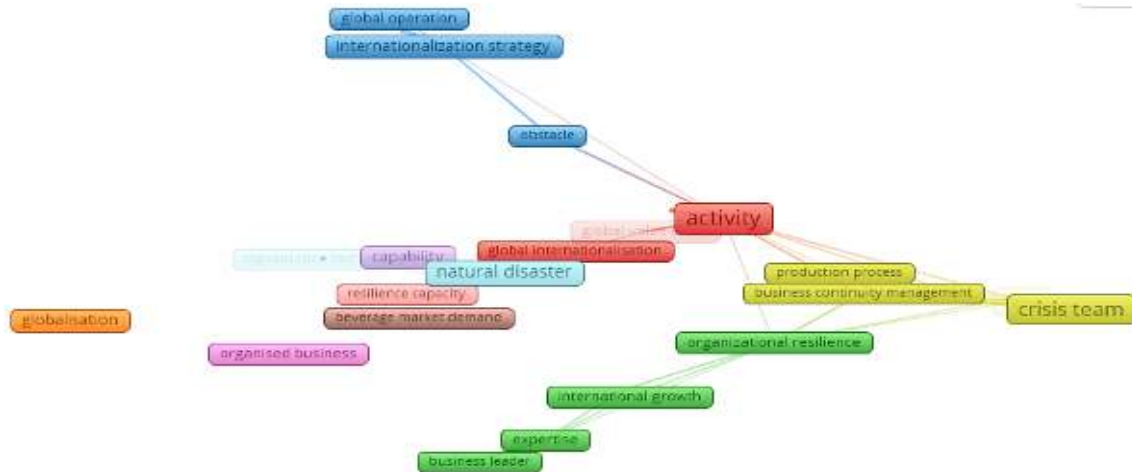
Clusters	Number of final filtered items
Cluster 1	12
Cluster 2	12
Cluster 3	12
Cluster 4	10
Cluster 5	9
Cluster 6	6
Cluster 7	6
Cluster 8	5
Cluster 9	5
Cluster 10	5
Cluster 11	4
Cluster 12	3
Cluster 13	2
Cluster 14	1
Cluster 15	1
Total: 15	Total: 93 (relevance score 60 %)

*Source:* Author's elaboration and research, 2023

There have not been so far many authors and available results about business resilience and internationalization, a few authors went through and studied studies concepts and the importance of resilience for business internationalization and companies. VOSviewer is a software for creating and visualizing maps of network data, it was suitable in this study, analysis and research to run a bibliometric analysis so the maps of common items and their co-occurrences could be successfully visualized using the relevant data. (Figure no 1 and 8).



Figure no. 8 Map of some common word between Business, resilience and internationalization



Source: Author's elaboration, 2023

Using VOSviewer and the collected data as mentioned in the methodology and tables 1 and 2, the map in figure 4 could be visualized with aim of identifying the mutual link between the three concepts business, internationalization and resilience. The clusters of the filtered items are visualized in the colours that appear on the map. By interpreting data we may say that globalization and its processes have provoked obstacles to the economic and business activities, in times of risks and crisis there should be a crisis team that follow the production process by applying the business continuity management and organizational resilience to reach international growth in the process of internationalization, moreover, the expertise of a business leader is important for the crisis team. To reach such an internationalization degree and global operations, any economic or business activity should focus on resilience capacity, a safe approach to survive a natural disaster would be supported by crisis teams and the level of resilience in employers and business holders. The visualized map represents as well the connection and co-occurrences of items from the results of a few authors that proved previously the business, resilience and internationalization need each other and for safe business and economic activities. As a result, these results are compatible with the few previous research by other authors. (See figure 4). Thus, applying resilience for companies, business and business internationalization is highly recommend and important. (See figure no. 8)

## 5. Conclusions

To sum up, applying resilience for companies, business and business internationalization is highly recommend and important. To reach such an internationalization degree and global operations, any economic or business activity should focus on resilience capacity, a safe approach to survive a natural disaster would be supported by crisis teams and the level of resilience in employers and business holders.

Some of the highest unanticipated risks for business and its internationalization are cyber-attacks, geopolitical, natural disaster risks and the risk of imitation, internationalization can be a key to expand the revenue and company's business but to internationalize, it is important to follow a business resilience model.

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## **Globalization and the Trending insights of Sustainable Business, Energy and Artificial intelligence for companies: Trends and Values**

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### **Abstract**

*This paper investigates and presents Globalization and the trending insights and values of sustainable business, energy and artificial intelligence for companies and business. The set research questions are "Has Globalization been a possible global phenomenon for sustainable business, energy satisfaction and the insights of artificial intelligence?" and "what possible trends and values may companies and business reach in times of sustainability and globalization?" The research method began with an initial literature review then in order to go further with the research; a qualitative descriptive approach together with a quantitative approach based on statistics and data interpretation and analysis were followed. The results demonstrated that sustainability is really one of the main challenging strategic opportunities of many companies and businesses. Companies and businesses need to reach values. Applying and focusing on business sustainability in times of globalization is highly important for a sustainable profit and a safe planet. Artificial intelligence has become the new ally of companies, a large number of companies and businesses are very clear that AI is the next step in their digital transformation. Traditional energy and fuels remain always the best and most used energy resources even if they used to be controversial and sources of conflicts. To sum up, companies need sustainability for their competitive advantage and long life in the markets that is why energy satisfaction and the incorporation of AI together with sustainable business models may lead to sustainable business values and more satisfaction between the customers, products and services.*

**Key words:** globalization, business, companies, AI, energy, sustainability, trends, values

**J.E.L. classification:** F20, F60, N70, O14, P28, Q1

### **1. Introduction**

A successful company has to focus on an efficient strategy for its core competency that might be a general course of set and controlled actions to determine what is the future state of what it wants to achieve. Given its core competency and position in the marketplace, the company may fix the best overall general course of action to take in order to balance its needs and profits. A core competency is the ability and level that gives the company such a competitive advantage so that it cannot be matched by competitors. The company has to seek such a strategy to create a suite of services and products, by following some tactics it may make them happen.

Globalization has brought the markets and economies together at the global level, the thing that makes it easier for companies to think about moving from an area to another to avoid product substitution, local markets and in order to gain more profit that should last for long periods so that the company and business survive in the global market if they internationalize. Moreover, moving towards the future is not easy for business no matter the size of the company that is why being sustainable may help creating business values for the business and share it with customers in times of globalization where conflicts, differences and inequalities appear at the global level may from

time to time to create gaps for business and companies. Incorporating artificial intelligence has become a competition between companies and the question of energy satisfaction is still a question for many businesses, companies and economies.

## 2. Literature review

Some recent research and studies have offered finding ways to combine the traditional aspects of sustainability with technology in business models (Alt *et al.*, 2020), and understanding how e-commerce platforms impact consumers' value perceptions and future behavior (Mileros *et al.*, 2019). A sustainable business model needs to focus on economic, social, environmental, and technological dimensions (Xue *et al.*, 2022). In fact, some studies in the literature have considered the sustainability of e-marketplaces and focused on that from the economic and social dimensions and by addressing eco-efficiency and environmental perspectives. Zhao *et al.* (2009) examined and tested Business to Business (B2B) e-marketplaces, investigating the ownership structures and market competition's impact on sustainability by going through an analysis of different related costs to the economic dimension and social welfare effects within the social dimension. Ghonaim *et al.* (2013) focused on market dynamics, strategic rules, and smart exchanges for generalized second-price auctions in e-marketplaces to boost access to economic dimension and inventory, as well as to promote transparency, self-sufficiency, and social dimension. (Ghonaim *et al.*, 2013).

According to Gaertner and Ramnarayan, (1983) firms may address latent and existing customer needs by trading off a higher profitability in the short term, in other words. By investing in long-term endeavours such production or distribution of their services. (Gaertner and Ramnarayan, 1983). The intention and desire captured in market effectiveness aim to generate and sustain measurable business growth in global value chains. Hence, the firm's aspiration is linked to market effectiveness just to design and embrace a unique model of business opportunities that emerge in global value chains (Gaertner and Ramnarayan, 1983). The resources that enable firms to gain a competitive advantage and grow their business have been a central construct in theories of the growth of the firm (Barney, 1991). If firms want to address customer needs, they should focus on their resources effectively, for instance, by offering solutions to customer problems and then firms may see their business size, sales revenues, and market shares growing. (Barney, 1991).

In business, as a whole sustainability is about doing business without any negative impacts to the society or environment. (Spiliakos, 2018). The purpose of a sustainable business strategy is to make a positive impact by addressing the environment and society as main categories. (Spiliakos, 2018). In case the business or company fails to take over responsibility the opposite may occur leading to environmental and social issues. Sustainable business focuses on a wide array of economic, environmental and social factors during making decisions by considering and monitoring the impact of their operations to make sure that short term profits do not turn to burdens or liabilities. (Spiliakos, 2018). In its broadest sense, globalization is defined as the interconnectedness and inter-relationship of all aspects of society' (Jones, 2010). More obviously than jobs created, there are jobs destroyed and the growth in the era of globalization is slower than decades before. As a result of globalization, all the growth has belonged to others, in other words globalization is much more attractive to them, but more little attractive to the rest of society. (Stiglitz, 2002). The global challenges associated with sustainability, viewed through the appropriate set of business lenses, can help identify strategies and practices that contribute to a more sustainable world and, simultaneously, drive shareholder value. (Hart and Milstein, 2003). Artificial Intelligence (AI) has gained a lot of attention from academic scholars. The Dartmouth Research Project defined AI as the problem of "making a machine behave in ways that would be termed intelligent if a human being behaved like this. (McCarthy *et al.*, 1955). Thus, AI has to be understood and defined as the ability of a system to act intelligently and to do so in ever wider regions (Nilsson, 1983), correctly interpreting external data and using these teachings to attain specific objectives and activities by a flexible configuration (Kaplan & Haenlein, 2019).

### **3. Research methodology**

The set research questions are "Is Globalization a possible global phenomenon for sustainable business, energy satisfaction and the insights of artificial intelligence?" and "what possible trends and values would companies and business reach in times of sustainability and globalization?" The research method focused on an initial literature review of the relevant literature to research topic and study then in order to go further with research a qualitative descriptive approach and quantitative approach based on statistics and data were followed with data interpretation and analysis. .

### **4. Findings**

#### **4.1. Globalization and its characteristics**

Globalization is an economic, social and political process that has transformed the world into a more connected place and has affected in various ways technological markets, commercialization and the form of communication, including industrial developments at the global level. Globalization has characteristics such as trade since it grows, the development and implementation of various free trade agreements for goods and services between countries encourage them with the purpose of expanding markets, economy and productivity. Another characteristic is foreign direct investments when companies from different countries invest or call for investments in their countries by showing that their economies are open to foreign direct investments.

Globalization focuses as well on financial flows and the main economic data that occur worldwide at the level of negotiations that usually occur between large nations and obviously it is about money converted into numerical data with the use of credit cards for example. Technology and the development of technologies have been keys in globalization and business, businesses need internet and global communication using social media for example to exchange knowledge together with information and technology. Regulatory frameworks are important in globalization, each country or company has its rules, laws and to enter the global market, the company has to meet the requirements that are observed to comply with or invest in that market or country. Globalization created a global financial system that bases on some of its instruments such as the World Bank and the International Monetary Fund that analyze the forms of financial policies at the global level.

#### **4.2. Industrial revolutions and globalization**

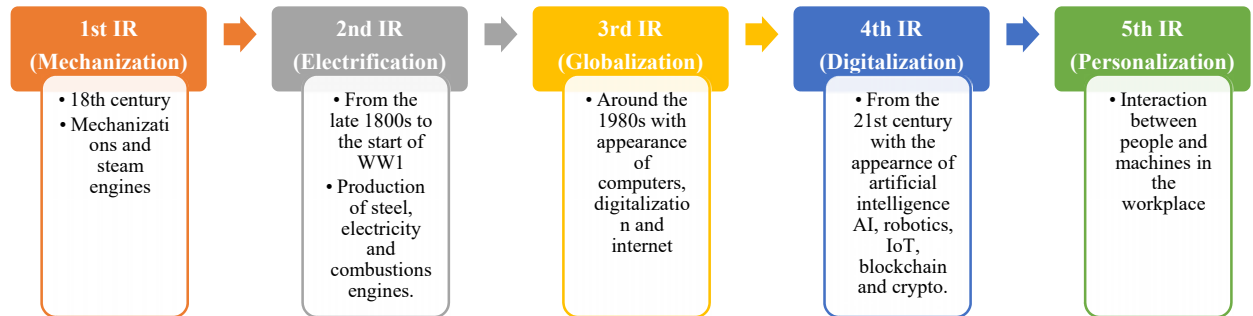
The term revolution refers to a series of profound political changes that can occur in the political, economic and social fields with changes that can occur violently and result in a new order in societies. Until the 18th century, production was mostly agricultural and artisanal, it was carried out by peasants and artisans. This situation began to change with the industrial revolution in England that came up with an increase in labor production.

#### **4.3. The evolution of industrial revolution and the appearance of Globalization**

The first industrial revolution (1<sup>st</sup> IR) used water and steam power to mechanize production and it was from the late 18<sup>th</sup> century and the early 19<sup>th</sup> century and began in Britain then spread throughout the world. The second industrial revolution was relatively from the late of the 1800s to the start of the First World War and it revolutionized and came up with the production of steel and used electric power to create mass production. The second industrial revolution (2<sup>nd</sup> IR) was another great leap forward on technology and society with new innovations in steel production, petroleum and electricity, it led even to the introduction of public automobiles and airplanes. The third industrial revolution came with sweeping changes based on computing and communication technology starting from approximately the 1980s with the creation and appearance of the first electronic computers. (See figure no.1). The third industrial revolution (3<sup>rd</sup> IR) used electronic and information technology to automate production with a lateral power in transforming energy, economy and the world characterized the appearance of globalization that started in a parallel way with it. The fourth industrial revolution continued to develop what started in the 3<sup>rd</sup> IR with a full digital revolution and

it has been characterized by the fusion of technologies that are blurring the lines between the physical, digital and biological areas. The 4<sup>th</sup> IR is completely distinct from the 3<sup>rd</sup> IR because it has simply based more on velocity, scope and systems impact. When compared with the fourth industrial revolution, the 4<sup>th</sup> is disrupting almost every industry at the global and national levels in the frames of globalization. Furthermore, the breadth and depth of these changes by the 4<sup>th</sup> IR herald the transformation of the entire systems of production, management and governance. (See figure no.1).

Figure no. 1 Globalization and the line of Industrial revolutions (IRs)



Source: Authors' design and research, 2023

The fourth industrial revolution (4<sup>th</sup> IR) as known industry 4.0 has been characterized by the fusion of the digital, biological and physical world's insights as well as the appearance and rise of new smart technologies such as artificial intelligence, cloud computing, robotics, 3D printing, the internet and wireless technologies. Moreover the 4<sup>th</sup> IR has ushered in a new era of economic disruption with uncertain economic consequences by focusing on new notions of production and consumption that should respect the appearance of sustainability patterns. The fifth industrial revolution (5<sup>th</sup> IR) as known industry 5.0 that is being step by step introduced by the fourth industrial revolution seems to be based more on the coexistence of artificial intelligence, robots and human at the work place with a direct interaction between them. The fifth industrial revolution seems to be focusing more on circular economy, sustainability and continuous recycling to tackle climate change and preserve the economy and business while addressing main needs. (See figure no.1).

#### 4.4. Business sustainability as a key opportunity for business and companies

One of the main strategic opportunities of many companies and businesses is sustainability that is considered a big challenge and opportunity for business. Sustainability is the ability to satisfy current needs without compromising the ones of future generations. Thus, guaranteeing the balance between economic growth and care for the environment and social dimensions is essential. Therefore, sustainability refers to the progress and development in the present and in the long term. If we extrapolate this concept to a business level, we are talking about establishing a strategy with a long-term vision where business decisions have to be based not only on economic issues, but also on social issues, environmental issues and ethical issues such as climate change, gender equality and diversity in all its forms. In addition to this, this strategy has to respond not only to the objectives and interests of the business itself but also to those issues or concerns that the main stakeholders may have. Companies should prioritize responsible plans and sustainable objectives for their products or services in order to measure this concept and the value contribution of the three dimensions, which are social, environmental and economic.

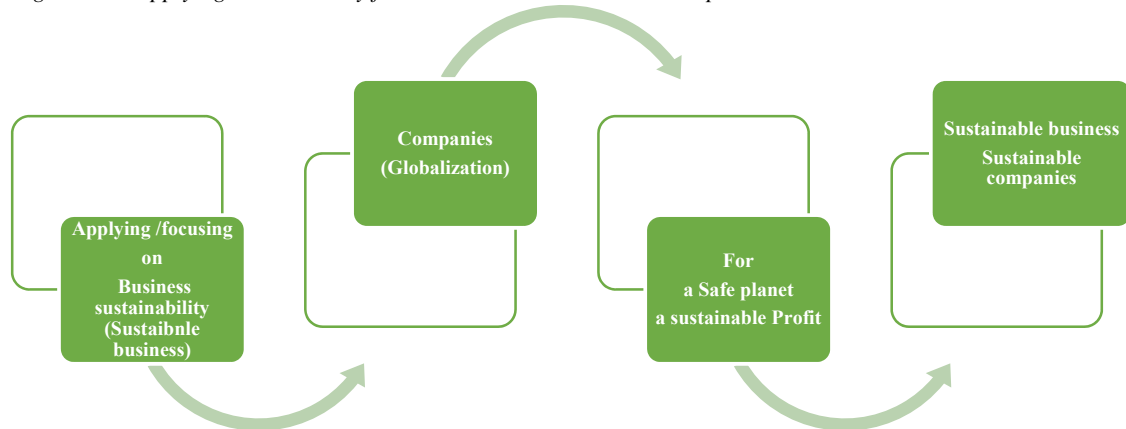
Conceptually, to be sustainable, the criteria are the same whether the business or company is a large, small or medium-sized. A company whose purpose is to generate wealth has to focus on the development or marketing of a product or service to satisfy the needs and demands of the society in a sustainable way. Therefore, any company that exists, regardless of its size, has to be sustainable in order to guarantee that wealth. Thus it will be generating the value that is expected from it. Besides, sustainability should be a backbone of the strategy of any business or any SME, not only because of an ethical or responsibility commitment but also because of the opportunities that make clear that

being sustainable can bring, such a reduction of costs, taxes, improving reputation together with trust and improving competitiveness so that the company may have even better access to financing. It is true that there are different ways of dealing with sustainable transformation and mainly SMEs. On the one hand, in a proactive way because there are companies that detect the need or see the opportunity by taking actions or acting accordingly. On the other hand, there are companies that act reactively and see sustainable business more as a risk than an opportunity. Those companies that are waiting will do nothing because it is like a fad and waiting to see if the crisis ends is not a good solution. So companies that understand the concept of sustainability and apply it know how to measure well with the corresponding metrics and results. So, they communicate it in a transparent way to the society. Sustainable companies may be truly competitive if they generate and create values towards a sustainable future no matter their size. (See figures no. 2 and 3).

#### 4.5. Trending sustainability for sustainable business and companies in Globalization

Companies and business should consider the fact that applying and focusing on business sustainability in times of globalization is highly important for a sustainable profit and safe planet so that the possibility of sustainable companies and sustainable business will be real. (See figure no.2).

*Figure no.2 Applying sustainability for sustainable business and companies in Globalization*



*Source: Author's design and research, 2023*

#### 4.6. Business, sustainability and the movement from plan to action

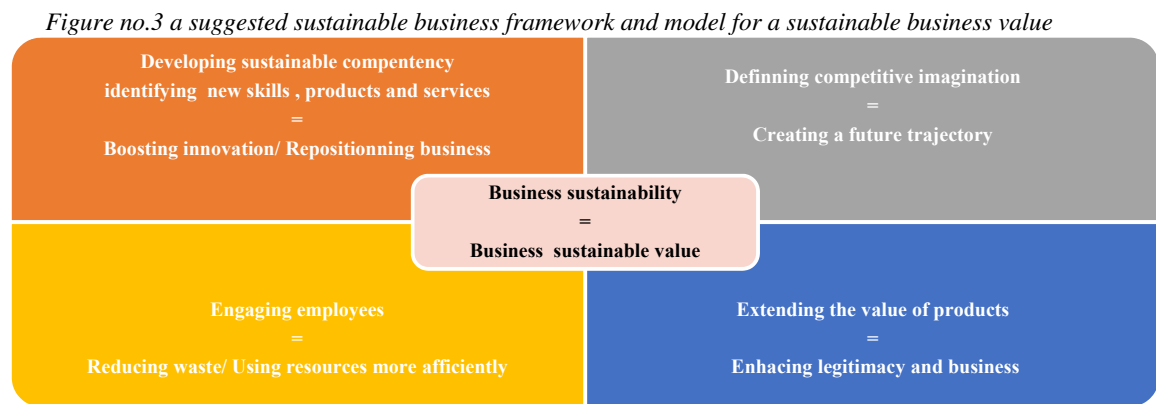
Sustainability has to be integrated into the leadership, culture and processes of business to be part of the company's results. Especially, by moving towards innovation, competitiveness and value creation, if taking actions in the right time is highly important, business sustainability and sustainable companies should consolidate the incorporation of environmental, social and good governance criteria in their activities. On the one hand, by at least increasing dialogue and cooperation with interest groups. On the other hand, by improving transparency with society. Companies should begin to have more action and more ambition in certain aspects that are critical for the evolution of people and the planet, such as, climate change. In addition to this, there should be more involvement in the fight against inequalities and much more involvement in the well-being and talents of employees. Companies need to have leaders who understand this new way of doing business, leaders who may incorporate these values into the business operations. In short, for companies to achieve more sustainability, there should be leaders who are enthusiastic, energetic to inspire or motivate all employees and the entire value chain that is part of the company's activity and to incorporate sustainability in their projects. (See figures no. 2 and 3).

Sustainability is a business opportunity if the company or business is able to create values for the company itself and for the society in a transparent manner. Not only those companies that are obliged to make sustainability reports have to tell what they do, any company no matter its size better knows how to explain the value that its product or service provides moving to more sustainable products.

So, it will be more competitive and will be in the market longer and its brand or services will be appreciated and trusted more by the entire society. (See figures no. 2 and 3).

#### 4.7. Applying sustainability in business for business values (A business sustainable model)

The multidimensional model of shareholder creation by Hart and Milstein (2003) from the executive management review (2003) demonstrates how through appropriate business strategies and practices, challenges may be converted by companies into initiative to increase shareholder value. (Hart and Milstein, 2003). By creating the sustainable business model illustrated in figure no.3 after applying the model key dimension of shareholder value of Hart and Milstein (2003) for sustainable value in business to reach business sustainable values. We observe as illustrated below in the upper-left quadrant that by developing sustainable competency and identifying new products and services, the company and business will be able to boost innovation and reposition business as business sustainable values. In the left-lower quadrant as suggested, engaging employees will help the company and business reduce waste and use resources more efficiently. The upper right quadrant makes clear that defining competitive imagination means creating a future trajectory for the company and business, whereas, by extending the value of products the company and business may enhance legitimacy and business. (See figure no.3).



Source: Author's design and research, 2023 (Following Hart and Milstein sustainable framework, 2003)

#### 4.8. Energy management, industry and business sustainability for industrial companies

The importance of doing more with less to industrial companies is extremely important, energy may represent up to one third of operating costs. So reducing energy consumption may be a key to remaining competitive but identifying when and where to cut energy can be difficult and may result in compromising production targets or even worse product quality. However, reducing or cutting energy costs may help increase productivity

#### 4.9. Energy sources and globalization

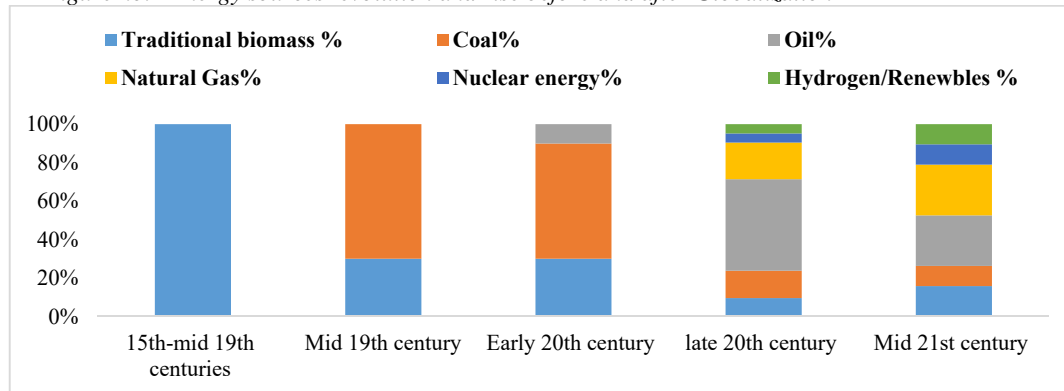
All sources of energy have limits that cannot be exceeded, the maximum rate at which the sun's photons can be converted to electrons is about 33%. Wind and solar energies work when the wind blows and the sun shines. But energy is needed all the time, that's why batteries are used even if they are made and transported from a place to another. In fact, wind and solar energies still supply less than 3% of the world's energy. Putting aside the economy, if the goal is to protect the environment, there should be always the idea of rethinking wind, solar and batteries because all machines are built from nonrenewable materials. Then there is the waste, wind turbines, solar panels and batteries have a relatively short life about twenty years. Mining itself requires massive amounts of conventional energy, as do the energy intensive industrial processes that are needed to refine the materials and then build the wind, solar and battery hardware. However, conventional energy machines like gas turbines last twice as long.



Perhaps, some companies, businesses and economies want to reconsider the inexhaustible supply of hydrocarbons or the fuels that make the global economy move with technology to easily use them every day but it is a bit controversial. It costs about the same to drill one oil well than building one giant wind turbine and while that turbine generates the energy equivalent of about one barrel of oil per hour, the oil rig produces 10 barrels per hour. It costs less than \$2 to store a barrel of oil or its equivalent natural gas. But at least \$200 of worth batteries to hold the energy contained in one oil barrel. So wind and solar energies are not the magical solutions and substitutes for hydrocarbons and the world's economy and energy needs, Traditional energy and fuels remain always the best and most used energy resources even if they used to be controversial and sources of conflicts. (See figure no.4).

Energy sources have been highly important for ages, starting from the first main energy source that used to be traditional biomass between the 15<sup>th</sup> and mid-19<sup>th</sup> centuries followed by the appearance of coal starting from the mid-19<sup>th</sup> century that could be the main dominant energy source of that era. From the early 20<sup>th</sup> century oil started to be an energy source but less available than both biomass and coal energies. But from the late 20<sup>th</sup> century oil rose to the lead with the highest demand followed by the appearance of Natural gas as a new energy source of the era and surpassed both traditional biomass and coal energies with a slight appearance of other sources such as Nuclear energy, hydrogen and renewable energies. (See figure no.4).

Figure no.4 Energy sources' evolution and rise before and after Globalization



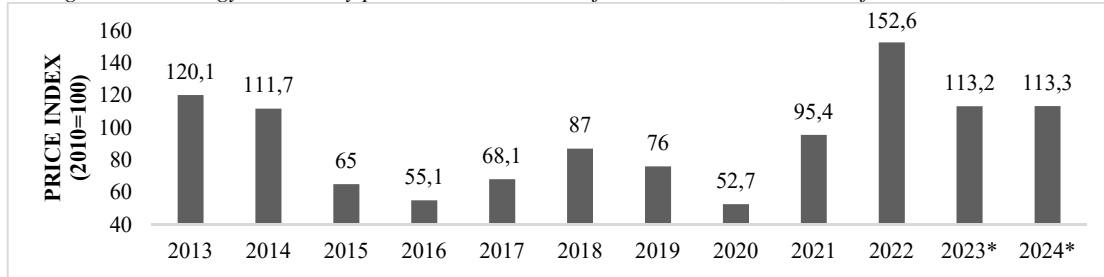
Source: Authors' research and elaboration, 2023

Starting from the Mid-21<sup>st</sup> century and so far Oil and Natural gas have been the main energy source worldwide with a fluctuation in prices and demand, the thing that made them sources of conflicts and interests in business and economy. The other energy sources such as Biomass, coal, nuclear and renewable energy have continued to exist but with a low competitive advantage, high prices or less abilities compared to both fuels Oil and Natural gas. (See figure no.4).

The energy commodity price index worldwide from 2013 to 2022 was higher in 2022 compared to the previous years and back to 2013. The high demand for commodities and fuels make them increase in price, other factors that might be even global such geopolitical conflict, global health crisis inflation and recession may affect the prices of commodities like what happened after the geopolitical conflict in 2022. Thus, in globalization, there is a lot of transmission, if something happens in any part of the world economically, socially or environmentally it may transmit to other parts of the world, the thing that make globalization suffer from some weaknesses that may affect the global economy and society by leading even to a crisis. (See figure no.5).



Figure no.5 Energy commodity price index worldwide from 2013 to 2022, with a forecast until 2024



Source: Author's contribution and research, Statista data 2023(Q1)

#### 4.10. Artificial intelligence for business and companies

Artificial intelligence (AI) has come to change everything in business by changing the world of automation, a lot of industries are completely changing and a lot of professions have started somehow to expire. AI is concerned with building intelligent machines with the potential to perform tasks that normally require human intelligence. Systems and applications that have the ability and capability of understanding human behavior, analyzing the environment and context, reasoning and learning from experience and making decisions autonomously. Artificial intelligence has entered companies, industries, commerce and business. It has been one of the four foundations of the fourth industrial revolution along with the internet, big data, cloud computing and what is called industry 4.0.

#### 4.11. Artificial intelligence in supply chains and business opportunities

Artificial intelligence is used to forecast what will be needed in the supply chain and when and what will be the optimal time to move supply. Today, artificial intelligence has become a new ally of companies, a large number of companies and businesses are very clear that artificial intelligence is the next step in their digital transformation, however there are many myths around it and high expectations.

Artificial intelligence is rather about positive analysis, pattern recognition, learning systems, virtual assistants and robotics for process automation among many other things, we can say that artificial intelligence is a system that extends in their capabilities to human capabilities and in the business world is not necessarily about replacing human work. The field of artificial intelligence is very extensive and yet some of its applications and tasks can be mentioned for business and industry as the followings:

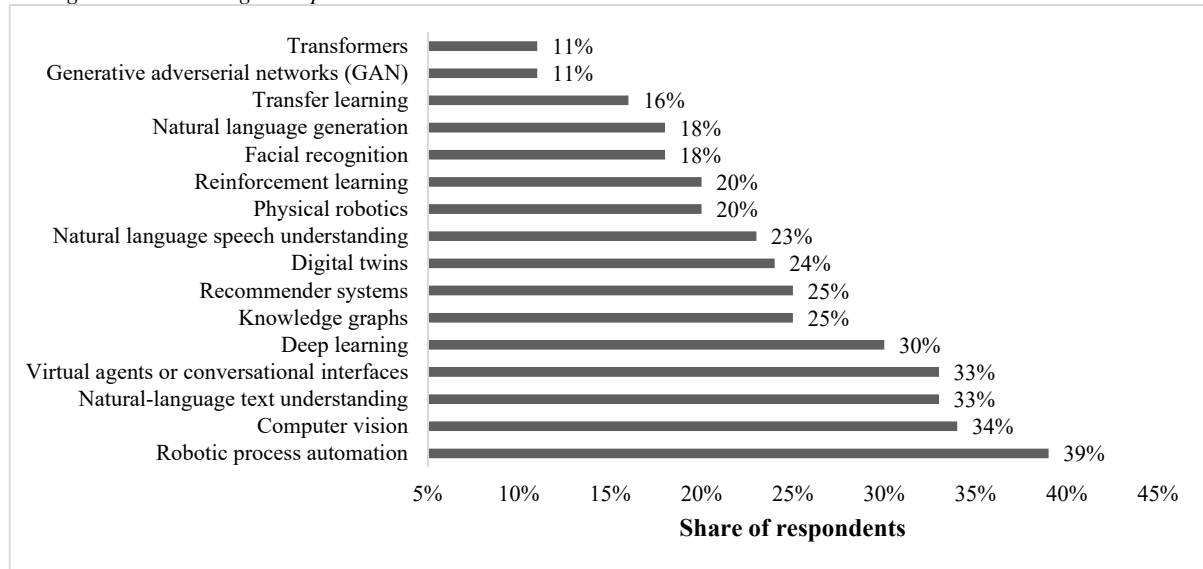
**Process automation.** Through the use of artificial intelligence there are many tasks that were previously carried out, for example, manually and can now be scheduled and carried out in less time with fewer resources and more information can be obtained than ever thought, often requiring algorithms and companies are dedicated to the management of artificial intelligence. Ai systems in business or other fields receive, organize and analyze unstructured data and convert it into useful information.

**Customer service.** In the e-commerce sector, artificial intelligence is becoming much more common so that several companies are now integrating it, for example, Chatbots into their web pages for a complete virtual assistance service offered in time. A large part of companies' efforts are focusing precisely on perfecting these digital tools with more innovation thanks to saving time in operational tasks and thanks to the integration of artificial intelligence platforms. Today companies are able to have more resources for other tasks such as innovation or creativity with a scenario where artificial intelligence systems are dedicated to more monotonous or routine tasks. It is important that companies have started to get involved in artificial intelligence with the first steps to prepare for the future.

Leading AI abilities in business worldwide in 2022 appeared more in Robotic process automation with 39% and computer vision with 34%, natural-language text understanding and virtual agents or conversational interfaces appear in lead of AI capabilities in business with 33%. That means that artificial intelligence appear to be quite useful for business. AI abilities in the business area in 2022

reached 25% in both knowledge graphs and recommender systems but for natural language speech understanding 23% and both reinforcement learning and physical robotics 20%. The lowest percentage of AI abilities includes generative adversarial networks (GAN) and transformer due to their ongoing development and maybe high costs or difficulties I reaching high results since artificial intelligence is still in progress for business in companies within the frames of globalization at the global level. (See figure no.6).

Figure no.6 Leading AI capabilities in business worldwide 2022

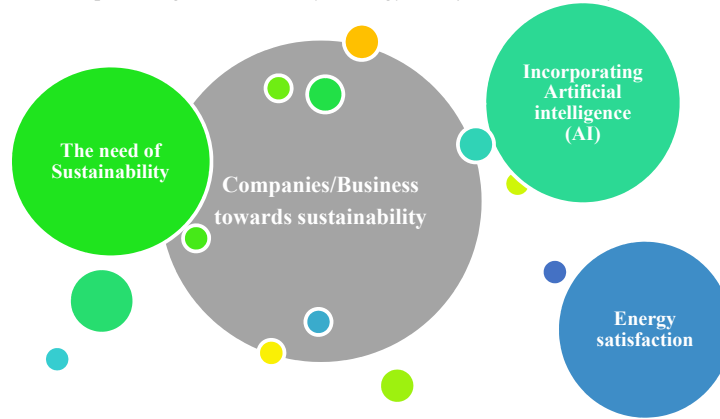


Source: Author's contribution and research, Statista data 2023(Q1)

## 5. Conclusions

International negotiations differ from their domestic counterpart by involving all three environments: domestic, foreign, and international. Human interaction is multiplying and networks are becoming increasingly denser or more saturated and it is an evolution led by globalization itself, by the growing interaction of trade, by the growth of production and by the expansion of communications. In order to reach effective markets, there must be effective states and the countries that want to benefit from globalization need to develop capabilities that are both social and economic. (See figure no.8). Today, artificial intelligence has become a new ally of companies, a large number of companies and businesses are very clear that artificial intelligence is the next step in their digital transformation, however there are many myths around it and high expectations. Perhaps, some companies, businesses and economies want to reconsider the inexhaustible supply of hydrocarbons or the fuels that make the global economy move with technology to easily use them every day but it is a bit controversial. So wind and solar energies are not the magical solutions and substitutes for hydrocarbons and the world's economy and energy needs. Traditional energy and fuels remain always the best and most used energy resources even if they used to be controversial and sources of conflicts. To sum up, globalization is a possible global phenomenon for sustainable business, energy satisfaction and the insights of artificial intelligence if the possible trends and values may make companies and business reach sustainability in business and why not a move towards sustainable globalization. Sustainability for business is a key for values and a safe planet for the next generation. Companies need sustainability for their competitive advantage and long life in the markets that is why energy satisfaction and the incorporation of artificial intelligence may lead more sustainable business values and more satisfaction between the customers, products and services. (See figure no.8).

Figure no.8 incorporating sustainability, energy satisfaction and AI for business and companies



Source: Author's design and research, 2023

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## Transition of Medical Waste Management (MWM) from Romania to the Circular Economy Paradigm: Expectations and Objective Limits

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### Abstract

*The circular economy and medical waste management (MWM) are important for protecting the environment and human health. In the healthcare sector, the circular economy can be applied by reusing medical equipment, recycling materials from medical waste and adopting more sustainable practices such as reducing energy consumption and using more environmentally friendly materials. Clearly, reusing medical equipment reduces the amount of medical waste and can reduce costs. The authors intend through this paper to address MWM in Romania within a more sustainable circular system, attempting to identify the pros and cons, as well as the limitations, of a massive shift of MWM to circular economy principles. The structure of this paper includes, following this introductory part (1): Theoretical background (2), Research methodology (3), Circular economy and the healthcare waste management system (4), Approaching healthcare waste management within a more sustainable circular system (5), Limits of the massive shift of MWM to circular economy principles (6) and Conclusions (7).*

**Key words:** medical waste management (MWM), circular economy, purpose, environmental protection, public health, support strategies/plans

**J.E.L. classification:** I18, I28, Q57

### 1. Introduction

The circular economy aims to transform the current „take, produce and throw away” economy into a sustainable economy based on the principles of „reduce, reuse and recycle”. In this way, the circular economy aims to create a more sustainable and greener world that can support society's current and future needs. Circular economy and Medical Waste Management (MWM) are closely related due to the potentially hazardous nature of these wastes to human health and the environment. The implementation of circular economy principles is essential to manage these substances responsibly. In the healthcare sector, the reuse of medical equipment and the recycling of materials from medical waste are practiced, aiming for a sustainable approach. However, it should be emphasized that such activities require special measures to protect the safety of medical personnel and the surrounding environment.

Therefore, our paper aims to highlight that by implementing sustainable practices and appropriate medical waste treatment processes, the medical sector can contribute to a more sustainable circular system.

## **2. Theoretical background**

In recent years there has been extensive research into MWM, with the results resulting in: (i) New technologies for treating medical waste, including sterilisation technologies, low carbon incineration technologies and other advanced technologies that can reduce environmental impact; (ii) Recycling of medical waste, to the extent that plastics in medical packaging can be recycled for re-use; (iii) Development of new standards and regulations, with such rules for MWM being introduced in many countries. These regulations include stricter medical waste handling procedures and environmental protection measures.

The concerns of the scientific community in Romania in developing solutions for MWM are numerous, we focus only on a few that have relevance for the development of sustainable and efficient solutions for MWM (Mihai, 2020; Platon et al., 2020; Bungau et al., 2016, 2020; Fodor et al., 2018; Roman & Bostan, 2020; Besciu & Androniceanu, 2015; Stan, 2022; Hurjui, 2016). Overall, research of this kind is a valuable resource for healthcare and MWM professionals, leading to significant improvements in how this waste is managed and treated.

However, it is important to continue the search for new and more effective ways to protect the environment and human health through MWM.

## **3. Research methodology**

Our paper, beyond investigating several scholarly works focused on similar themes to the one we are addressing („Transition of Medical Waste Management (MWM) from Romania to the Circular Economy Paradigm: Expectations and Objective Limits”), also involves the study of several recent reports produced by Romanian authorities and non-governmental organisations addressing issues related to MWM in Romania. These include the European Commission's MWM Country Report 2020 (EC, 2020), including an analysis of the MWM situation in Romania and the progress made. The National Agency for Environmental Protection has also developed the Best Practice Guide for MWM in Romania, which includes recommendations and guidelines on the safe classification, handling, transport and storage of this material.

At the same time, the legislative framework was also investigated: Law no. 211/2011 on the waste regime, Government Decision no. 856/2002 on waste management records and for the approval of the list containing waste, including hazardous waste, Government Decision no.1061/2008 on the transport of hazardous and non-hazardous waste on the territory of Romania, etc.

According to these regulations, medical waste must be collected separately from other types of waste and transported and treated appropriately to prevent the risk of environmental and human contamination. In addition, medical institutions and other entities producing medical waste are obliged to keep records of such waste and report regularly to the competent authorities on the quantities generated.

## **4. Findings**

### **4.1. The circular economy and the healthcare waste management system**

As the following shows, the healthcare sector is able to contribute to a certain extent to a more sustainable circular system if the concepts and principles of the circular economy are taken into account. The aim of the circular economy - clearly oriented towards eliminating the idea of „waste” and encouraging the use of resources in a more efficient and sustainable way - is to create a sustainable economic model that minimises environmental impact, reduces resource waste and encourages innovation (Figure no. 1).

Figure no. 1 Circular economy diagram

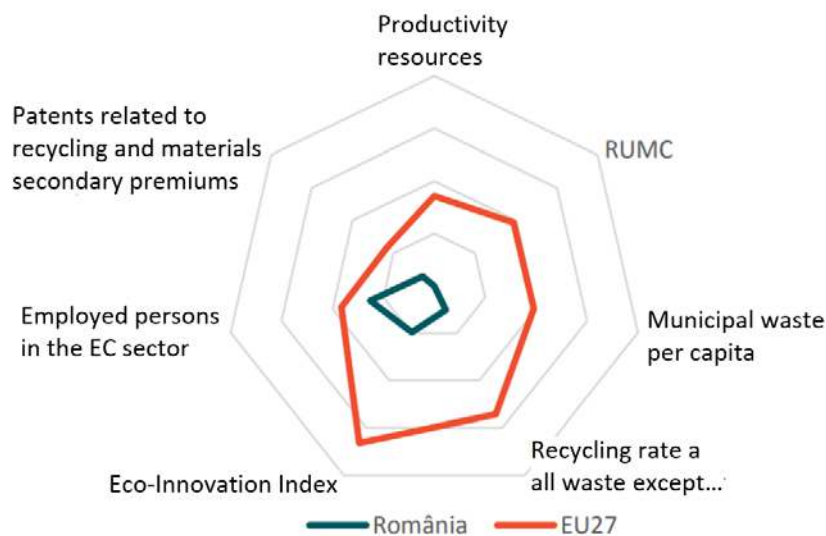


Source: <https://www.slideteam.net/circular-economy-diagram-presentation-outline.html>

In fact, the circular economy focuses on reducing resource waste through a system where materials are used, reused and recycled in a continuous way. In this system, products are designed and manufactured in such a way that their components can be reused or recycled, and materials are collected, treated and returned to the production cycle.

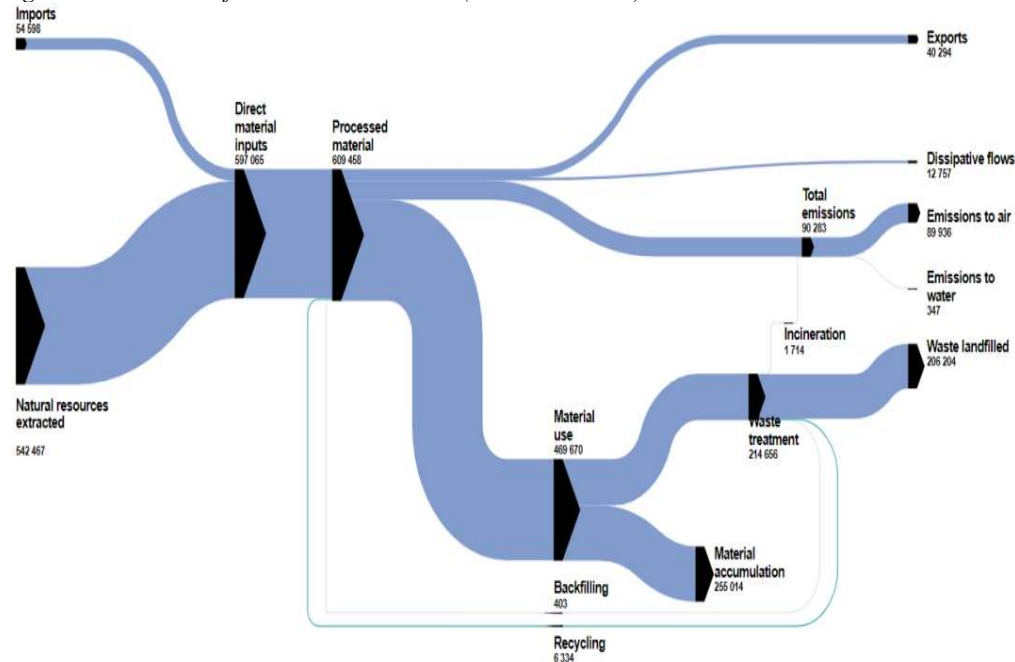
It must be said that Romania's performance in terms of circular economic indicators is modest, being below the average of EU Member States (Figure no. 2), despite the existence of an appreciable flow of materials in Romania, 2020 (Figure no. 3).

Figure no. 2 Assessment of circular economy indicators in Romania



Source: [https://sgg.gov.ro/1/wp-content/uploads/2022/08/Strategia-economie-circulara\\_18.08.2022.pdf](https://sgg.gov.ro/1/wp-content/uploads/2022/08/Strategia-economie-circulara_18.08.2022.pdf)

Figure no. 3 Material flow in Romania, 2020 (thousand tonnes)



Source: [https://sgg.gov.ro/1/wp-content/uploads/2022/08/Strategia-economie-circulara\\_18.08.2022.pdf](https://sgg.gov.ro/1/wp-content/uploads/2022/08/Strategia-economie-circulara_18.08.2022.pdf)

In 2019, Romania had the lowest resource productivity (ratio of gross domestic product to domestic consumption of materials) among EU Member States (0.7851 EUR/kg); the material utilisation rate (RUMC, which measures the contribution of recycled materials to total material use) was 1.3%, compared to the EU average of 12.8%<sup>38</sup> (RG, 2022).

In relation to the healthcare sector, we show that it generates a significant amount of waste, which can be more hazardous to human health and the environment than other categories of waste. These include „pathological waste and anatomical parts, infectious waste, sharps waste, chemical and pharmaceutical waste and radioactive waste. A special type is also amalgam waste used in dental surgeries.” (ECOSYNERGY, 2021). The picture below is illustrative of this (Figure no. 4).

Figure no. 4 Current waste from the hospital sector



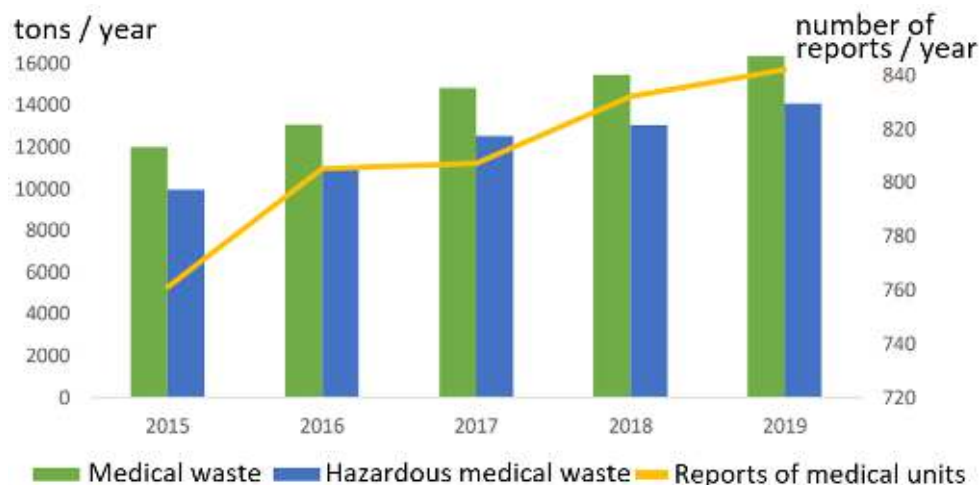
Source: Authors' processing



The processing of medical waste is carried out by specialised operators with incineration and thermal treatment facilities; the breakdown by type of processing of hazardous medical waste shows that in the case of hazardous medical waste, the thermal decontamination method is more widely used (55%), while in the case of non-hazardous medical waste, burning predominates (CC, 2021). It should be noted that in Romania in 2018 there were 11 hazardous waste zonal incinerators, 14 thermal decontamination treatment stations and 23 functional treatment equipment in health care facilities (MIPE/2022).

Focusing on the period 2015-2019, based on the reports of medical units to the National Institute of Public Health, we observed an increase in the total annual amount of medical waste in Romania, including hazardous waste (Table no. 1), which is the majority of the total medical waste (Figure no. 5).

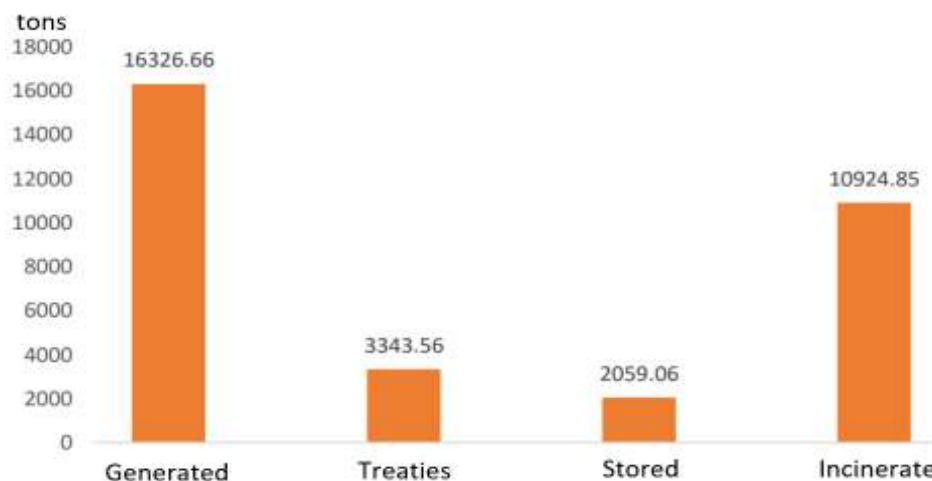
Figure no. 5 Total amount of medical waste and hazardous medical waste (2015-2019)



Source: <https://mfe.gov.ro/wp-content/uploads/2022/07/e1265341ee7e708dbec5838bfa0ef29c.pdf>

The breakdown by type of processing of the resulting medical waste (16.3 ton/2019) shows that burning predominates (Figure no. 6).

Figure no. 6 Quantities of healthcare waste and how it is processed (2019)



Source: <https://mfe.gov.ro/wp-content/uploads/2022/07/e1265341ee7e708dbec5838bfa0ef29c.pdf>



As of 2020, the first in the series of years marked by the Covid-19 pandemic, it is estimated that more than 20,000 tons of medical waste from state and private hospital units have resulted in Romania (ECOBURN, 2020). In that year, „Surgical masks, gloves, personal protective equipment, plastic bags, the Covid-19 crisis stimulated a rapid expansion in the production of plastic products generated by the almost desperate need of governments to secure stocks of these items needed by the medical system and the population. Thousands of tonnes of used products have choked recycling chains and processing facilities overwhelmed by this tsunami of waste. Their disposal is already a serious problem facing the authorities.” (Guță, 2020). As regards the breakdown by type of processing of the resulting medical waste after 2020, the proportions concerned have not changed significantly, even though the volume of such waste is increasing (MIPE/2022).

In the context of the circular economy and the above, it should be noted that the healthcare sector can contribute more to creating a sustainable circular system by adopting more sustainable practices in MWM, helping to protect the environment.

Ways in which the healthcare sector can contribute to creating a more sustainable circular system are: (i) Reducing resource consumption - by using sustainable equipment and products, as well as reducing packaging and waste; (ii) Reusing certain medical equipment through sterilisation, thereby reducing medical waste and costs; (iii) Recycling materials from medical waste, creating new products; (iv) Reducing energy consumption and using more environmentally friendly materials.

#### **4.2. The MWM approach in a more sustainable circular system; existing limits**

A circular system for MWM can help minimise waste and maximise resource recovery. This system can be structured in four stages: (1) collection; (2) treatment; (3) recycling; (4) reintroduction of recovered materials into the economy.

1. *Collection* – is the responsibility of specialist MWM operators equipped with appropriate equipment and vehicles, involving the collection, packaging, labelling, transport and safe disposal of waste in accordance with applicable regulations.

2. *Treatment* – aimed at minimizing the impact on the environment and preventing the spread of diseases – through incineration, sterilization, disinfection, etc.

3. *Recycling of medical waste materials* – aims to maximize resource recovery. The activities in question include transforming waste into new products or using it to produce energy. Obviously, not all medical waste can be effectively recycled (there are risks associated with handling sharps, etc.).

4. *Reintroduction of recovered materials into the economy* - involves directing them into new products or using them as energy resources.

In order to implement a circular system for MWM, it is important that medical staff are properly educated and trained on sustainable practices and waste management processes. Equally, local authorities have a key role to play in MWM, as they need to ensure that medical waste is collected, transported and treated in a safe and efficient way.

##### *Limits of MWM's massive shift to circular economy principles*

A high degree of transition of MWM to the principles of the circular economy is difficult to achieve. MWM is very strictly regulated in most countries as they can contain hazardous and toxic substances that can affect the environment and human health.

The transition to which we refer may face several barriers and limitations, including:

- *Technical limitations.* There are technologies available to treat medical waste, but these are not always efficient and may require large investments in infrastructure and specialised equipment. In addition, these technologies may require skilled and specialised personnel to manage.

- *High costs.* Disposal of medical waste can be costly and difficult to justify for some companies or medical institutions. In addition, the investment required to implement zero waste practices can be high and significant change to existing work processes may be required.

- *Lack of cooperation.* Moving to the circular economy requires cooperation between multiple stakeholders such as hospitals, waste management companies and local authorities. Without proper cooperation, this process can be slowed down.

- *Incomplete information.* Currently, there is a lack of comprehensive data and information on the quantity and quality of medical waste produced. This can make it difficult to plan and develop appropriate circular economy programmes.

- *Public perception.* There are concerns about the risks associated with recycling or reusing medical waste and this may influence public perception of the circular economy approach in this area.

Overcoming these barriers requires a coordinated and collaborative approach between authorities, industry and the public. It is also important to develop the necessary infrastructure, provide comprehensive and up-to-date information and address public perceptions through education and awareness.

## 5. Conclusions

Moving to a circular economy for medical waste can be difficult, but it is very necessary to reduce its negative impact on the environment and human health. As presented in the paper, the circular economy brings multiple benefits for humans, the environment and society as a whole. However, for reasons specific to the healthcare sector, it is difficult to achieve a mass scale transition of MWM to circular economy principles. The main limitations identified by us relate to the fact that the field is very strictly regulated in most countries, as medical waste can contain hazardous and toxic substances that affect the environment and human health.

Some barriers are related to the technologies available to treat medical waste, which are not always efficient and require large investments. Beyond the high costs involved, there is a lack of proper cooperation between multiple stakeholders - hospitals, waste management companies and local authorities. In addition, there is a lack of comprehensive data and information on the quantity and quality of medical waste produced, with negative effects on the planning and development of appropriate circular economy programmes, and a public concerned about the risks associated with recycling or reusing medical waste.

To overcome these barriers, it is important to have a strong commitment from healthcare organisations and governments, and to develop the infrastructure and technologies needed to treat medical waste in an efficient and sustainable way.

Starting from the *limitations shown*, which, however, as time goes by, we believe will be mitigated, but also from the fact that our work does not have a solid statistical apparatus, therefore, we will focus *our future research* on the same topic, but we will try to overcome these limits indicated here.

In particular, we intend to develop comparative approaches, referring to specific indicators found in other countries and to good practices in this field.

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## The Impact of Regional Development on the Environment

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### Abstract

*Regional development policies and strategies are integral to the socioeconomic progress of nations. However, the environmental implications of such initiatives are equally significant. This paper assesses the environmental impact of regional development, exploring both the challenges and opportunities, and underscores the need for a sustainable, integrated, and inclusive approach.*

*Specifically, we delve into changes in land usage, levels of pollution, biodiversity, and the state of natural resources, correlating these factors with economic development and regional integration. Furthermore, the discourse extends to identify and analyze sustainable development policies and strategies that hold the potential to alleviate the adverse environmental impacts resulting from these processes.*

**Key words:** regional development, environmental impact, sustainability, policy, integration, globalization

**J.E.L. classification:** K32, K33, K38

### 1. Introduction

The world has witnessed unparalleled regional development over the past few decades, driven by factors such as rapid urbanization, industrialization, and globalization. While these advancements have undeniably contributed to socio-economic upliftment, they have simultaneously spurred significant environmental implications. Thus, there is an increasing need to understand the interplay between regional development and environmental impact (Barrett, 2003, p.23).

In the backdrop of today's rapidly evolving global landscape, regional development and global integration are constant, influential forces. These dynamic processes, while offering a multitude of economic and societal advantages, simultaneously pose considerable challenges to the environment. The repercussions of this transformative growth pattern extend across various facets of the environment, including alterations in land use, escalating pollution levels, a decline in biodiversity, and pressure on natural resources (Sands and Peel, 2012, p.27).

The urgency of these environmental concerns necessitates an in-depth understanding of their nature, origins, and implications. Accordingly, this paper aims to probe the multifaceted impacts induced by regional development and global integration. It dissects the environmental consequences within a specific region, providing a focused analysis of the local repercussions of broader, global processes (Braşoveanu, 2013, p.88).

Land use patterns are inherently tied to the trajectory of regional development, with notable transformations accompanying economic expansion and globalization. Similarly, pollution - in its varied forms - reflects the environmental cost of industrial advancement and economic growth. In this paper, we examine these elements in the light of regional development and global integration, assessing their environmental implications (Sands and Peel, 2012, p.27).

Biodiversity and the health of natural resources are fundamental to environmental stability, yet they are profoundly affected by regional development. By exploring these impacts, we can elucidate the complex interplay between development, integration, and environmental preservation. Furthermore, understanding these impacts can pave the way towards formulating effective strategies to counteract these effects, bringing sustainable development policies into sharper focus.

Consequently, this paper also delves into the realm of sustainable development, exploring its potential role in mitigating the environmental impacts of regional development and global integration. By probing various policies and strategies geared towards sustainability, we aim to identify pathways to harmonize economic progress with environmental preservation (Barrett, 2003, p.23).

Through this comprehensive exploration, the paper aims to contribute meaningful insights to the discourse on regional development, global integration, and environmental sustainability. The objective is not only to dissect the problem at hand but also to foster conversations about viable, sustainable solutions for the same (Kiss and Shelton, 2007, p.27).

Rapid regional development has profound implications on the environment, often leading to degradation and loss of biodiversity. This paper seeks to analyze the role of regional and national legislation and legal institutions in addressing the environmental impact of regional development. The aim is to assess their effectiveness and highlight potential gaps and challenges in implementation (Braşoveanu, 2013, p.88).

## **2.Theoretical background**

The principles of sustainable development serve as the theoretical backbone for this analysis. The Brundtland Report (1987) and subsequent research in the field (Sachs, 2015; Steffen, 2015) have highlighted the crucial role of legislation in moderating the environmental impact of regional development, forming the theoretical basis for this paper.

Firstly, it is essential to mention the concept of sustainable development, defined by the World Commission on Environment and Development in the Brundtland Report as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 1987). This concept has been expanded and consolidated in scholarly literature, encompassing not just economic and environmental aspects, but also social and cultural ones (Sachs, 2015).

Another key theoretical framework of reference is the Regional Development Theory, which highlights how economic, political, and social factors influence development in a specific region and its ensuing impact on the environment (Storper, 1997). This theoretical framework can provide a deeper understanding of the driving forces behind the observed changes in the regional environment.

Moreover, the model of Global Integration, which emphasizes how increasing interconnectedness and interdependence among countries and regions can influence development and its environmental impact, plays an essential role in this analysis (Scholte, 2005).

To better understand the link between regional development and environmental impact, it is helpful to refer to the Modern Ecological Theory. This theory emphasizes that human pressure on the environment is the direct result of population, affluence (measured by GDP per capita), and technology (Ehrlich and Holdren, 1971).

On the other hand, the Ecological Transition Model (Marten, 2001) is another relevant theoretical framework, suggesting that a society's environmental impact goes through certain stages as it develops. This model can provide insight into how sustainable development policies can be directed.

By incorporating these theoretical models into our analysis, we hope to provide a comprehensive perspective on how regional development and global integration influence the environment and how this influence can be directed towards a more sustainable path.

## **3. Research methodology**

The research utilizes a mixed-method approach, incorporating a review of existing legislation and legal institutions, complemented by analysis of quantitative data on environmental indicators. Case studies on specific regions will be used to illustrate the practical implications of the legislation.

## 4. Findings

Findings suggest that regional and national legislation can significantly influence the environmental impact of regional development. However, the effectiveness of these laws and institutions varies based on factors like public participation, enforcement capacity, and integration of sustainability into broader policy frameworks. The European Union's Green Deal and Germany's Federal Nature Conservation Act are notable examples that demonstrate the potential and challenges of implementing effective environmental legislation.

### 4.1. Environmental Challenges

Rapid regional development often precipitates a myriad of environmental challenges. Extensive urbanization and industrialization, which form the backbone of development, are frequently accompanied by environmental degradation, biodiversity loss, and increased greenhouse gas emissions. Furthermore, the acceleration of developmental activities can lead to resource overuse, threatening ecological balance and sustainability (Kiss and Shelton, 2007, p.27).

Rapid regional development often begets significant environmental challenges. Urbanization and industrialization, which are integral facets of regional development, inevitably trigger environmental degradation, biodiversity loss, and escalate greenhouse gas emissions. Furthermore, the strain of rapid development on natural resources often results in over-exploitation, threatening long-term ecological sustainability and resilience (Braşoveanu, 2015, p.18).

The advent of industrialization and rapid regional development presents a series of escalating environmental challenges that require comprehensive analysis and strategic mitigation (Brown, 2014, p.30).

**Land Use Changes:** The drive for economic expansion often results in significant changes in land use patterns. Forest lands are frequently converted into industrial areas or urban spaces, thereby leading to habitat destruction and loss of biodiversity. These changes in land use significantly alter the balance of ecosystems and contribute to global issues such as climate change due to increased CO<sub>2</sub> emissions from deforestation (Clark and Munn, 1986, p.29).

**Increased Pollution:** The intensification of industrial activities, transportation, and urbanization processes associated with regional development leads to an increased release of pollutants into the environment. Air pollution from the burning of fossil fuels, water pollution from industrial effluents, and soil contamination due to inappropriate waste disposal methods are some of the pressing challenges that accompany regional development (Kiss and Shelton, 2007, p.27).

Urbanization and industrialization frequently accompany rapid regional development. While they are vital for economic growth, they also lead to significant environmental issues such as air, water, and soil pollution, biodiversity loss, and resource depletion (Dură and Mititelu, 2014, p.28).

As regional development accelerates, it creates an increased demand for resources, often resulting in overexploitation. This overuse, whether it be of land, water, or other resources, can result in environmental degradation, loss of biodiversity, and eventually, the undermining of the very economic development it supports (Aivaz *et al*, 2021, p. 156).

**Decline in Biodiversity:** The high rate of habitat alteration and destruction, along with pollution, overexploitation of species, and introduction of invasive species, all contribute to a rapid decline in biodiversity (Clark and Munn, 1986, p.29).

**Resource Depletion:** The accelerated rate of resource extraction for supporting regional development results in a decrease in natural resources, including minerals, fossil fuels, and water bodies. Overexploitation of these resources can lead to their depletion, threatening the sustainability of ongoing development efforts and leading to potential socio-economic crises (Dură and Mititelu, 2014, p.28).

**Climate Change:** The impacts of climate change, such as changing weather patterns, sea-level rise, and increased frequency and intensity of extreme weather events, further exacerbate environmental challenges.

Addressing these environmental challenges necessitates the integration of sustainable practices into regional development strategies. Efforts should be directed towards promoting resource efficiency, pollution prevention, biodiversity conservation, and climate change mitigation, to ensure

that regional development aligns with the principles of environmental sustainability (Căzănel, 2019, p.7).

Opportunities for Sustainable Development: Despite these challenges, regional development also presents a unique opportunity to promote environmental sustainability. The adoption of "green" technologies, eco-friendly policies, and sustainable practices can not only mitigate the adverse environmental impacts but also contribute to further economic growth. For instance, investments in renewable energy sources and sustainable urban planning can reduce carbon footprints while simultaneously creating jobs and stimulating economic activity (Stan, 2022, p.172).

#### **4.2. Integrated and Inclusive Approach**

To reconcile the often-competing objectives of development and environmental sustainability, an integrated and inclusive approach is paramount. This requires embedding environmental considerations within the regional development planning process, promoting stakeholder engagement, and facilitating knowledge sharing on best practices. Furthermore, regional development strategies should incorporate environmental impact assessments to evaluate potential implications and identify mitigation measures (Dură, 2013, p.7).

Addressing the environmental impact of regional development requires an integrated and inclusive approach, which combines ecological, economic, and socio-political dimensions. The following components are integral to such an approach:

1. Sustainable Development: Central to this approach is the concept of sustainable development, which aims to meet the needs of the present without compromising the ability of future generations to meet their own needs. This involves the integration of environmental concerns into economic and development policies, promoting resource efficiency, and transitioning towards a green and circular economy (Sands and Peel, 2012, p.27).

Contrary to the challenges, regional development also offers unique opportunities to champion environmental sustainability. The integration of "green" technologies, eco-friendly policies, and sustainable practices into the development agenda can significantly mitigate the adverse environmental impacts and open new pathways for economic growth (Clark and Munn, 1986, p.29).

The incorporation of green technologies and sustainable practices into regional development plans can lessen the environmental impact and contribute to long-term sustainability. Renewable energy investments, green building practices, and sustainable urban planning can reduce carbon footprints, create jobs, and stimulate economic activity (Brundtland, 1987, p. 27).

Sustainable practices in areas such as agriculture, manufacturing, and transportation can help reduce environmental harm. Examples include the adoption of organic farming methods, implementation of circular economy principles in manufacturing, and promotion of public transportation or electric vehicles (Adger, Neil and Jordan, 2009).

An integrated and inclusive approach to regional development, which embeds environmental considerations at every stage, can facilitate the transition towards sustainable development. This entails engaging stakeholders, promoting knowledge sharing, and ensuring that environmental impact assessments are incorporated into all development projects (Dură, 2018, p.54).

2. Environmental Impact Assessment (EIA): An EIA is a tool used to identify the environmental, social, and economic impacts of a project or development proposal. EIAs can help in decision-making by providing information on how to minimize a project's negative environmental impacts, enhance positive impacts, and compensate for any unavoidable damage (Căzănel, 2017, p.579).

3. Public Participation: Involving local communities, stakeholders, and the public at large in decision-making processes is crucial for sustainable regional development. Their local knowledge, perspectives, and interests can help shape development strategies to be more context-specific, equitable, and sustainable (Marin, 2019, p.230).

4. Policy Integration: Environmental considerations should be integrated into all aspects of policy-making, from regional planning and infrastructure development to economic policies and social welfare schemes. This requires cooperation and coordination among various sectors and levels of government (Stan, 2022, p.172).

5. International Cooperation: Given that environmental challenges often transcend national boundaries, international cooperation is vital. This can be facilitated through the sharing of knowledge, technology transfer, financial assistance, and global governance mechanisms.

By implementing an integrated and inclusive approach, we can ensure that regional development proceeds in a manner that respects the ecological boundaries of our planet, promotes economic prosperity, and advances social equity. It offers a path towards a future where development and environmental sustainability go hand in hand (Braşoveanu, 2013, p. 89).

#### **4.3. Legal solutions to mitigate the impacts of regional development on the environment**

- Strengthening Environmental Legislation: It is essential for national, regional, and international laws to clearly reflect sustainable development principles. Stricter regulations are required to control activities that degrade the environment such as deforestation, water pollution, and excessive resource extraction (Sands and Peel, 2012, p.27).

- Incorporation of Environmental Impact Assessments (EIA): Legal provisions must be established to mandate Environmental Impact Assessments for all development projects. These assessments can help identify potential environmental risks and provide alternatives or mitigation strategies (Ehrlich and Holdren, 1971, p.1212).

- Enforcing Compliance and Penalties: Laws alone are not enough. There needs to be robust enforcement mechanisms to ensure compliance with environmental regulations. Penalties for non-compliance should be severe enough to act as a deterrent for potential violators.

- Promoting Green Technologies and Practices: Legal incentives could be introduced to encourage businesses to adopt green technologies and practices. These could include tax breaks, subsidies, or preferential treatment during procurement processes (Stan, 2022, p.167).

- Creating Special Economic Zones (SEZs): Laws can be established to create Special Economic Zones for industries that follow eco-friendly practices. These zones would have tax incentives and would encourage other industries to adopt similar practices (Marten, 2001, p.12).

- Establishing Transboundary Conservation Areas: Legal frameworks can also help establish transboundary conservation areas, which would protect ecosystems that span across multiple regions or countries (Sachs, 2015, p.29).

- International Cooperation: Laws should facilitate international cooperation to manage shared resources and address common environmental challenges. This can be achieved through international treaties and agreements. (Sands and Peel, 2012, p.27).

These legal solutions aim to balance the needs of development and environmental sustainability. However, their successful implementation requires political will, public awareness, and cooperation at all levels (Storper, 1997, p.35).

#### **5. Conclusions**

Regional development is linked with environmental outcomes. While it poses significant environmental challenges, it also provides opportunities to promote sustainable practices. By adopting an integrated and inclusive approach, we can ensure that regional development contributes to economic growth while safeguarding our environment for future generations.

The relentless pace of regional development catalyzed by industrialization, urbanization, and globalization has imparted a profound impact on our environment. Despite the socio-economic boons, this expansion also presents an array of environmental challenges that demand immediate attention. This paper offers a comprehensive analysis of these challenges, evaluates the potential for sustainability amidst rapid development, and underscores the necessity of integrating environmental considerations into development policies.

The past few decades have seen tremendous regional development and global integration. While these processes have brought about significant economic and social benefits, they have also resulted in notable environmental impacts. This paper will examine these impacts in detail and explore the potential for sustainable development practices to mitigate them.



Regional development has emerged as a powerful driver of economic progress, transforming landscapes, societies, and economies across the globe. Despite the socio-economic benefits, the environmental repercussions are becoming increasingly apparent. Understanding this intricate relationship between regional development and environmental impact is essential in formulating policies that balance economic progress with environmental conservation (Brașoveanu, 2013, p.88).

The environmental impact of regional development is a critical issue that demands urgent attention. Through this analysis, it has become abundantly clear that traditional methods of development, which often prioritize economic growth at the expense of the environment, are no longer viable. The environmental degradation and loss of biodiversity that results from such approaches undermine the very foundations upon which our economies and societies are built.

Implementing an integrated and inclusive approach to regional development provides a viable path forward. By prioritizing sustainable development, conducting thorough Environmental Impact Assessments, fostering public participation, integrating policies across sectors, and promoting international cooperation, we can create development strategies that not only promote economic prosperity but also safeguard our planet (Scholte, 2005, p.24).

While challenges remain, particularly in terms of implementation and ensuring equitable outcomes, the benefits of such an approach are undeniable. It offers a way to reconcile our need for development with the imperative of environmental sustainability.

As we move forward, it is vital that governments, businesses, and civil society around the world recognize the importance of this issue and work together to make sustainable regional development a reality. Through collective action and mutual cooperation, we can build a future where development and environmental sustainability go hand in hand, ensuring a healthy planet for generations to come.

These resources provide a comprehensive understanding of how laws, regulations, and international cooperation can be employed to address the environmental impacts of regional development.

The landscape of regional development and global integration is continuously changing, bringing along profound impacts on the environment. This study aims to explore how these processes have influenced environmental quality within a specific region, with a focus on land use, pollution, biodiversity, and natural resources. The potential for the implementation of sustainable development policies and strategies to mitigate these impacts will also be explored.

The environmental impact of regional development is undeniable. The myriad challenges that accompany such development must be effectively addressed to ensure sustainable growth. Simultaneously, the opportunities that regional development presents for promoting sustainable practices should be leveraged.

While regional development and global integration bring economic and social benefits, they can also have significant environmental impacts. Therefore, it is essential to integrate sustainable development strategies into regional development plans to mitigate these impacts and ensure the long-term sustainability of our environment.

The study concludes that legislation and legal institutions have a critical role in managing the environmental impact of regional development, but their effectiveness depends on broader socio-political factors. While this paper provides a broad overview, it is limited by the vast scope of the subject matter.

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## The Role of Legislation and Legal Institutions in Promoting Sustainable Development at the Regional Level

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### Abstract

*This paper aims to explore the crucial role of regional and national legislation and legal institutions in fostering sustainable development. The legal mechanisms for environment protection and sustainable development are analyzed, assessing their impact on regional development and integration processes. The effectiveness of these legal structures is critically evaluated, and potential gaps and challenges in their implementation are identified.*

**Key words:** legislation, legal institutions, sustainable development, regional policy, globalization

**J.E.L. classification:** K32, K33, K38

### 1. Introduction

Sustainable development is increasingly recognized as the only viable path for socio-economic progress. It reconciles global needs for growth and development with the necessity to preserve the environment and to ensure the well-being of future generations (Brown 1993, p.20).

The escalating global environmental and socio-economic challenges underscore the necessity of sustainable development. As pivotal players in shaping regional development, legislation and legal institutions have a critical role in driving sustainability initiatives, providing the legal backbone for enforcing sustainability principles and standards. This paper seeks to illuminate their vital function (Sachs, 2015, p.36).

The onset of the 21st century has witnessed an intensified global focus on sustainable development, prompted by the increasing impact of human activities on the environment. Legislation and legal institutions play a pivotal role in framing and implementing policies that promote sustainability. This paper aims to analyze the efficacy of regional and national legislation and institutions in promoting sustainable development and environmental protection (Mititelu, 2015, p.244),

The study then examines the role and influence of legal institutions in the sustainable development process. It covers the judicial and administrative entities responsible for implementing and enforcing environmental and sustainable development laws and the systems for public participation in environmental decision-making. The aim is to provide insights into how these institutions operate, how they shape the development process, and their effectiveness in promoting sustainable development objectives (Brundtland, 1987, p.28).

The paper further critically evaluates the effectiveness of these legal mechanisms, identifying potential gaps, challenges, and areas of improvement. These might include legal ambiguities, enforcement issues, resource constraints, lack of public awareness, and other barriers to effective implementation (Brown, 1993, p.20).

Amid growing global environmental and socio-economic challenges, sustainable development has emerged as a core principle guiding policy and decision-making. Integral to these strategies are legislation and legal institutions, which provide the essential backbone for enforcing sustainability principles and standards at the regional level. This paper aims to examine their critical role in this regard (Căzănel, 2015, p.24).

## **2. Theoretical background**

Sustainable development is predicated upon the intersection of environmental, social, and economic considerations. Legal frameworks play an instrumental role in balancing these elements by regulating activities that impact the environment, promoting sustainable practices, and incentivizing compliance. Previous literature (Brundtland, 1987; Sachs, 2015, p.24) has explored the interplay between legislation, institutions, and sustainable development, providing a foundation for this analysis.

At the heart of sustainable development lies the premise of intergenerational equity, asserting that future generations should have the same or better access to environmental resources as the current one (Brundtland, 1987). This concept introduces a temporal dimension to sustainable development, providing a forward-looking perspective that is essential for informed decision-making and long-term planning.

Within this context, legal frameworks and institutions play a critical role in guiding, regulating, and enforcing activities that have environmental implications. They provide a structure for managing natural resources, mitigating environmental degradation, and promoting environmentally friendly practices. Their influence extends to regional, national, and international levels, underscoring the multi-scalar nature of sustainable development (Brown, 1992).

Additionally, the incorporation of sustainable development principles into law helps in achieving environmental justice, which is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (Schlosberg, 2007). This ensures that the burden of environmental harm and the benefits of access to environmental goods are shared equitably.

Globalization, through increased interconnectedness and interdependence, introduces additional layers of complexity to this dynamic. As economies become more integrated, the actions of one region can have significant implications for others, necessitating global cooperation and coordination (Scholte, 2005). Hence, understanding the effects of global integration on regional development and its environmental implications is crucial.

Theoretical frameworks such as the Ecological Modernization Theory (Mol, 2002) and the Environmental Kuznets Curve (Stern, 2004) offer valuable perspectives on the relationship between economic development, globalization, and environmental degradation. These frameworks suggest that economic growth and industrial advancement, while initially leading to environmental degradation, can eventually contribute to environmental improvement through technological innovation, increasing efficiency, and the adoption of cleaner production processes.

## **3. Research methodology**

This paper relies on a qualitative research approach, employing a review of existing legislation and institutions at regional and national levels. The analysis is supplemented by an examination of case studies and secondary data from government and non-government sources.

## **4. Findings**

The effectiveness of legal mechanisms in promoting sustainable development varies significantly, influenced by factors such as political will, public participation, enforcement capacity, and the integration of sustainability principles into broader policy frameworks.

Case studies reveal both successful examples and areas needing improvement. The EU's Green Deal is an instance of comprehensive regional legislation promoting sustainable development, yet enforcement varies among member states. National laws, such as Germany's Federal Nature Conservation Act, demonstrate potential for aligning environmental protection with regional development, but implementation remains a challenge.

#### 4.1. The Role of Legislation in Sustainable Development

Legislation plays a crucial role in integrating sustainability principles into regional development by establishing a legal framework that supports sustainable practices, regulates unsustainable activities, and incentivizes sustainable development.

Legislation plays an indispensable role in shaping and directing sustainable development. It creates the legal framework that guides sustainable practices, controls activities that are detrimental to sustainability, and provides incentives for adopting sustainable modes of operation (Căzănel and Calafus, 2018, p.300).

The role of legislation in sustainable development is multifaceted and complex. It provides the framework within which societies can manage and direct their social, economic, and environmental goals. Legislation, in this context, is not just about creating laws but also about applying and enforcing them. It is a tool for planning, shaping policy, and promoting accountability and transparency. This paper will delve into the various facets of legislation's role in promoting sustainable development, especially at the regional level (Sachs, 2015, p.36).

Next, we will explore specific examples of regional and national legislation designed to promote sustainable development. This includes laws related to environmental protection, socio-economic inclusion, fair trade, and responsible production and consumption. The interplay between these laws and sustainable development goals will be examined, underlining the legislation's role in achieving these targets (Brundtland, 1987, p.29).

Furthermore, we will investigate the institutions responsible for the creation, enforcement, and monitoring of these laws. This section will spotlight how these bodies operate, their successes, and the challenges they face in enforcing legislation for sustainable development. It will also discuss the need for increased international cooperation and sharing of best practices in this area.

We will then delve into the challenges and gaps present in today's legislative frameworks concerning sustainable development. This includes issues such as lack of coherence and coordination between different areas of law, enforcement problems, and the need for increased public participation and transparency (Kiss and Shelton, 2004, p.18).

The role of legislation in sustainable development is paramount, yet it remains riddled with complexities and challenges. A more coordinated and integrated approach is needed to ensure that laws are effectively enforced and that they truly help in achieving the broader objectives of sustainable development. This paper hopes to shed light on this crucial aspect of sustainable development and pave the way for more comprehensive and effective legislative strategies (Marin, 2019, p.230).

Legislation operates as a fundamental tool in integrating sustainability principles into regional development. By establishing a legal framework supporting sustainable practices, controlling unsustainable activities, and incentivizing sustainable development, it profoundly impacts the trajectory of regional development (Brundtland, 1987, p.30).

Sustainable development laws can set the stage for a balanced approach to regional development. By embedding sustainability principles into the decision-making processes of governments, businesses, and communities, they encourage the integration of environmental, social, and economic considerations into planning and operations (Craik, 2008, p.29).

Legislation also operates as a regulatory mechanism. By setting rules to control activities that pose risks to sustainability, such as over-extraction of resources or pollution, laws directly impact the practice of regional development, guiding it towards more sustainable paths.

Legislation can also act as an instrument to incentivize sustainable practices. By establishing rewards for environmental, social, and economic performance, or conversely, penalties for failure to meet these standards, legislation encourages organizations and individuals to align their behaviors with sustainable development goals (Sachs, 2015, p.36).

Legal institutions play a pivotal role in ensuring the effective implementation of sustainable development legislation. They serve as the bridge between policy and practice, translating the principles enshrined in legislation into actions on the ground (Brown, 1993, p.20).

Legal institutions, including courts, regulatory bodies, and administrative agencies, play a key role in the implementation of sustainable development legislation. They translate the abstract legal text into actionable guidelines and norms that can be applied in practical contexts (Braşoveanu, 2015, p.89).

Enforcement is another critical function of legal institutions. Through their powers to enforce laws and regulations, these institutions ensure that sustainable development laws are adhered to, and any violations are addressed effectively (Mititelu, 2013, p.122).

Legal institutions also have a vital role in promoting stakeholder engagement in sustainable development. By facilitating participatory processes, these institutions ensure a diversity of voices are heard and considered in the development, implementation, and enforcement of legislation (Kiss and Shelton, 2004, p.18).

The integration of sustainable development into regional legislation and legal institutions is not without challenges, such as inconsistencies in laws across regions, inadequate enforcement, and capacity constraints. However, overcoming these challenges presents opportunities for transforming regional development towards greater sustainability. By promoting effective legal structures, we can ensure a stronger alignment of regional development strategies with sustainability principles (Mititelu, 2015, p.243).

#### **4.2. Establishing a Legal Framework for Sustainable Development**

The establishment of a legal framework is an essential first step towards institutionalizing sustainable development. This includes the enactment of laws that embody sustainability principles and their integration into various aspects of governance and operations (Brown, 1993, p.20).

Such legislation sets the stage for an approach to development that recognizes the need to balance environmental conservation, social responsibility, and economic growth. It encourages the consideration of sustainability in the decision-making processes of governments, businesses, and communities. Furthermore, it can define the standards and benchmarks for sustainable practices, thereby providing clear guidelines for implementation (Voigt, 2008, p.19).

In the pursuit of sustainable development, legislation plays an instrumental role. However, establishing a legal framework that adequately encompasses and promotes the multifaceted nature of sustainability is no small task. This paper aims to discuss the role of legislation and legal institutions in formulating an effective legal framework for sustainable development at the regional level. Therefore, the paper then examines how laws can reflect these principles, drawing on case studies from various regions (Sachs, 2015, p.36).

We will discuss the types of legislation required for sustainable development, including environmental laws, socio-economic legislation, and laws promoting fair trade and responsible production. The analysis will further touch upon the role of legal institutions in creating, implementing, and monitoring such laws. It will shed light on the interplay between these entities and the legislative framework, assessing their effectiveness and highlighting areas of improvement (Kiss and Shelton, 2004, p.18).

It is hoped that the findings will be useful to policymakers, legal practitioners, and researchers working towards promoting sustainable practices and policies.

#### **4.3. Regulating Unsustainable Activities**

Another crucial role of legislation is the regulation of activities that are detrimental to sustainability. Laws and regulations are designed to control or prohibit practices that pose threats to the environment, public health, and social equity. This includes, for example, legislation that restricts pollution, deforestation, overfishing, and other forms of environmental degradation (Voigt, 2008, p.19).

Such legislation often outlines the penalties for non-compliance, which can range from fines and sanctions to criminal charges in severe cases. This regulatory role of legislation is crucial in deterring harmful practices and enforcing adherence to sustainable practices (Brown, 1993, p.20).

The act of regulating unsustainable activities is a critical function of any legislative framework aiming at sustainable regional development. Legislation can discourage unsustainable practices by making them legally or economically unattractive. Such laws can range from explicit prohibitions of specific actions to the implementation of taxes or penalties that make unsustainable activities less appealing (Brown, 1993, p.20).

For instance, legislation can be used to regulate industrial emissions, impose quotas on resource extraction, ban certain harmful substances, or set mandatory standards for energy efficiency. Zoning laws can be used to protect natural habitats and control urban sprawl. Waste management laws can promote recycling and reduce the amount of waste that goes into landfills. All these regulatory activities contribute to sustainability by directly limiting environmental harm (Aivaz *et al*, 2021, p.156).

Furthermore, legislation can incentivize sustainable practices. For instance, subsidies can be provided for renewable energy production, tax breaks for businesses that implement green practices, or grants for research into sustainable technologies (Brundtland, 1987, p.32).

In many cases, laws regulating unsustainable activities will need to be enforced by legal institutions. These institutions may include courts, regulatory agencies, or other entities tasked with overseeing compliance with the law. Legal institutions can also play a role in resolving disputes related to sustainable development, such as conflicts over resource use or environmental damage.

However, the effectiveness of laws and legal institutions in regulating unsustainable activities can vary widely. Factors such as political will, public support, resources available for enforcement, and the transparency and accountability of legal institutions can all play a role in determining the success of these efforts (Sachs, 2015, p.36).

To ensure that laws regulating unsustainable activities are effective, it is important that they are based on sound science, reflect the values of the community, and are implemented and enforced fairly and transparently. In addition, laws should be adaptable to changing conditions and new knowledge about sustainability and the environment (Craik, 2008, p.29).

#### **4.4. Incentivizing Sustainable Development**

Legislation can also serve to incentivize sustainable practices. This can be done through tax benefits for environmentally friendly practices, subsidies for renewable energy, grants for research and development in sustainable technologies, or other fiscal incentives (Kiss and Shelton, 2004, p.18).

On the other hand, legislation can also implement "polluter pays" principles, where entities that cause environmental damage are required to bear the costs of their actions. This not only discourages unsustainable activities but also encourages investment in more sustainable alternatives (Craik, 2008, p.29).

In summary, legislation plays a crucial role in promoting sustainable development. It sets the legal and regulatory framework that guides sustainable practices, controls detrimental activities, and incentivizes the adoption of sustainable modes of operation. However, the effectiveness of such legislation depends on its implementation and enforcement, as well as the willingness and commitment of all stakeholders to abide by and uphold these laws (Voigt, 2008, p.19).

As much as laws can deter unsustainable practices, they can also be instrumental in encouraging sustainable development. Legislations can provide a range of incentives designed to promote practices that are more aligned with sustainability goals (Braşoveanu, 2013, p.89).

Tax incentives or grants could be employed to encourage businesses and individuals to adopt greener technologies or production practices. For example, tax breaks could be given to companies that invest in renewable energy technologies or those that meet certain standards for energy efficiency. Additionally, businesses could be given financial incentives to switch to less-polluting transportation methods, to reduce water use, or to adopt better waste management practices (Stan, 2022, p.172).

Legislation could also facilitate the development of markets for sustainable goods and services. For example, governments could implement public procurement policies that favor environmentally-friendly products, or they could require that a certain percentage of energy be sourced from renewable sources (Kiss and Shelton, 2004, p.18).



In addition to financial incentives, legislation can also provide other types of support for sustainable development. This can include research and development initiatives, training programs for new green jobs, or educational campaigns to raise awareness about sustainability issues (Voigt, 2008, p.19).

However, it is important to note that while incentives can be highly effective in promoting sustainable practices, they must be carefully designed to ensure they are actually leading to real improvements and not just being exploited for financial gain. This requires a clear understanding of the economic, social, and environmental contexts in which these incentives operate, as well as ongoing monitoring and evaluation of their impacts (Mititelu, 2016, p.158).

#### **4.5. Challenges and Opportunities**

While the path to integrate sustainable development into regional legislation and legal institutions is fraught with challenges, the potential benefits are substantial. The paper discusses some key challenges such as legal inconsistencies, inadequate enforcement, and the need for capacity building, while also highlighting the opportunities for promoting sustainable regional development through effective legal structures. Creating laws and regulations that can effectively address these complexities and achieve a balance between different objectives is a difficult task (Craik, 2008, p.29).

Secondly, enforcing environmental laws and regulations can be problematic, particularly in regions with limited resources, weak institutions, or high levels of corruption. Without strong enforcement mechanisms and accountability systems, legislation may have little impact on actual practices on the ground (Kiss and Shelton, 2004, p.18).

Thirdly, legal measures need to be complemented with non-legal ones, such as market-based mechanisms, voluntary standards, and public awareness campaigns. Laws and regulations alone are rarely sufficient to bring about the changes required for sustainable development (Braşoveanu, 2013, p.89).

On the other hand, the use of legal instruments to promote sustainable development also presents numerous opportunities. Well-designed and implemented laws can play a critical role in defining development pathways, setting clear goals and standards, and ensuring that development efforts respect the limits and capacities of ecosystems (Brown, 1993, p.20).

Legal mechanisms can also provide a means of resolving conflicts over resource use and ensuring that the benefits and costs of development are distributed equitably. They can offer ways of holding actors accountable for their actions and providing remedies when environmental harm occurs (Voigt, 2008, p.19).

In addition, legislation and legal institutions can play a vital role in facilitating cooperation and coordination among different stakeholders, including governments, businesses, and civil society. This can help to build consensus around sustainable development goals and strategies, and to ensure that all actors are working together towards common objectives (Kiss and Shelton, 2004, p.18).

#### **5. Conclusions**

Despite the inherent challenges, an effective legal framework supported by robust institutions can provide a solid foundation for sustainable regional development. The dialogue initiated in this paper provides a basis for discussions at the international conference section on "Regional Development, Integration, and Globalization", underscoring the need for ongoing exploration and discourse on this topic.

The role of legislation and legal institutions in promoting sustainable development at the regional level is critical yet complex. While a robust legal framework and functional institutions can greatly contribute to sustainable regional development, challenges persist in the implementation and enforcement of such mechanisms. Addressing these challenges and enhancing the effectiveness of legal structures is crucial for the successful promotion of sustainable development goals.

This study adds to the critical understanding of the role of legislation in sustainable development, offering a thorough analysis that could guide lawmakers, policy practitioners, and researchers in their efforts to promote sustainable development more effectively (Stan, 2022, p.172).

This work contributes to the ongoing dialogue on sustainable development, adding an in-depth analysis of the legal perspective. It hopes to offer guidance for policymakers, legal practitioners, and academics interested in enhancing the effectiveness of legal mechanisms in achieving sustainable development.

Legislation and legal institutions play a crucial role in promoting sustainable development at the regional level. The effective implementation of this role, however, requires ongoing efforts to address the inherent challenges and harness the opportunities that it presents. This paper has set the stage for further discussions at the international conference section on "Regional Development, Integration, and Globalization", emphasizing the need for continued exploration and discourse on this important topic.

The study concludes that while legislation and legal institutions are integral to promoting sustainable development at the regional level, their efficacy is contingent on broader socio-political factors. The limitations of the study lie in the vast scope of the topic and the inability to include all regional and national laws. For a more comprehensive understanding, further research focusing on specific regions and their respective legislation is recommended.

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# The Future of Blockchain Technology and its Application and Challenges with Regard to International Migration within the African Union

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## Abstract

*This paper explores the potential application and challenges of blockchain technology in addressing the complex issues surrounding international migration within the African Union (AU). It provides an overview of blockchain technology, its features, and potential applications. The paper delves into the pressing challenges faced by the AU concerning international migration, including illegal migration, human trafficking, and the absence of secure and efficient systems for processing and tracking migrants. By utilizing blockchain technology, this paper examines how these challenges can be mitigated through secure and transparent identity verification, improved movement tracking, and enhanced access to services. Furthermore, this paper discusses the existing literature on the topic, highlighting blockchain technology's potential benefits and challenges in the context of international migration within the AU. The paper concludes with recommendations for future research and the adoption of blockchain technology to address the challenges of international migration within the AU.*

**Key words:** blockchain technology, international migration, African Union, identity verification, human trafficking, security

**J.E.L. classification:** F22, F24, F55, L86, L96, M15, O31, O33, O34, O38, O43

## 1. Introduction

International migration is an increasingly significant global phenomenon with profound social, economic, and political ramifications. Within the African Union, international migration presents unique challenges, including issues such as illegal migration, human trafficking, and inadequate systems for processing and tracking migrants. The African Union Commission (AUC) recognizes the need for innovative solutions to effectively address these challenges and promote safe and orderly migration within the continent. Blockchain technology, characterized by its decentralized, transparent, and secure nature, holds promising potential in addressing these challenges by providing a robust platform for verifying migrants' identities, tracking their movements, and facilitating their access to essential services. This paper aims to comprehensively explore blockchain technology's potential application and challenges in addressing the complex issues associated with international migration within the AU, and provide recommendations for its adoption and implementation.

## 2. Literature review

The blockchain phenomenon has witnessed significant evolution since its inception with Bitcoin. Blockchain technology has expanded beyond cryptocurrencies, with smart contracts and various blockchain types contributing to its versatility. The potential implications of blockchain span across

multiple sectors, promising enhanced transparency, efficiency, and security. However, addressing challenges related to scalability, interoperability, and regulations is crucial for widespread adoption. As blockchain technology continues to mature, its transformative potential is likely to be realized in diverse industries, leading to a paradigm shift in how businesses and societies operate.

Citing Drescher (2017, P.580), Gideon (*et al*, 2020) in the paper titled, The Use of Blockchain Technology in Identity Storage and Management, state that, *before* the introduction of Blockchain technology, various organizations such as governments and related agencies, private companies, small and large scale businesses, commercial banks, airlines, and hotels had databases that have been at the receiving end of hackers; and of course, internet experts and web developers have been battling with the issues bordering on security breaches and compromise of their databases and emails; aside from identity and credit card frauds, with malicious intent.

Blockchain technology has emerged as a revolutionary concept with the potential to disrupt various industries and transform traditional processes. Initially introduced as the underlying technology for cryptocurrencies like Bitcoin, blockchain has evolved beyond its initial applications and is now being explored for diverse use cases. This paper provides an overview of the blockchain phenomenon, its evolution, and its potential implications for various sectors. It delves into the key features and underlying principles of blockchain technology, explores its evolution over time, and discusses its potential future directions.

### **2.1. Key features and principles of blockchain technology**

Blockchain is a decentralized, distributed ledger that records transactions across multiple nodes in a network. It is characterized by several key features and principles that contribute to its uniqueness. Firstly, blockchain is immutable, meaning that once a transaction is recorded on the blockchain, it cannot be altered or tampered with, ensuring data integrity (Swan, 2015). Additionally, blockchain relies on cryptographic techniques to secure transactions and ensure privacy and authentication (Nakamoto, 2008). Consensus mechanisms, such as proof of work or proof of stake, enable agreement among network participants on the validity of transactions (Antonopoulos, 2014). These features collectively create a transparent, secure, and decentralized platform.

### **2.2. Evolution of blockchain technology**

The evolution of blockchain technology can be traced back to the introduction of Bitcoin in 2008 by an anonymous person or group known as Satoshi Nakamoto. Bitcoin introduced the concept of a decentralized digital currency, powered by blockchain technology. However, it was the underlying technology of blockchain that captured widespread attention and spurred further exploration. Over time, researchers and innovators recognized the potential of blockchain beyond cryptocurrencies, leading to the development of alternative blockchain platforms with enhanced functionalities.

One significant development in the evolution of blockchain technology is the emergence of smart contracts. First proposed by Nick Szabo in 1994, smart contracts are self-executing agreements with predefined rules and conditions coded directly into the blockchain. They enable automated and trustless transactions, removing the need for intermediaries and enhancing efficiency (Szabo, 1997). Smart contracts have expanded the scope of blockchain applications to areas such as supply chain management, healthcare, and decentralized finance (DeFi).

Furthermore, the evolution of blockchain technology has seen the emergence of different blockchain types, including public, private, and consortium blockchains. Public blockchains, like Bitcoin and Ethereum, are open and permissionless, allowing anyone to participate and verify transactions. Private blockchains, on the other hand, restrict access and control to a select group of participants, offering enhanced privacy and scalability. Consortium blockchains combine elements of public and private blockchains, allowing a predefined set of participants to maintain the network (Swan, 2015).

### 2.3. Potential Implications and Future Direction

The potential implications of blockchain technology are vast and extend to various sectors. In finance, blockchain has the potential to revolutionize payment systems, streamline cross-border transactions, and enable financial inclusion for the unbanked population (Tapscott & Tapscott, 2016). The supply chain industry can leverage blockchain for enhanced traceability, transparency, and authenticity verification (Iansiti & Lakhani, 2017). Healthcare can benefit from blockchain's secure storage and sharing of medical records, while the energy sector can explore blockchain for efficient energy trading and grid management (Lamport, Shostak, & Pease, 1982).

As blockchain technology continues to evolve, there are several challenges that need to be addressed. Scalability, interoperability, and regulatory frameworks are some of the key areas requiring attention to unlock the full potential of blockchain (Swan, 2015). Additionally, privacy concerns and energy consumption associated with proof-of-work consensus mechanisms need to be carefully managed (Swan, 2015).

Blockchain technology's decentralized, transparent, and secure nature offers considerable potential in addressing the challenges of international migration within the AU. Numerous studies have highlighted the benefits and opportunities associated with blockchain technology in this context.

Adebayo et al. (2020) conducted a comprehensive study on the potential application of blockchain technology to address the challenges of international migration within the AU. They emphasized the secure and transparent systems facilitated by blockchain for verifying migrants' identities, tracking their movements, and improving their access to services. The study also highlighted challenges related to regulatory frameworks and stakeholder collaboration, recommending the establishment of a multi-stakeholder governance framework to ensure the successful implementation of blockchain technology in the migration context.

Oyedare et al. (2019) focused on the potential application of blockchain technology in managing refugees within the AU. Their study highlighted the benefits of blockchain in securely and transparently managing refugees' identities, tracking their movements, and facilitating access to essential services. The study emphasized the need for increased stakeholder awareness, capacity building, and collaboration to overcome the challenges associated with blockchain adoption in the context of refugee management.

Furthermore, the European Parliament (2018) published a report emphasizing the benefits of blockchain technology in the migration sector. The report stressed the potential of blockchain technology to provide secure and transparent systems for verifying migrants' identities, tracking their movements, and facilitating access to services. It also highlighted challenges such as regulatory frameworks, interoperability, and data privacy that need to be addressed for successful implementation.

### 3. Findings

Blockchain technology offers several key advantages for addressing the challenges of international migration within the AU. One such advantage is secure identity verification, which can mitigate issues related to illegal migration and human trafficking. Blockchain-based identity systems can provide tamper-proof and verifiable identities, reducing the risk of identity fraud and facilitating reliable identification of migrants. This would enhance border control measures, ensuring only authorized individuals cross borders, and strengthening efforts to combat human trafficking.

Another potential application of blockchain technology is the improved tracking of migrants' movements. By utilizing distributed ledger technology, blockchain can enable real-time monitoring of migrants, providing accurate and transparent information about their location and movement patterns. This can help in managing migration flows, enhancing border security, and enabling timely responses to emergencies or humanitarian crises.

Blockchain technology also has the potential to enhance migrants' access to essential services. By creating a decentralized and interoperable platform, blockchain can facilitate the secure and efficient exchange of migrants' data between different stakeholders, such as government agencies, international organizations, and service providers. This would streamline administrative processes,

reduce bureaucracy, and ensure that migrants receive necessary support and services, including healthcare, education, and employment opportunities.

#### **4. Migration within the African Union**

Migration is a significant phenomenon within the African Union (AU) as people move within and across borders for various reasons, such as economic opportunities, education, family reunification, and seeking refuge from conflicts or natural disasters (UNECA, 2020). The AU recognizes the importance of managing migration effectively to promote the well-being of migrants, address humanitarian challenges, and harness the potential benefits of migration for development. The AU has developed frameworks such as the Migration Policy Framework for Africa and the Migration Governance Framework to guide member states in formulating comprehensive migration policies and implementing coordinated approaches (African Union Commission, 2018).

The AU also emphasizes regional cooperation, information sharing, and capacity building to address the challenges associated with migration, including irregular migration, human trafficking, and migrant rights violations (IOM, 2019). By focusing on collaborative efforts, the AU aims to create a conducive environment for safe, orderly, and regular migration within the continent, fostering social cohesion and inclusive growth. The above is a daunting task given the nature of migration by itself.

Migrants differ in their motives, interests and modalities in leaving countries of origins and settling in others. Others migrate illegally, making their tracking and accounting by the countries of origins and the hosting counterparts difficult, if not impossible. Even when legal, their reception in the new countries is difficult to chronicle due to unavailability of comprehensive data at embassies and, at worst, the receiving countries – especially the unofficial types. The categories of different migrants are also difficult to profile; thus, to cluster them as a homogeneous congregation would feed the system with inaccurate data. Some of the obvious categories of migrants that may be easy to profile are within the following pockets, namely labour and political refugees. The most complex category to identify and track properly are arts practitioners. This group includes, but is not limited to, musicians, actors, authors, scholars and so forth.

#### **5. Challenges in implementation**

However, the adoption of blockchain technology in the context of international migration within the AU presents several challenges. One critical challenge is the need for robust regulatory frameworks. Clear legal frameworks that address data protection, privacy, and governance are essential to ensure blockchain technology's responsible and ethical use in managing migration. The development of regulatory frameworks should involve collaboration between governments, international organizations, and relevant stakeholders to establish blockchain implementation standards, protocols, and guidelines.

Another challenge is the interoperability of blockchain systems. The seamless exchange of data across different blockchain platforms is crucial to realizing the full potential of blockchain technology in managing migration. Interoperability standards and protocols should be developed to ensure that blockchain systems can communicate and share information effectively, thereby enabling efficient collaboration and information sharing among stakeholders.

Additionally, there is a dire need for stakeholder awareness and capacity building. Government officials, policymakers, and relevant stakeholders should be educated about the potential of blockchain technology and its practical implementation in managing migration. Training programs, workshops, and awareness campaigns can help build knowledge and capacity among stakeholders, fostering a conducive environment for the adoption and integration of blockchain technology into existing migration management systems.

## 6. Recommendations

Based on the discussion, the following recommendations are proposed:

- i. Research to be conducted in the migration spectrum so as to enable the technology to deal with its various dimensions and dynamics.
- ii. Establishment of a multi-stakeholder governance framework: The AU, in collaboration with member states, should establish a governance framework that brings together governments, international organizations, technology experts, and civil society to drive the adoption and responsible implementation of blockchain technology in managing migration within the continent.
- iii. Development of a robust regulatory framework: Clear legal frameworks should be developed to address data protection, privacy, and governance issues associated with blockchain technology. Governments should work together to establish standards, protocols, and guidelines that ensure blockchain technology's responsible and ethical use in managing migration.
- iv. Foster interoperability: Efforts should be made to develop interoperability standards and protocols that allow seamless data exchange between different blockchain platforms. This will enhance collaboration, information sharing, and the overall effectiveness of blockchain-based migration management systems.
- v. Promote stakeholder awareness and capacity building: Governments, policymakers, and relevant stakeholders should be provided with training and awareness programs to enhance their understanding of blockchain technology and its potential application in managing migration. This will facilitate informed decision-making and foster a supportive environment for blockchain adoption.

## 7. Conclusion

Blockchain technology holds significant promise for addressing the challenges associated with international migration within the African Union. By leveraging its decentralized, transparent, and secure nature, blockchain can enhance identity verification, movement tracking, and migrants' access to services. However, the successful adoption and implementation of blockchain technology in the context of migration management require robust regulatory frameworks, interoperability standards, and stakeholder awareness. By embracing blockchain technology and addressing the associated challenges, the African Union can achieve safer, more secure, and more efficient migration processes, ultimately contributing to the socioeconomic development and well-being of the continent.

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## Global Village, Different Customs

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### Abstract

*Having worked with a variety of Management or Marketing students throughout the years, as well as with students from multinational companies that need Business English in their jobs, we have come to realize the importance that cultural diversity has for large organizations. It is therefore crucial to be aware of customs in different countries, despite living in a global village. Our observations have been confirmed by many textbooks of Business English that contain chapters or whole sections dedicated to the idea that acknowledging cultural differences together with having respect for somebody else's culture can only benefit the businesses in question. While our company students have already learned that imperative when at work (through training or personal experience), our university students at Ovidius need to be taught awareness in advance to stand better chances of success in their future professions.*

**Key words:** global, awareness, Business English, culture, diversity

**J.E.L. classification:** J24

### 1. Introduction

Looking back to how we learned languages thirty or even twenty years ago, there is a huge discrepancy in comparison to today's learning process. Methods and means of teaching were scarce in the past, topics were not very appealing to students. A lot of progress has been made since then which transformed ESL learners into global citizens starting with their textbooks. Now we prepare students for their journey worldwide as professionals who are aware of cultural differences and who are ready to work in diverse teams. This new approach has taken over not only in higher education, but also in teaching English at a high school level, even at an elementary school level. Our aim, though, is to analyze the matter, the perception of globalization, the way we pass it on to learners, from a university student level's perspective. In order to achieve that, we have to consider some of the definitions and explanations available for the concept of globalization. May we add that we are solely going to focus on the positive aspects of globalization as the debates around it have triggered many negative reactions, too.

### 2. Theoretical background

Thus, globalization is especially benefic for developing countries because it is a catalyst for progress, being connected to a higher standard of living, an increased life expectancy span and better health care. Such a powerful process will surely put a stop to global inequality, creating more opportunities for all. Shared knowledge can only lead to equal chances which also leads to a more just society with a wider range of human resources.

There are countless advantages to globalization amongst which global knowledge, mutual support, sharing values, acceptance, collaboration, communications in different aspects of business and daily challenges. Education is undoubtedly a human right. Having access to education creates social inclusion, braking barriers such as race, ethnicity, gender, religion.

Teaching is linked to globalization as many sectors of our societies grow. In Romania, things are not that advanced in the direction of transforming our country into an obvious global village since migration has not yet soared (in big cities it has started already, still at a micro scale), but it might happen in the following years as our country becomes more attractive to people from other countries. Nevertheless, it is imperative to raise awareness and to prepare citizens for accepting different cultures and customs as we all want to live in peace and harmony. Each year, more and more companies are opening subsidiaries in Romania and so, future employees have to deal with different cultures, with different work styles and with different demands. These bring along many employment opportunities which equal wealth. In this context, education needs to constantly adapt employment market as new jobs and positions appear all the time many of which require accepting differences in culture thus in mentalities.

Current students who are to become future employees have to develop hard skills (knowledge related to their profession), but most importantly they need to have soft skills (to be able to communicate and work with people from everywhere). Our personal view on this is that we had better prevent lack of communication by teaching people while in school how to deal with differences in terms of culture, acceptance, attitudes. Our students are going to compete in a global world thus they need to acquire the necessary skills to manage the requirements of global industries. They might have managers from Asia or from the USA, they might need to work with colleagues from France or from Saudi Arabia. They need to be ready and competitive and our education system has to provide them with learning opportunities of this sort. Collaboration, problem solving, global awareness fall into the category of soft skills and are mandatory for 21<sup>st</sup> century graduates, prepared to respond to industries' requirements.

The international labour market is constantly expanding which makes competition tougher than ever, at a global scale. Our schools are responsible for our students' success:

In the current globalized environment, schools must prepare students to succeed at an international level through an infusion of 21<sup>st</sup> century skills, while also enlightening students so that they can not only compete, but also collaborate at an international level (Howard, 2013, p. 6)

Competition stands essential, but, more importantly, collaboration and team work are the keys to long-term success.

All the above aspects are not new, nor globalization is. In fact, people have always tried to find better chances in life and moved to different areas, learning to exist in an alien culture to them. The discussions and the awareness about it are new, more visible after the 2<sup>nd</sup> World War. It has become more obvious than ever that education needs to align with international enquiries as summarized by Sadeh Bakhtiari: to develop the learner's cognitive strategies for self-monitoring of progress, "to foster the learner's ability for high-order thinking skills"(Bakhtiari, 2006, p.13). In such an environment, the teacher holds a determining role, too, as he needs to set an example of tolerance, openness, a global and friendly approach of the textbook contents, a deep understanding of cultural differences.

Furthermore, entire systems are forced to change and consequently embrace diversity: "schools are to adequately prepare pupils for a life-long reality of problem-solving, knowledge adaptation and constant adjustment to changes." (Bakhtiari, 2006, p. 9) Romania is no exception to that, while as far as teaching English as a foreign language is concerned, immense steps farther have been made in the direction of the unification of curriculum, of teaching reforms, of spreading awareness, of opening boundaries because: "Education has been recognized as the basic means of promoting the skills of globalization." (Bakhtiari, 2006, p.6) Education must also be seen as a firm response to global injustice that strives with poverty and inequality.

### **3. Research methodology**

Our personal journey of learning starts at home, in our families and continues at school. When learners are very young, they do not acknowledge abstract concepts such as values, customs and traditions, but they can definitely be taught tolerance, acceptance, kindness by setting a good example. As they grow older, they start to become aware of cultural diversity and higher-education institutions can and should provide such learning opportunities.

As higher education is an investment in human progress and prosperity, during fast social and economic change, it is especially important that universities and other institutions consider their contribution to society from a broad long-term perspective.(Chaudhary, 2016, p.2)

The academic word has developed strong connections through scholarships, Erasmus mobilities, conferences, charity events and many more, thus university students can experience cultural diversity while studying, considering future job opportunities or apprenticeship programmes away from home or at multinational companies.

Higher-education entities ought to have a business-like approach to education which translates to not producing generic college graduates, but specific ones, ready to take on a specific job straight away. This specific job does not only require hard skills, but soft skills as well, as mentioned before. So, a priority in higher-education would be to offer students an insight into their prospective working life, to get prepared for what is going to happen after graduation which includes working across cultures, performing in mixed teams, for corporations that incorporate diverse cultures and working styles: "globalization equates to cultural awareness.....we cannot exist in isolation, we are all connected."(Howard, 2013, p.99)

Making prospects further on, our students might need to travel on business or to welcome foreign business visitors and for such events, cultural awareness is essential as they do not want to offend people from different countries or to be responsible for awkward or embarrassing situations because being a global citizen also involves resilience, curiosity and an open mind for cultural diversity.

#### 4. Findings

For all of the above, we have selected some sample activities from an English textbook for Business English that we have been using with both our corporate students that want to improve their language skills and with 2<sup>nd</sup> year of study university students, getting a degree in Marketing or in Management. The teaching support in question, *Business Result. Intermediate. Student's Book (second edition)*, was edited by Oxford University Press in 2016, offering a wide range of activities, from reading comprehension to listening and grammar, suitable for business people performing in various domains and industries. Our focus for this paper is on chapter 6 having the topic of *Guests and visitors* which basically points to business visitors who might be colleagues from abroad, from other subsidiaries or possible business partners that we really want to make an excellent impression on. All language activities comprised in the above mentioned chapter are meant to raise awareness in the respect of cultural diversity while cultivating mutual consideration and understanding. It starts off with speaking as learners need to share their experience as business travelers or to imagine what they would do if they had guests from other countries: "What do you think of the hospitality you receive when you travel for work?" (Hughes et al, 2017a, p.36). Raising such a question that contains the concept of welcoming foreign visitors or co-workers pushes the learner to think of what the word means in his country or different other countries and to supply examples. In this manner, university students or multinational students can realize the disparities between cultures and, at the same time, observe the similarities.

Moreover, a similar example of an activity created to raise the question of diversity in our global village is that on page 38 in a section called *Business communication skills* and it describes the way somebody welcomes a business partner to their premises through a short dialogue: "Jacinta Ross works for HYB Electronics. She meets Marvin Bernstein at reception. He is visiting the company for the day. Listen to their conversation and complete the agenda for Marvin's visit" (Hughes et al, 2017a, p. 38). By simply looking at these people's names, learners can notice that they come from different countries where customs might be different so it is crucial that mutual respect and attention is ensured. This type of exercise creates a scenario for learners to associate their own experience with while helping them achieve success in business.

Following the same topic and connecting it with skills such as listening, grammar or speaking, in another section of the same chapter, called *Practically speaking*, learners are advised on how to address business partners. Next to a picture that shows a man from the Middle East shaking hands with a man from Asia, the below practice for communicative purposes is provided:

"Look at this list of situations with different people. In your country, how would you normally address these people? Using their first name, last name, title and last name or something else?"

- A visitor arriving at your company for the first time.
- Your work colleagues.
- Offering help to someone that looks lost.
- You start making conversation with someone at a conference.
- At a meeting with the managing director of your company.
- Meeting your mother-in-law for the first time. (Hughes et al, 2017a, p.41)

A student preparing to enter the world of international business or someone who is already working in such a field of activity can only benefit from a practice of this sort. Learners have to think of specific contexts, to give arguments based on traditions and customs and, ultimately, they would come to realize that it might be a global village that we live in, but every "house" has its own customs.

The journey of acknowledging cultural diversity continues in the same volume, in the aforementioned chapter, in a section entitled *Talking point* where cultural expectations are discussed and analyzed. One of the exercises combines listening comprehension with cultural awareness as noted in the task: "Listen to a part of a radio programme about cultural differences. Which ideas in the info graphic do they talk about? In which parts of the world should you expect them?" (Hughes et al, 2017, p.43) The info graph points to some cultural habits across the world counting expectations such as free WiFi at hotels for business travelers, staff speaking different languages, tv programmes from different countries, international adapter socket, hotel information translated into different languages, room facilities like a bowl of fruit, slippers or tea and coffee making facilities.

Keeping to the topic of having business partners as guests from abroad, the next task is aimed at a group of ESL learners. They need to debate on some situations which encourage them not only to expand their speaking skills, but also their soft skills that is to say critical thinking, acceptance, cooperation:

"Work in groups. Imagine you have a group of foreign visitors coming to your company for a week. Each day they will have some free time after work and they would like to learn more about your country and its culture. Discuss and plan a schedule for the week from Monday to Friday. Your schedule should include some or all of the following aspects: eating out and trying different dishes, visiting places of cultural importance, watching traditional theatre or festivals, going shopping in local markets" (Hughes et al, 2017a, p.43)

This task can easily be converted into a project for evaluating a group of students on cultural awareness and speaking skills. The teacher can play some clips selected from the Internet that may show similar schedules for foreign visitors to a country or he might ask learners to read and research on it.

In support of the idea that Oxford textbooks are not accidents in raising the issue of cultural awareness, but they only follow a normal trend in education, we have selected other sample activities from another publishing house. The textbook is for the same level of English, B1 according to CEFR (The Common European Framework of Reference for Languages) and it stands amongst the most appreciated Business English textbooks for international learners- *Market Leader 3<sup>rd</sup> Edition Intermediate Course Book*, printed at Pearson FT-Longman in 2019. We have experimented with this course book, as well, when instructing both our corporate students at International House Bucharest, a language school that provides language courses for corporations, and our university students at Ovidius University of Constanta.

Our first selected sample is taken from a section named *Working across cultures. International meetings*, meant to support speaking:

Think about the last three meetings you attended (not necessarily business meetings, e.g. residents' meetings or sports club meetings) and answer these questions. 1 What was the purpose of each meeting? 2 What size were they? 3 Were they formal or informal? 4 Were they successful or not? Why? (Cotton et al, 2019, p.60)

Immediately after the above speaking practice, learners are offered a piece of vocabulary practice that is sure to boost their communicative abilities.

Another example that falls under the same category of spreading awareness in the direction of cultural differences and globalization is the following listening practice:

"Listen again. Are the following true (T) or false (F), according to the expert? 1.Punctuality is important in all cultures. 2. In a hierarchical culture, people feel able to express disapproval of the ideas of a superior. 3. Clear meeting aims are a priority in most cultures. 4. The main purpose of

meetings is to take decisions. 5 It is easy to misinterpret body language in meetings (Cotton et al, 2019, p.60)

Our collection of samples can stretch to a considerable volume. Yet, we believe that the examples provided so far are relevant enough for our thesis which states that education in general and ESL language practices, in particular, have to adapt to the times, to raise awareness towards contemporary issues, to discuss and analyze globalization for our students to become more competitive, more prepared to work in an international market.

## 5. Conclusions

Encyclopedia Britannica issues a short, but comprehensive definition of globalization: "integration of the world's economies, politics, and cultures" (Encyclopedia Britannica, Article "Globalization"). These three sections are strongly connected, consequently, in order to prosper economically or to warrant peace and stability into a region, one has to consider cultural values.

In his book, *Why Global Justice Matters*, Chris Armstrong argues that there are still plenty of requirements to fulfill for our world to become equal, despite all advancements that have been made. The concept that is at the forefront of his debate is *global justice* which is linked to "how we should live together on our amazing but nevertheless limited planet, what we owe to one another, and how progress towards a more just world can be achieved" (Armstrong, 2019, p. viii) Even though, on the surface, it is the developing countries that are benefiting from being open to other cultures, developed countries have to realize the advantages of globalization, too: "global justice must be a partnership between people in rich and poor countries" (Armstrong, 2019, p.ix) In the field of education, that partnership translates to reform, projects and involvement from both sides such as the one supported by the former USA president, George W. Bush, *No Child Left Behind*, as given example by the aforementioned author in the same book.

Following the same logic, in the visible support of equity, equal opportunities and fruitful collaboration, the authors of the textbooks that we have extracted activities from and have continuously used during our seminars and classes, have the same aspirations as all researchers pleading for a more just world, a world where differences are accepted and celebrated.

In *Introduction of Teacher's Book for Business Result*, the authors describe their work as follows: "Who is Business Result Second Edition for? Business Result 2nd Edition is a comprehensive multi-level course in business English suitable for a wide range of learners. The main emphasis is on enabling your students, helping them to communicate more effectively in their working lives (Hughes et al, 2017b, p.4).

The support of globalization and its positive effects becomes more obvious in the next excerpt found in the *Introduction*, too:

"What approach does Business Result Second Edition take? Business Result Second Edition helps students communicate in English in real-life work situations. The priority at all times is on enabling them to do so more effectively and with confidence. The target language in each unit has been carefully selected to ensure that students will be equipped with genuinely useful, transferable language that they can take out of the classroom and use immediately in the workplace.

The course recognizes that, with so many businesses now being staffed by people of different nationalities, there is an increasing trend towards using English as the language of internal communication in many organizations "(Hughes et al, 2017b, p.4-5)

It is then no surprise that the same approach is embraced by authors of business English at a different printing house as the below selecting from *Market Leader 3<sup>rd</sup> Edition, Teacher's Resource Book* proves:

"In addition to new authentic reading texts and listening material, the Third Edition features a number of exciting new resources: specially filmed interviews with business practitioners for each unit, case study commentaries on DVD-ROM, with expert views on each case, working across cultures-regular input and tasks to develop students' intercultural awareness and skills" (Mascull, 2010, p.4)

Having clarified that all these new and updated textbooks that we use are targeting globalization in a good sense, we have to make notice of our students' opinions and reactions towards all the material made accessible to them. We did not enquire a written feedback from our learners which

does not mean that their oral feedback that we requested after each three units covered was less valuable. Both categories that were mentioned by us, company students enrolled with International House Bucharest and Ovidius University students of Marketing and Management, had positive comments when asked to ratify the textbooks and the perspective they provide on the global world of business. In general, they said they would enjoy pleasant activities related cultural differences, that they are now more aware of cultural diversity and that they feel they can work better and are better prepared to perform in an international work environment. Furthermore, a vast majority of those interviewed by us, firmly stated they would recommend the textbooks to other learners of same interests. Upon the completion of the course, many of them reported having found better job opportunities due to their new wider horizon related to globalization and global matters.

We cannot but declare our satisfaction upon reaching such goals as helping learners become more aware of the global village we all live in and of different customs that have to be considered and, eventually, preserved. We can only express our gratitude to the learners in question and to the authors of the textbooks mentioned that made it possible for us, as educators, to keep it with the times, to support progress and better lives for all, despite nationality, ethnicity, religion.

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- \* \* \* *Globalization* in *Encyclopedia Britannica*, [online] Available at: <https://www.britannica.com/topic/Britannica-Online>

## Reflections on Croatia's Accession to the Euro Area

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### Abstract

*Accession to the Economic and Monetary Union, although a historical process, is always a current and dynamic one, its challenges being each time complex and distinct due to the different circumstances in which this event occurs. The article's objective is to identify the degree of fulfilment of the nominal economic convergence criteria for Croatia and the potential effects generated by its accession to the Euro Area. Our results show that over the last two years, Croatia has fulfilled three of the five nominal economic convergence criteria, with inflation and public debt being the indicators exceeding the reference values. Based on the analysis, some challenges are identified that can become subjects for future research.*

**Key words:** European integration, nominal economic convergence, inflation reference value

**J.E.L. classification:** E31, E42, F45

### 1. Introduction

Although European integration and accession to the Euro Area already have a history of over twenty years, the process is always topical, with complex and different challenges each time, because of the different conditions under which the respective countries join the Euro Area.

Croatia is also included in this framework, given the period in which it became a member of the Economic and Monetary Union (EMU), a period marked by the COVID-19 crisis and the war in Ukraine, but also by the changes previously caused by the global financial crisis and the debt crisis sovereign in Europe. Moreover, the latter induced a feeling of reluctance and caution regarding joining the Euro Area, even on the part of the candidate states (Criste, 2018). Therefore, approaching such a subject is challenging and requires more extensive and detailed analyses.

The article's objective is to identify the state of fulfilment of Croatia's nominal economic convergence criteria at the end of 2022 and the potential effects generated by its accession to the Euro Area.

The second Section of the present paper presents a general presentation of the historical landmarks and important data related to the process of Croatia's accession to the European integration framework. Based on the methodology presented in the third Section, in the fourth Section, an analysis of the dynamics of nominal economic convergence indicators is carried out, mentioning specific potential effects engendered by euro adoption. The analysis is followed by some conclusions drawn in the fifth Section, emphasising some challenges regarding the European monetary integration process.

### 2. Theoretical background

Following a referendum, the Croatian Parliament declared independence on June 25, 1991. In December 1991, European foreign ministers recognised the former republics of Slovenia and Croatia as independent states effective January 15, 1992. However, a long war of independence followed, fought with Serbia from 1991 to 1995. In 1996, Croatia joined the Council of Europe.



Croatia became a member state of the European Union on July 1, 2013; at that moment was the 28<sup>th</sup> member state of the European Union. Croatia applied for this status in 2003 and conducted negotiations between 2005 and 2011, signing the accession treaty on December 9, 2011. On January 22, 2012, a referendum was held in which 66.27% of Croatians voted to support the accession to the European Union.

Since the conditions for entry into the Euro Area remained unchanged, Croatia followed the path to the euro based on the criteria set out in the Maastricht Treaty. According to the rules, the European Central Bank and the European Commission publish once every two years convergence reports for the candidate countries for the Euro Area. The convergence reports published between 2014 and 2020 showed that while Croatia met the inflation and interest rate criteria, it still needed to meet those related to the public finances and the compatibility of legislation. Since 2018, additional efforts have been made to meet these criteria and adopt the euro as quickly as possible. Thus, Croatia was accepted into the exchange rate mechanism (ERM II), the forerunner of the eurozone, in 2020 (July 10), together with Bulgaria, which extended the moment of accession by one year until 2024.

The Convergence Report for Croatia published by the European Commission in June 2022 (European Commission, 2022) states that the country meets the criteria for adopting a single currency, except for a high level of debt. At the end of June, the member of the European Council approved Croatia's entry into the Euro Area. On July 12, 2022, the Council of the European Union, comprised of the finance ministers of the Euro Area countries, consented.

Croatia, a country of 3.89 million inhabitants, adopted the euro on January 1, 2023, when it entered the Schengen area.

*Table no. 1 Euro adoption in Croatia*

<b>Key facts</b>	
➤	Date of introduction of the euro in Croatia: January 1, 2023.
➤	Exchange rate: 7.53450 Croatian kuna (HRK) for 1 euro (EUR) – the same as the level of the current central rate of the kuna set through the exchange rate mechanism (ERM II).
➤	Dual display of prices: September 5, 2022 - December 31, 2023.
➤	Dual circulation of EUR and HRK: two weeks after introducing the euro.
➤	The market value of shares listed on the stock exchange: will be automatically converted to EUR on the date of adoption of the euro by the Zagreb Stock Exchange by applying the official exchange rate.
➤	Bank accounts: all amounts in HRK from bank accounts will be automatically recalculated in EUR by applying the official exchange rate without changing the bank account number.
➤	Financial statements: for the year 2022, in HRK for companies whose commercial year corresponds to the calendar year, and in EUR for companies whose commercial year differs from the calendar year and whose last day of the economic year occurs after the euro's adoption date.
➤	European Central Bank: following the cooperation agreement signed on October 1 2020, between the European Central Bank and Hrvatska Narodna Banka (National Bank of Croatia), the European Central Bank became responsible for directly supervising eight significant institutions and overseeing fifteen less significant ones.
➤	Prohibition of price increases: to protect consumers, it is prohibited to increase prices based only on adopting the euro.

*Source:* authors' contribution

### 3. Research methodology

Starting from the presentation of the official (*de jure*) stage of meeting the criteria of nominal economic convergence, according to the latest Convergence Report of the European Commission, published in June 2022, an analysis of the degree of preparation for joining the eurozone of Croatia is carried out, from the perspective of the nominal economy, during the last eight years. The five convergence indicators provided for in the Maastricht Treaty and the reference values corresponding to the inflation and long-term interest rate criteria are calculated for 2015-2022, considering the

January-December interval. This method was chosen to provide some consistency in comparability for each year. The convergence reports specifying the reference values corresponding to the two criteria are not issued annually but every two years. In addition, the European Commission calculates the reference value by taking different time intervals. Namely, the reference values for 2016 are calculated considering the interval May 2015-April 2016, for 2018 – April 2017-March 2018, and for 2020 – April 2019-March 2020.

## 4. Findings

### 4.1. Developments regarding the nominal economic convergence indicators

According to the latest Convergence Report published by the European Central Bank in June 2022, which takes the period of analysis from May 2021 to April 2022 as a reference, Croatia met the criteria for nominal economic convergence, except for government consolidated gross debt (see Table no. 2).

Table no. 2 Criteria for nominal economic convergence in Croatia based on the ECB Convergence Report 2022

Criteria	Values for April 2022	Reference Values
HICP Inflation (annual average percentage change)	4.7%	4.9%
Long-term interest rate (annual average)	0.8%	2.6%
General government budget balance (as % of GDP)	-2.9%	-3.0%
Government consolidated gross debt (as % of GDP)	79.8%	60.0%
Exchange rate kuna/euro (monthly average)	7.5577 <sup>*)</sup>	7.5345±15%

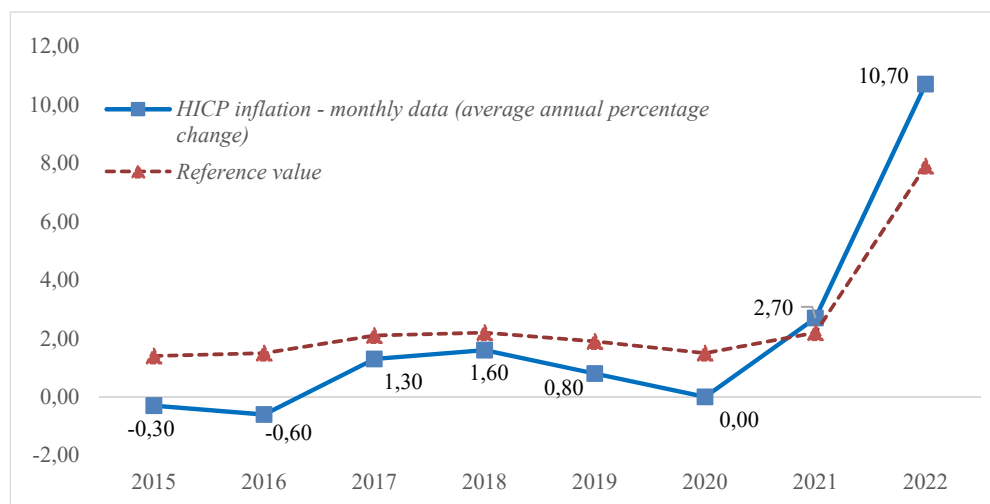
Note: <sup>\*)</sup> average for April 2022, according to Eurostat data

Source: European Central Bank (2022)

By analysing the development of the indicators in the last eight years (2015-2022), a more concrete picture of the degree of fulfilment of the five nominal economic convergence criteria can be rendered.

Inflation in Croatia, represented by the harmonised index of consumer prices (HICP), registered values below the reference value during the selected period. After 2020, it increased exponentially, surpassing the European Union reference value (see Figure no. 1).

Figure no. 1. Inflation development in Croatia and the reference value



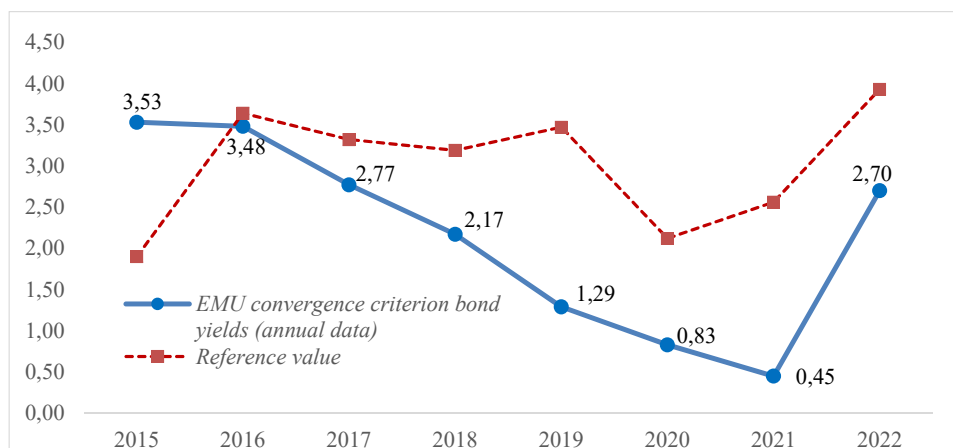
Source: Eurostat data

Compared to April 2022, the moment considered a benchmark for evaluating the degree of readiness for Croatia's accession to the Euro Area, the inflation level was below the reference one. However, it should be noted that this situation is due to the operation of some interpretable adjustments in selecting the countries that recorded the best levels. Such adjustments have been criticised as being discretionary (Darvas, 2022).

After the outbreak of the war in Ukraine and the increase in the prices of energy and other commodities, inflation was the biggest challenge. However, this is present throughout Europe, including the Euro Area.

The criterion regarding the long-term interest rate is easily met during 2016-2022, the values recorded in this interval being below the reference level (see Figure no. 2). From 2021, the downward trajectory of this indicator is suddenly interrupted.

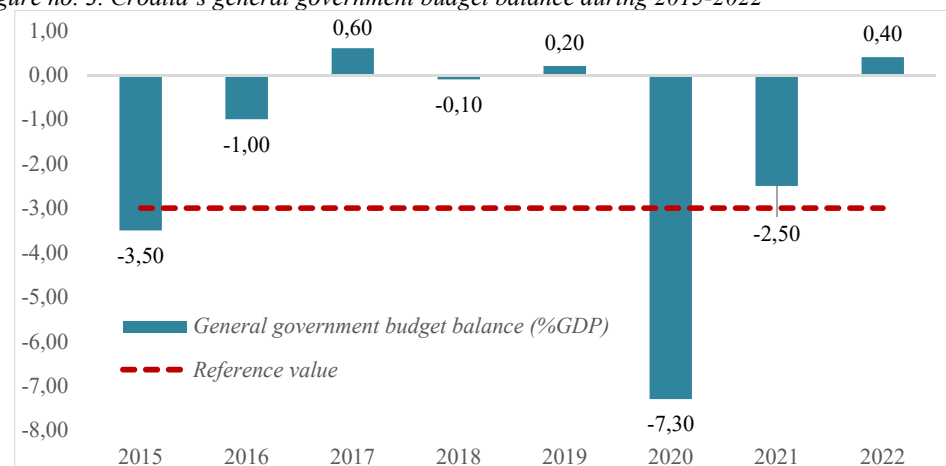
Figure no. 2. Long-term interest rate development in Croatia and the reference value



Source: Eurostat data

The criterion regarding the budget deficit recorded a significant and continuous improvement in the period 2015-2019. Still, the COVID-19 crisis strongly affected this evolution; in 2020, a budget deficit of 7.3% (as a share of GDP) was recorded, the highest level (see Figure no. 3). This situation reflects the fiscal measures adopted in order to mitigate the economic impact of the pandemic crisis. However, in the last two years, the general government budget balance has seen a noticeable improvement, also marked by the criterion fulfilment (Figure no. 3).

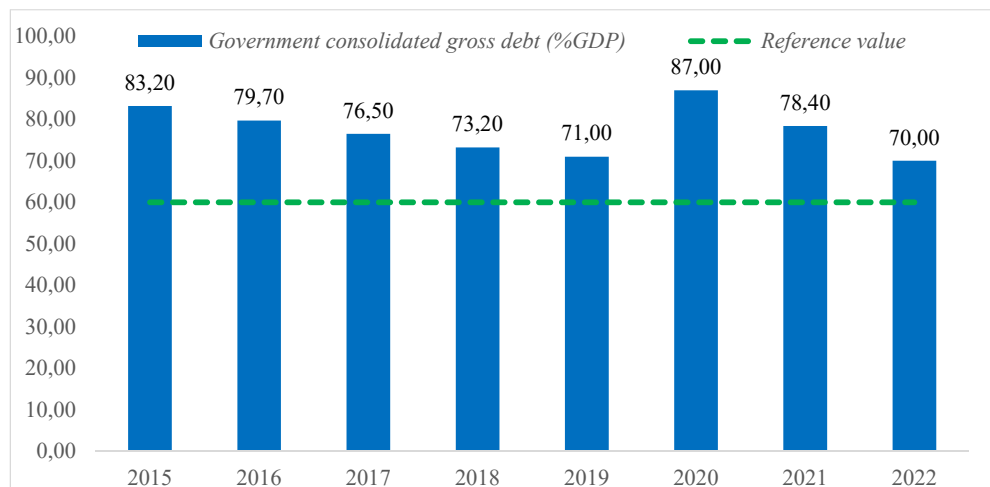
Figure no. 3. Croatia's general government budget balance during 2015-2022



Source: Eurostat data

In the analysed period, the values for the general government gross debt constantly exceed the limit of 60% of GDP. However, Croatia was accepted as a member state of the Euro Area, considering that the indicator values are already on a downward slope (see Figure no. 4). According to Figure no. 4, since the beginning of the period, the trajectory given by these values is downward, with values starting from 83.5% in 2015 and reaching 71% in 2019. However, the COVID-19 crisis also leaves its mark on this indicator, so in 2020, the level of public debt reached 87% of GDP. The development for the last two years is again downward.

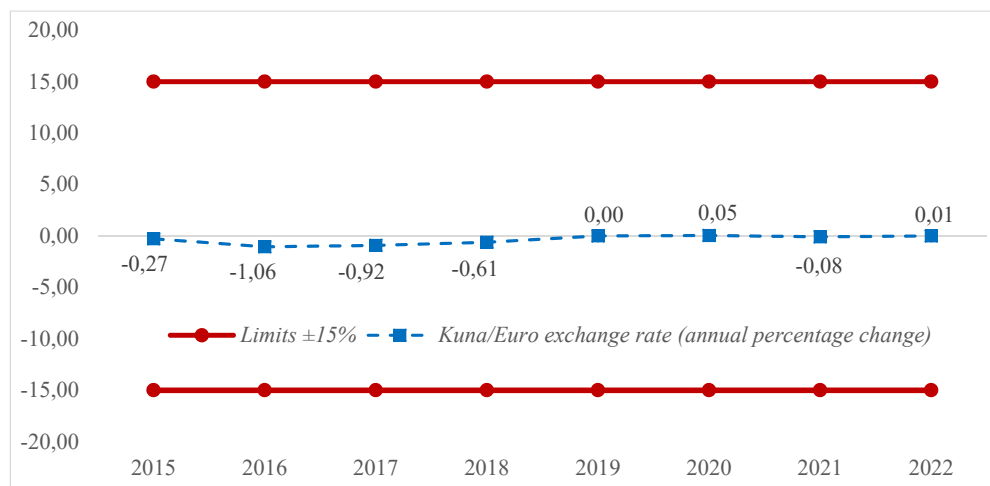
Figure no. 4. Government consolidated gross debt in Croatia during 2015-2022



Source: Eurostat data

For Croatia, exchange rate stability is one of the criteria consistently met throughout the analysed period. Although the Croatian currency has been participating in the Exchange Rate Mechanism II (ERM II) since July 2020, the variation of the kuna/euro exchange rate was very small even before this time (see Figure no. 5). The currency was traded at values very close to the central parity, of 7.5345 kuna/euro, established with the entry into ERMII.

Figure no. 5. The exchange rate of the Croatian currency against the euro, as annual percentage changes



Source: Eurostat data

The methodology results show that Croatia met three of the five nominal economic convergence criteria in the last two years. Inflation and public debt were the indicators that exceeded the reference values.

## 4.2. Discussion

Since the Croatian currency has been tied to the euro for a long time, and before that, to the German mark, no significant changes are expected after adoption. At the same time, a good part of the Croatian economy is "euroised", which confirms the previous position.

Among the effects generated by the transition to the euro are those already mentioned in the literature, namely, the reduction of both the currency risk and the transaction costs, which diminish the uncertainty, improving economic and financial stability. Joining the Euro Area can lower interest rates, boost credit ratings, and make the country more attractive to investors (Kunovac and Pavić, 2017). In this context, Croatia's gross external debt, which, according to Eurostat data, at the end of December 2022 was 46.1 billion euros (68.4% of GDP), will no longer be affected by the currency risk.

The euro currency can facilitate trade between countries that use it, and better integrated financial markets and improved economic stability can accelerate this development process. Considering that a fifth of the Croatian gross domestic product is due to the tourism sector, the changeover to the euro will positively affect this sector. A good part of the tourist activity that has already used the euro is formalised (house rentals, cars, tourist packages, restaurants, etc.). The simultaneous entry into the Schengen area also constitutes support for this sector of activity.

On the other hand, the increase in inflation during the initial period of the transition to the euro currency is already a common phenomenon. Still, the experience of the countries that adopted the euro shows that the actual effect of rounding the prices when converting the national currency to the euro was significantly lower than the results of the simulations, which assumes that all attractive prices are rounded up. Thus, in a pessimistic scenario for the Netherlands, the conversion effect on the consumer price index was estimated at around 0.7 pp (with 0.9 pp for the HICP). In contrast, after conversion, this effect on the consumer price index was shown to be much smaller, from 0.2 to 0.4 pp (Mužić and Pufnik, 2022). Experience shows that among the significant factors inhibiting the temptation to increase prices are competition between retailers and double (dual) display of prices in stores.

The effects of the euro adoption decision will be identified over time, depending on the context in which the global policy will evolve. Still, in principle, joining the Euro Area will benefit Croatia because of already consolidated economic and financial relations with this monetary union.

## 5. Conclusions

In general, meeting the convergence criteria has posed problems for the EMU candidate countries, mainly because of the difficult economic conditions of the last two years caused by the COVID-19 crisis, the energy crisis, and the war in Ukraine. These issues are global challenges that the Euro Area, as a whole, is also facing.

Assessing the preparation for adopting the euro currency can only be a situation at a certain point in time (Walko, 2022), but for the proper functioning of the Euro Area and in the interest of the countries joining EMU, the nominal economic convergence criteria must be pursued on a sustainable and forward-looking basis.

Over the last two years, Croatia has fulfilled three of the five nominal economic convergence criteria, with inflation and public debt being the indicators that have exceeded the reference values. However, Croatia has been accepted into the EMU based on interpretations and adjustments considered to be discretionary. Such an experience shows the need to rethink the interpretation of "the best performing" economies regarding inflation. In this respect, Darvas (2022) considers that either the average inflation rate of countries closest to the ECB's 2% target or the average inflation rate of the Euro Area would be more relevant as an inflation benchmark.

Beyond these observations, it is essential to note that based on the commercial and financial relations with Euro Area strengthened over time, Croatia has a high degree of synchronisation of the economic cycle with those of the "core" countries from the Euro Area (Criste, Lupu and Lupu, 2021) therefore, that creates positive expectations following the adoption of the single European currency.

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## Regional Development at the European Level: A Bibliometric Analysis from 2019 to 2023

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### Abstract

*Regional development is a strategic objective at the European level that aims to eliminate disparities between different regions. The purpose of the paper is to document the interest in this objective using the research methodology by developing a bibliometric analysis, a quantitative research method, in the form of an inventory of the publishing activities specific to the field studied. The data analysed are from the Web of Science platform and refer to scientific works, books, and documentation in specialized journals. The query resulted in a number of 984 scientific documents containing the English acronym "regional development". June 4, 2023, the query was applied to publications from the last 5 years, published in European countries with research fields (Business Economics, Educational Research of Education, Management Science of Operational Research). The results confirm the growth of scientific interest in the field of regional development.*

**Key words:** regional development, bibliometric research, quantitative research, case study, Web of Science

**J.E.L. classification:** F63

### 1. Introduction

Given the fact that in recent times theoretical and practical approaches are characterized by the rapid development of data collection methods, analyses and tools for their processing, scientific research is an important component of progress, not only in knowledge but also in technology, in the economy and in society in general. The development and evolution of society are achieved through the effort of each researcher, through the actions and ideas they transmit to society in various forms- publications, inventions, patents, applied analyses, and communications.

Regional development is a relatively new concept with new challenges at the European level, which aims to diversify and stimulate economic activities, increase investment in the private sector and reduce unemployment, all of which must contribute to improving the standard of living in all member countries of the community block.

"The process of any country's development, and the specificity of implementing economic, social and political transformations in the context of global competition are always associated with a constructive economic development strategy that should be in line with the national interests and global trends in structural change. Sustainable development is the current imperative of the economic system's structural rearrangement. Consequently, an increase in the world countries' competitiveness is correlated with economic growth, and modernization of the economy and society in accordance with the socio-economic indicators of sustainable development." (Dalevska et al, 2019 p.1840)

"The decrease of regional disparities represents one of the fundamental objectives of the regional development policy promoted by the EU, all the more so as the last waves of enlargement of the EU deepened even more these differences. As a member state of the EU, Romania is actively involved in reducing the economic gaps by applying some regional development strategies and policies."(Şteliac, 2016, p 35)

The measures promoted by the local and central public administration authorities together with various actors (private, public, voluntary) lead to ensuring dynamic and sustainable economic growth, by effectively capitalizing on regional and local potential, in order to improve living conditions. Economic science tells us that, in general, resources are finite. There is a competition between the various social and economic sectors to obtain as many/large as possible allocations from the consolidated public budget, in an attempt to demonstrate to decision-makers the particular importance of the respective sectors' activity for the state and the society. (Asaloş et al, 2022, p. 235)

The main areas, where the measures included in the regional development are manifested, are quite varied, starting from the development of enterprises, the stimulation of investments, the transfer of technology, the labour market, the development of the infrastructure, the quality of the environment, rural development, education, health, culture. We live in a world where resources are limited. Global challenges, such as climate change and the degradation of land and ecosystems, together with a growing population, force all the world's economies to seek new ways of production and consumption that respect the ecological limits of our planet. At the same time, the need to ensure sustainability is a strong incentive to modernize our industries and strengthen the position of European Union countries in a highly competitive global economy, thus ensuring the prosperity of its citizens. (Paraschiv et al, 2020, p. 211)

The aim of the research in this article is to determine the interest in the area of scientific research at the European level on regional development, the funding of articles, the affiliation of the authors of scientific articles and the level of citation of scientific papers. For the analysis of research articles, we considered an appropriate method the statistical-bibliometric analysis, which presents an objective point of view regarding the volume of research carried out in the framework of regional development and the bibliographic links between this research, thus making an analysis regarding the cooperation between researchers.

The motivation for developing this paper comes from several directions. Following the query "biometric regional development" in the Web of Science platform, no result was found and in the Google Scholar platform, 3 results were found. The results of this research can be used to explain the specific notions of regional development in teaching activity.

## 2. Literature review

"Sustainable regional development is aimed at reaching a compromise between global, national and regional development priorities. The key concepts of sustainable development are the equality of relations, equilibrium, balance, and consistency." (Dunets et al, 2019, p. 1219)

The basic objectives of the regional development policy at the European level are oriented towards:

- the reduction of existing regional imbalances, emphasizing the stimulation of balanced development and the reintegration of disadvantaged areas and the prevention of new regional imbalances;
- the criteria for integration into the structures of the European Union must be met by each regional entity and thus they have access to financial assistance instruments for member countries (structural and cohesion funds specific to each programming period);
- governmental sectorial development policies must be correlated with regional policies;
- interregional, internal and international cooperation must be stimulated in such a way as to contribute to economic development and to be carried out in accordance with legal provisions and international agreements concluded at the European level.

The principles underlying the development and application of regional development policies are:

- the decision-making process must be decentralized from the central/governmental level to that of the regional communities;



- all actors involved in the field of regional development must establish sustainable partnerships so as to respond to regional needs and be involved in the various stages of planning the activities necessary and specific to each region;

- considering that the development policy requires the participation of all actors, they must also make their financial contribution to the realization of programs and projects, thus ensuring their financing.

Starting from the principle of solidarity, the agenda for sustainable development leaves no one behind, based on the support of all individuals, communities, and countries. Lately, however, global threats such as inequalities and discrimination, poverty, unemployment, scarcity of resources, environmental degradation, climate change, and global warming, etc. have intensified as never before, so humanity must find new solutions to tackle them for communities/societies not to be at risk (Dumitrescu et al, 2022, p1). The existence of an integrated economic system and economic governance capable of responding quickly and efficiently to negative signals from within the European Union, but also from outside, would facilitate the return of the EU to sustainable and smart economic growth. (Stoica et al, 2020, p.1)

Following the adoption of the 2030 Agenda for Sustainable Development, in 2015, by the United Nations member states, the academic world is buzzing with various initiatives of higher education institutions worldwide that have been addressing, collectively and individually, the major challenges the document had revealed (Curaj, et al, 2020, p.907)

### 3. Research methodology

Science is a form of observation, understanding, explanation and transposition made from man's desire to understand the universal in which we live. As society evolved and developed, access to research activity became permissible for a growing number of researchers from increasingly varied field and different geographical areas, modern science becoming an attractive field. So, science can be seen as a process that generates new information, but also new point of research, having a consecutive and collective character: a scientific research work has at its starting point certain ideas taken from previous works and appears as a result of their development or reinterpretation (Mansour et al, 2022, p.891).

The scientific research was carried out by means of a bibliometric analysis, which used several resources such as databases (Web of Science and Scopus) and scientific processing and analysis procedures.

Scientometrics represents a form of knowledge with the objective to measure scientific research activity. "Bibliometrics is a branch of scientometrics that focuses mainly on the quantitative study of scientific publications for statistical purposes. Thus, bibliometrics is a research method that involves the development of an inventory of publishing activity at the level of countries or institutions and is used for comparative analyses of productivity in the scientific field." (Pătărlăgeanu et al, 2020 p.75)

Therefore, the bibliometric study of scientific works does not represent a research innovation, and it is a quantitative research method of various fields of interest from specialized literature. The purpose of using this analysis is to provide information about the structure and the dynamics of the scientific field (science mapping) on hand, but also about the authors and publishing house performance (performance analysis). (Mansour et al, 2022, p.892)

The first activity was to query the entire Web of Science database using the tag "regional development" without introducing any other filter. From the analysis of the statistical database, an increase in the number of scientific articles was observed in the last 5 years.

Another analysis of this selection of articles was carried out by means of a word cloud created with the World Art application to see the association of frequently used words with sustainable development taking for 1000 articles, the title of the articles, the abstract, Author Keywords and Keywords Plus.

After the first query of the Web of Science database, following the statistical and density analyses, we decided to perform a new search in the database of articles using the tag "regional development" and we limited the search to the Arts & Humanities Citation Index (A&HCI), Science Citation Index Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI). We also added new filters to the database: All open access, publication years 2019-2023, countries of origin in Europe, Research



In the analysis, it is observed that theoretical and general words dominate, and for results that capture the process of sustainable development, the research area should be limited to economic fields.

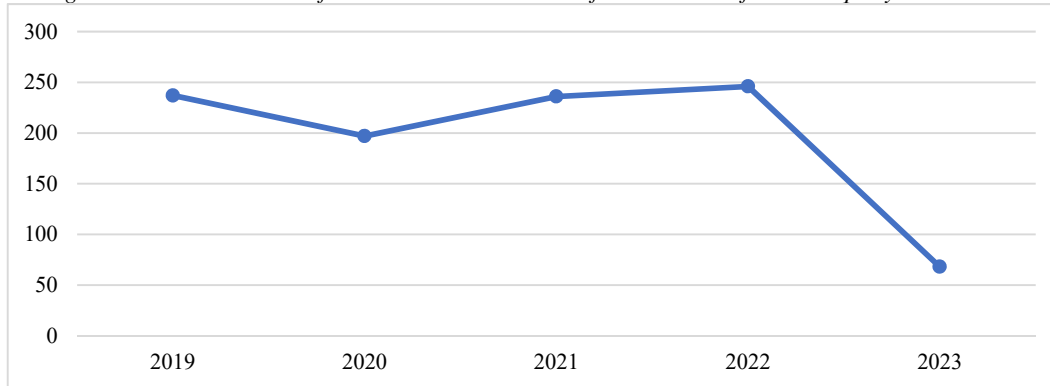
After the second search of the database and the use of additional filters at the European level, a number of 984 articles emerged. The publication of the articles was as follows:

*Table no. 2 Distribution of the 984 articles retrieved from the Web of Science query*

Year	2023	2022	2021	2020	2019
Number articles	68	246	236	197	237

Source: Web of Science database (accessed on 04.06.2023)

*Figure no. 2. Distribution of the 984 articles retrieved from the Web of Science query*



Source: Web of Science database (accessed on 04.06.2023)

After word cloud analysis of 984 articles, the words with the highest frequency of use were: Region, Develop, Model, Study, Research, Innovate, Perform, Effect, Result, Policy, Paper, Social, Firm, Data, System, Analysis, Entrepreneurship and the graphic representation is as follows:

*Figure no. 3. Word cloud of the 984 articles retrieved from the Web of Science query*

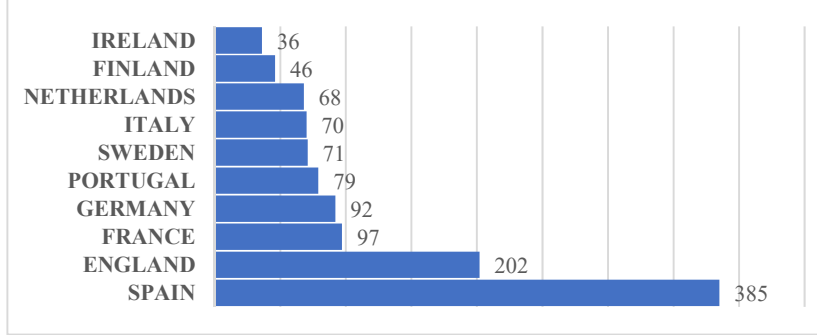


Source: Web of Science database (accessed on 04.06.2023) made via <https://wordart.com/>

It can be seen from this word analysis that the selected articles are more oriented towards the applied sphere of regional development in the economic field.

Through bibliometric analysis and density analysis, the authors' origin from Europe was classified for the top 10 countries as follows:

Figure no. 4 Origin of authors for the top 10 countries retrieved from the Web of Science query



Source: Own conceptualization, following data processing from Web of Science (accessed on 04.06.2023)

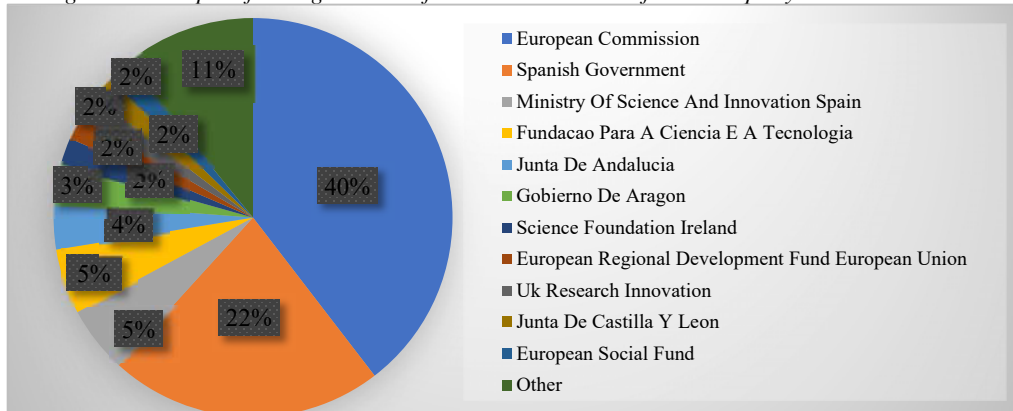
Funding for article writing, the top 10 sources for the 484 articles was:

Table no. 3 The first 10 funding sources resulting from the Web of Science query

Funding Agencies	Publications
European Commission	389
Spanish Government	218
Ministry Of Science And Innovation Spain	53
Fundacao Para A Ciencia E A Tecnologia	52
Junta De Andalucia	37
Gobierno De Aragon	31
Science Foundation Ireland	21
European Regional Development Fund European Union	19
Uk Research Innovation	19
Junta De Castilla Y Leon	19
European Social Fund	18
Other	107

Source: Own conceptualization, following data processing from Web of Science (accessed on 04.06.2023)

Figure no. 5 Top 10 funding sources of articles in the Web of Science query



Source: Own conceptualization, following data processing from Web of Science (accessed on 04.06.2023)

It is noted that the funding granted by the European Union through various programs (426 items) is followed by the Spanish Government, Ministry of Science and Innovation in Spain and regional administrations with 358 items financed, Fundacao para a Ciencia e a Tecnologia from Portugal with 52 items financed, Science Foundation Ireland 21 funded articles and UK Research Innovation 19 funded articles.

We also analysed the authors who have at least 6 articles within the 484 articles included in our analysis and we have the following distribution.

*Table no. 4 The first 8 authors for the 484 articles resulting from the Web of Science query*

No. crt	Name and surname	Membership	Number of article
1	Benitez Jose	EDHEC Business Sch, Roubaix, France	12
2	Dimitriadis Yannis	Univ Valladolid, Dept Telemat Engn, Telemat Engn, Valladolid, Spain	8
3	Goberna Miguel Angel	Univ Alicante, Dept Math, Alicante, Spain	7
4	Aparicio Juan	Univ Miguel Hernandez Elche, Ctr Operat Res CIO, Elche, Alicante, Spain	6
5	Buil Isabel	Univ Zaragoza, Fac Business & Econ, Spain	6
6	Catalan Sara	Univ Zaragoza, Dept Mkt, Zaragoza, Spain	6
7	Lozano Sebastian	Univ Seville, Engn Sch, Dept Ind Management, Seville, Spain	6
8	Morales Juan	Univ Malaga, Dept Appl Math, Malaga 29071, Spain	6

Source: Own conceptualization, following data processing from Web of Science (accessed on 04.06.2023)

The first 8 authors in terms of the number of scientific articles included in the selection criteria of the current study are of Spanish origin, this is due to the fact that the Spanish government and regional administrations supported the publication of articles.

The first author, Benitez Jose, with a number of 12 articles, is also of Spanish origin even if he currently teaches in France, as he graduated from the University of Granada.

The 984 articles are cited 10,606 times with a Hirsch Index (H Index) of 44. The citations for the first 5 articles are as follows:

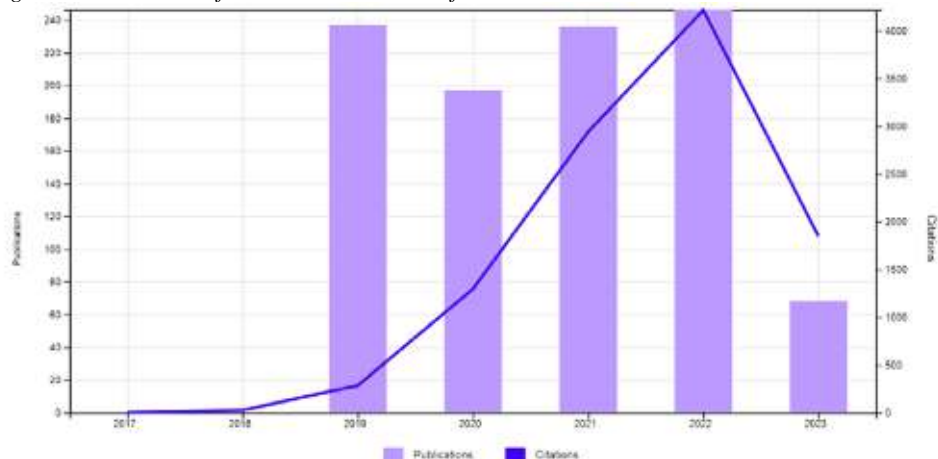
*Table no.5 The first 5 articles in terms of the number of citations obtained from the Web of Science query*

No. crt	Article title	Publication year	Total citations	from which:				
				2019	2020	2021	2022	2023
Total			10.606	284	1.294	2.941	4.216	1.846
1	How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research	2020	478	1	43	142	201	91
2	Twenty-five years of research on institutions, entrepreneurship, and economic growth: what has been learned?	2019	205	13	39	56	71	26
3	Regional development and carbon emissions in China	2019	204	7	48	55	68	26
4	Special issue on entrepreneurship and crises: business as usual? An introduction and review of the literature	2019	168	0	16	73	58	21
5	Entrepreneurial ecosystem research: present debates and future directions	2019	163	9	27	59	48	20

Source: Own conceptualization, following data processing from Web of Science (accessed on 04.06.2023)

The combined graph for a number of articles and a number of citations is as follows:

Figure no. 6 Number of articles and number of citations



Source: Web of Science (accessed on 04.06.2023)

According to the criteria selected in Romania, there are 7 articles. The publication of the articles was as follows:

Table no. 6 Articles published in Romania resulting from the Web of Science query

Year	2022	2021	2020	2019
Number articles	3	1	1	2

Source: Own conceptualization, following data processing from Web of Science (accessed on 04.06.2023)

The University affiliation of the authors was as follows: University A.I. Cuza (3), University of 1 Decembrie 1918 Alba Iulia (1), ASE Bucharest (1), University of Oradea (1) and West University of Timișoara (1). All articles were written in English.

The financing for the writing of the articles comes from European funds (European Commission, POC, PNCDI, Interreg Romania - Hungary) or through the national structures that administer education and research (Ministry of Education, National Council of Scientific Research CNCS and UEFISCDI).

After applying the filters for the Scopus database, 945 documents were found that were cited 6581 times. The citations for the first 5 articles are as follows:

Table no. 7 Top 5 articles by number of citations from the Scopus query

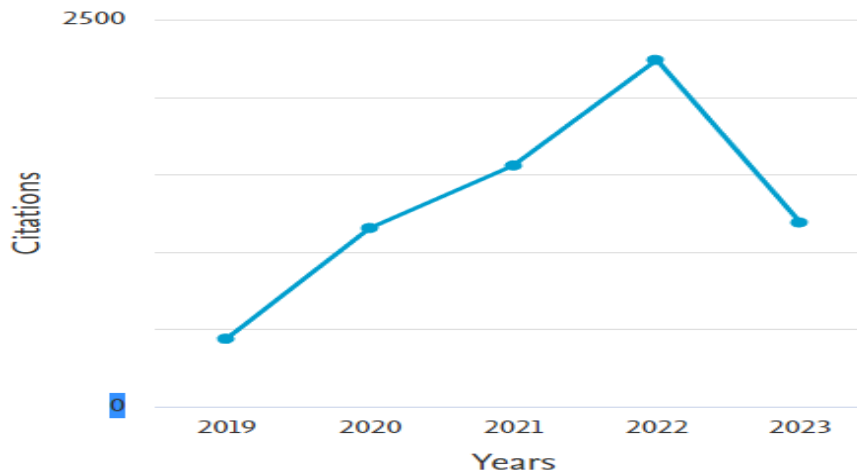
No. crt	Article title	Publication year	Total citations	from which				
				2019	2020	2021	2022	2023
Total			6581	439	1154	1558	2240	1190
1	Global climate change and greenhouse effect	2020	146		10	40	54	42
2	A model for estimating social and economic indicators of sustainable development	2019	107	30	23	31	19	4
3	Rebirth of Industrial Policy and an Agenda for the Twenty-First Century	2020	101		9	30	34	28
4	Evaluation of the energy security as a component of national security of the country	2019	74	6	16	26	16	10
5	Selection of strategic priorities for sustainable development of tourism in a mountain region: Concentration of tourist infrastructure or nature-oriented tourism	2019	70	3	38	21	6	2

Source: Own conceptualization, following data processing from Scopus (accessed on 06.06.2023)



The citations per year chart is represented as follows:

Figure no. 7 Number of citations obtained from the Scopus query

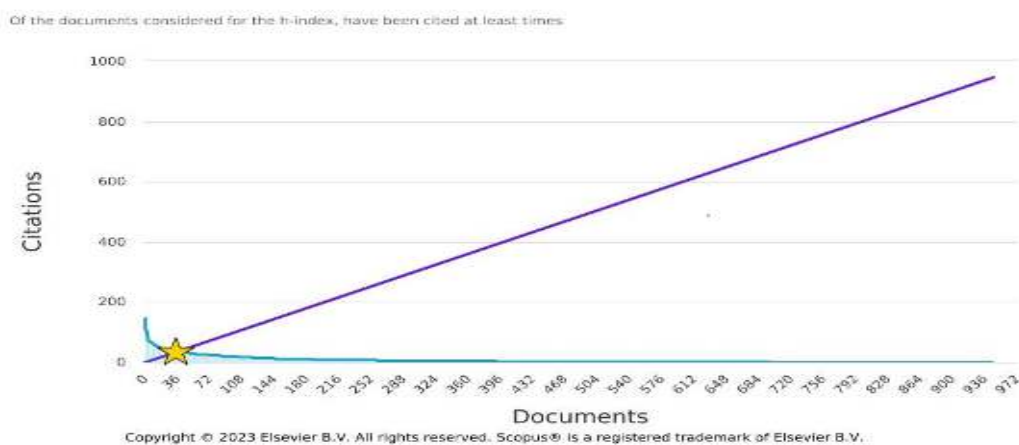


Source: Scopus (accessed on 06.06.2023)

The Hirsch Index (H Index) for the selection made in the Scopus database according to the presented selection is 36 because the first 40 articles have a minimum of 36 citations. Graphic representation:

Figure no. 8 Hirsch Index (H Index)

These documents h-index36



Source: Scopus (accessed on 06.06.2023)

## 5. Conclusions

Based on what was analysed in the statistical and bibliometric research, we can draw a series of conclusions that are relevant to the research topic that was addressed. A first conclusion is related to the need to support research in the field of regional development, considering the need to eliminate imbalances between the various regions of Europe, the realization of common and aggregated policies at the European level, the decentralization of the decision-making process in all European countries and the participation of all actors involved in taking decisions and the development of each region. Regarding the results obtained by the statistical - bibliometric analysis, they show the fact that the subject analysed was of interest to the scientific community, through the 484 research published in the last 5 years. The spread of the subject at the European level and the achievement of

objectives formulated for regional development means that attention and material efforts are directed towards the aspects that are more difficult to achieve for each region.

A specific case, resulted from the statistical and bibliometric analysis, is that of Spain, which saw in the existence of structural and cohesion funds an opportunity for balanced development and the reintegration of disadvantaged areas by finding solutions through scientific articles. Thus, the first 8 authors in terms of the number of scientific articles included in the selection criteria of the current study are of Spanish origin, this is due to the fact that the Spanish government and regional administrations supported the publication of articles.

The authors of present paper commit to carry out future research, in which to address the field of regional development, that can have both practical and theoretical implications, to better identify the elements that influence regional economic development, the fulfilment of the integration criteria at the European level, increasing the degree of cooperation at the regional level and highlighting measures to ensure economic resilience, thus contributing to the improvement of knowledge and scientific literature in the field of regional development.

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## Evolution of Romanian Imports and Exports in 2022, The Year with the Highest Inflation

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### Abstract

*The paper analyses the impact of the significant increase in inflation in 2022 on the volume of imports, exports and GDP in Romania.*

*Using a quantitative analysis, the value of the indicators will be compared over the last 2 years, before and during the inflation of over 13%, using half-yearly data.*

*The result of the analysis undertaken is that inflation has had an impact on imports, with the value of imports fluctuating significantly in 2022 compared to previous years and compared to exports and GDP.*

**Key words:** import, export, inflation

**J.E.L. classification:** E31, F49

### 1. Introduction

Since 2022 quarter 1, inflation in our country has exceeded 13%, which is an unusual situation, considering that until that moment, the average inflation in the last ten years was 2.68%.

In this paper we will focus on the comparative analysis of the evolution of GDP, exports and imports of Romania starting from 2020, in order to capture the year 2022, when inflation was very high. Thus, we will analyse whether the significant increase in inflation in our country had an impact on GDP, exports or imports.

There are many reasons for the sudden rise in inflation, both cyclical and structural.

As a result of increased consumer demand after the COVID crisis, manufacturers and distributors have increased the prices of products and services without losing many buyers. The large retail chains increased their shelf prices to avoid being affected by the legislation which limited the possibility for them to claim colossal percentages of sales bonuses from suppliers. There were also additional costs incurred by the reopening of those stores that had to close during the pandemic, requiring not only expense, but also time and effort.

Since February 2022, Russian military intervention in Ukraine has pushed up the prices of many raw materials (oil, gas, oil, wheat). The drop in Ukrainian exports is drying up supply on the markets, pushing prices up. In addition, sanctions against Russia are forcing many countries to reorganize their supplies, a complex and costly process. The war in Ukraine is a geopolitical event with major economic consequences, both in the short term (by fuelling inflation) and in the longer term (with the probable reorganization of certain value chains). It is taking place against a backdrop already marked by strong price pressures, linked to the dynamism of the global recovery.

To avoid economic collapse and maintain revenues, many countries have increased their deficits in order to implement aid programs. This public spending stimulates demand and accentuates inflationary pressure.

## 2. Literature review

In line with our research objective, we proceeded to identify nationally and internationally similar research in the field.

Nalban (2015), in article "A small New Keynesian model to analyze business cycle dynamics in Poland and Romania", conducted an analysis for the period 2003-2014, using New Keynesian DSGE, on the business cycles in Romania and Poland. He estimates the model with the following observed variables: quarterly real GDP growth, the harmonized index of consumer prices (HICP) quarterly inflation rate and the 3-month money market nominal interest rate. There was more variability in the level of shocks in Romania, and the responses to these shocks were much stronger. The Romanian inflation rate is nearly entirely (approximately 90%) governed by supply shocks (given the structure of consumer basket, administered prices hikes and weather conditions affected heavily prices' dynamic). The shock decomposition of the inflation rate and the value of output actually identified what the business cycle impulses.

Mykytiuk *et al.* (2020) test the hypothesis on the interrelation between GDP and macroeconomic indicators such as inflation index, FDI and discount rate, through panel studies using data from Ukraine, Georgia, Serbia, and Romania, in the paper "Investment Determinants of Economic Growth: World Experience and Ukraine". When carrying out a correlation and regression analysis (during 2008-2017), they consider the volume of GDP as the resulting attribute (dependent variable) and all other factors (inflation rate, foreign direct investment, discount rate) as explanatory attributes (independent variables). Following the analysis undertaken, Persons' correlation coefficient for GDP and the inflation index was negative (-0,57), which suggests a reverse relationship, meaning that the higher the inflation rate, the lower is GDP.

Hada (2020), based on a set of data for the period 2009–2019, studied a linear regression to investigate some macroeconomic determinant factors affecting the rate of nonperforming loans in "Macroeconomic Determinants of Nonperforming Loans of Romanian Banks". The results showed that all the independent variables (inflation rate, exchange rates, unemployment rate) have a significant impact on the dependent variable nonperforming loans.

Stevanovic *et al.* (2022) examined the influence of the introduction and implementation of the monetary Inflation Targeting (IT) regime, the level of the inflation rate and GDP growth rate, as well as inflation and the GDP volatility, for the period 1993-2020 in the Republic of Serbia, Turkey, Albania and Romania. The GARCH model was used. Conclusion was that exist a positive impact of the inflation rate from the previous period on the movement of the current inflation rate in Serbia, Turkey and Romania. The descriptive statistics of the inflation rate and the GDP rate before and after the introduction of IT show that the analyzed countries faced lower average inflation rates and lower inflation volatility. If we refer to Romania, inflation volatility had a negative effect on the growth rate volatility, but this impact is not statistically significant.

## 3. Research methodology

In this paper we will use a quantitative analysis in order to compare the results reflected in a graph.

Quantitative analysis is extremely appealing for research as it is possible not only to quantify properties but also to quantify the relationships between them.

Any analysis starts with the sketching of a conceptual scheme, keeping the phenomenon of interest (also called the dependent variable) in focus. Measured metrically, any phenomenon has a certain amount of variation caused by one or more factors (also called independent variables), either directly, through a causal chain or through mutual connections. (Duşa, 2014)

We chose the comparative method to evaluate the impact of inflation on the selected indicators. The comparative approach has a number of pluses and minuses that the researcher must take into account in his work. As for the positive aspects, they are the following: The method allows you to reflect the real and real situation in relation to the object or phenomenon under study. All data are statistically valid. During the study, you can make adjustments to the compared phenomena or objects. In the presence of a large amount of information, the method is very simple to implement and gives reliable and safe results.

The first step in the comparative analysis we want to perform is to select statistical data on GDP, exports, imports and inflation for the years 2020, 2021 and 2022, quarterly data.

We consulted INSS and the results are presented in the following table:

Table no. 1 GDP, export, import and inflation rate in Romania

	GDP	Export	Import	Inflation rate
2020 - Q1	43445.4	27875.6	52211.7	2.6
2020 - Q2	39284.1	19749.3	38514.9	2.6
2020 - Q3	40722	27123.4	49336.6	2.6
2020 - Q4	42148	28296.3	51729.7	2.6
2021 - Q1	43003.6	27955.9	53417.5	5.1
2021 - Q2	43788.6	28549.8	54643.5	5.1
2021 - Q3	44152.6	28873.8	55084.4	5.1
2021 - Q4	44419.6	30392.2	56475	5.1
2022 - Q1	45000.5	30364.9	58021	13.8
2022 - Q2	45551.7	31584.9	58468.5	13.8
2022 - Q3	46110	32330.8	65290.7	13.8
2022 - Q4	46591.8	31273.9	58952.7	13.8

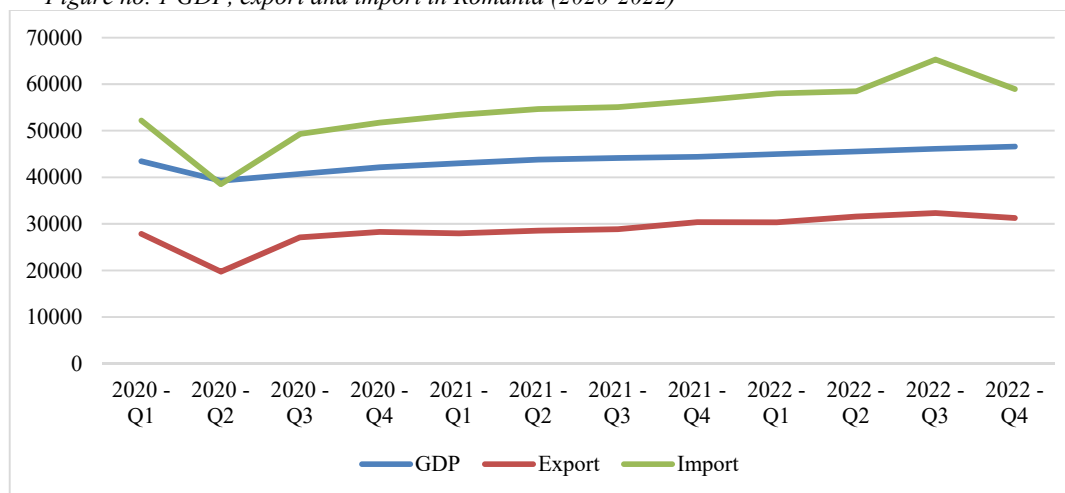
Source: National Institute of Statistics

#### 4. Findings

The data collected we have plotted in a graph in order to compare the evolution of GDP, exports and imports over the last 2 years.

We are interested in whether in 2020, semester 1, we will register a deviation due to the high inflation registered.

Figure no. 1 GDP, export and import in Romania (2020-2022)



Source: Author's contribution

We will focus our analysis on the year 2022, the year in which inflation recorded the highest rate, exceeding 13 percent.

As we can see from the graph above, in 2022, a year in which inflation exceeded 13%, the only indicator that recorded a significant fluctuation was imports.

With an increase in the 2nd and 3rd half of 2022, it subsequently recorded a decrease.

This development is not surprising, as the increase in inflation not only in Romania, but also worldwide, has led to an increase in the value of Romanian imports, even if quantitatively they have not changed much.

In the medium and long term, imports have been affected by the the decrease in citizens' purchasing power and demand, both of which are caused by inflation.

## 5. Conclusions

The inflation of 2022, although it reached a very high level, exceeding 13 percent as a rate, did not significantly affect GDP and exports, but had an influence on the value of Romanian imports.

Imports registered an increase starting with the year 2022, an increase that intensified in the 2nd semester and a decrease starting with the 3rd semester. The explanation for the increase is inflation itself, which caused an increase in the value of imports, at a constant or slightly lower volume. And the explanation for the subsequent decrease is the decline in the purchasing power of the population and demand, as a result of inflation.

Unlike other opinions, I believe that the current analysis suggests an impact of inflation on the value of imports, to the detriment of an explanation regarding imported inflation. If it had been so, we should have seen in the graph an immediate increase in imports in 2022 or even from 2021. And subsequently, an increase in the inflation rate.

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# Financial Crisis Cyclicity in Europe under the US Financial Disturbances’ Impact. A Logical Framework

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## Abstract

*The cyclicity concept of the economic and financial crisis is well known and recurrently experienced by the Western world economies. Various triggers could be depicted for each of the crisis episodes, but some remain constant in the post-factum analyses. While political events (war/territorial disputes, energy crisis, fiscal and monetary policies) or calamities (pandemic) cannot be either anticipated or influenced, their effects, which shape each crisis (inflation rate, cost of living, supply shortages, bankruptcies) should be possible to anticipate, in order to mitigate crisis’ effects on population and businesses.*

*Looking for patterns of the last century crisis is the obvious line of defense so that early signs are captured and acted on for future occurrences. Despite global indicators being monitored and triggers being put in place, the cyclic crisis pattern is one that could not be broken.*

**Key words:** financial crisis, cyclicity, inflation

**J.E.L. classification:** E42, E5, E31

## 1. Introduction

The recent (March 2023) bankruptcies of Silicon Valley Bank and Signature Bank, two large banks that cater to the tech industry, have triggered a financial crisis in the U.S. and immediately raised fears of a global contagion. According to Statista [8], these crashes qualify as the second and third most significant bank collapses in the U.S. in the last 20 years, with assets in value of 209 billion and 110.4 billion U.S. dollars respectively [8].

Figure no. 1. Top 10 US failing banks by asset value at the time of the collapse



Source: Statista, 2023

Several circumstances, including a difficult time for technological businesses, reglementation challenges, increased inflation rates, followed by rising interest rates, and bank runs that drove them to sell their bonds at a loss, contributed to the demise of these banks. The Federal Reserve launched a significant lending program, the Federal Deposit Insurance Corporation (FDIC) transferred all deposits from collapsed banks to other institutions, and the President in office reassured Americans that their funds are secure – in an effort that the government embarked to support the financial system. However, the impact of these bank failures is still unfolding and could have serious consequences for the economy and society at large.

Following the mentioned bank defeats, the three main federal bank regulators declared in a joint statement that special procedures would be put in place to guarantee that Silicon Valley and Signature Bank's deposits in their entirety – and not capped at the unusual ceilings - are to be honored [9]. One of the exceptional measures was put in place by The Federal Reserve (Fed), which implemented the Bank Term Funding Program (BTFP) to provide short term (less than 1 year) loans to qualified depository organisms in exchange for collateralized use of qualifying assets.

Global industry regulators like the European Central Bank, but also national regulators for the UK, Canada, Japan, and the Switzerland stepped in similarly, to endure exceptional liquidity flows in their respective systems, in order to stop the „desease” from spreading to more institutions. Major efforts to apeace the banking crisis were mostly made in Switzerland, where Credit Suisse was taken in, thus salvaged by its main competitor UBS in March 2023, in an *entente* facilitated by the government. The agreement, welcomed by UBS and the Swiss government, was intended as a method to save Credit Suisse from collapsing and sparking a new banking system crisis. Credit Suisse is anyhow regarded as a systemically significant financial institution.

Quite rapidly, significant interbank fund transfers took place to support the banks' weakening balance sheets, and restless analysts started speculating about a potential wider (and recurring) U.S. banking crisis. Whithin a week after the liquidity crisis had hit the two banks in the U.S., various banks had borrowed about \$150 billion from the Federal Reserve's discount window liquidity facility.

The situation degenerated though two months later when another player on the US banking sector, the First Republic Bank, was closed on 1 May 2023 by a local bank regulator, DFPI. First Republic Bank continued to lose deposits, so FDIC announced that it had taken over the local bank. JP Morgan Chase then purchased the bank, taking over the majority of First Republic's assets amounting to \$175 billion in loans and \$30 billion in securities, plus all its \$92 billion in deposits. The FDIC predicted it would suffer a \$13 billion hit from the deal and will share losses on First Republic's loans. The auction for the First Republic has thus been won by JPMorgan Chase, which is already by a number of metrics the biggest bank in the United States. The failing bank's deposits will all be transferred to it, along with "a substantial majority of assets," according to the New York-based bank's declaration. The most significant bank failure since the 2008 financial crisis, when Washington Mutual collapsed, was caused by the seizure of the First Republic. The assets of the failed banks were at the time acquired by JPMorgan as well.

As per several official statements, the US banks and regulators are confident that First Republic Bank's rescue has put an end to the local banking crisis. Given the risk of contagion, markets are still doubtful that the crisis has been resolved, and speculators are eager to find the next prey. The effects on all asset classes, including currencies, will be significant. If stock prices continue to decline, the dollar will receive some defensive support. However, if the economy rapidly deteriorates and there are restrictions on further monetary expansion, the Federal Reserve will be in a quite vulnerable position. The US dollar will be exposed on international markets if the US economy falters.

## 2. Theoretical background

The total amount of money held in circulation or in reserves is called the monetary base. This applies only to highly liquid assets such as cash, coins, banknotes, i.e. materialized money. The monetary base is increased by an increase in bank reserves, which happens when the Federal Reserve creates new funds for the US dollar to buy commercial bank bonds. The monetary base is an uncommonly cited monetary aggregate that is distinct from the money supply. It includes the total amount of liquidities in use as well as the portion of commercial bank reserves that are kept on hold

at the central bank. As a result of its ability to be multiplied through the use of fractionary reserve banking, it is sometimes called "high-powered money." (Cagan, 1965, p.9)

The imbricated levels of the monetary base are typically listed as M0 through M3 or M4, each of which represents a different aspect of a defined economic space's assets. If M0 is essentially cash, M1 is a specific indicator of the money reservoir that takes both material money and reserves into account, marking the most liquid component of the monetary aggregates. For the U.S., M2 includes M1 plus savings under USD 100,000 and money market funds. M2 assets are liquid, meaning they can rapidly be converted into cash, but they are less liquid than M0 and M1's components and less suitable as trade instruments. M3 comprises M2 plus large, long-term deposits in banks.

One sovereign entity, typically a nation's central bank, is in charge of most monetary bases. Through open market transactions or monetary policy, this body can typically alter the monetary base and monitors it as its main business. Implementing expansionary or contractionary policies can achieve this. By purchasing and selling government bonds on the open market, the government of a given country can keep some degree of control over the monetary base.

The percentage change in prices of goods and services from one year to the next is known as the inflation rate. It is one way of looking at the equation, in other words, we speak about inflation when a gradual, cumulative increase is manifested in the cost of the goods and services across an economic space, fact that determines a decline in the purchasing power per money unit. A persistent increase in the cost of finished products (consumer goods, capital goods) is referred to as inflation, sometimes known as currency devaluation (a decrease in the worth of money). These are classical definitions that can confuse the reader, by mixing in a same basket concepts like: purchasing power, price of goods and services and currency devaluation. Do they account for inflation triggers or rather unwanted consequences?

Methodologically, a basket of different goods and services that households have purchased over time is compared in value to determine inflation. The Consumer Price Index (CPI) and the Wholesale Price Index (WPI) are indexes that monitor inflation. *Demand-pull* inflation, which appears when total demand exceeds total supply, *cost-push* inflation, which happens when production costs rise, and *built-in* inflation, which happens when inflation expectations have an impact on wage and price setting, are typically cited as the causes of inflation. Again, we conglomerate concepts that – put together – could be encountered as consequences rather than causes of the phenomenon.

### **3. Research methodology**

The paper undergoes a classic qualitative approach of the studied phenomena, in an interlinked application of the monetary mass concepts (construct, components, influences, dynamics), inflation (triggers, misconceptions, dynamics) and financial crisis cyclicity.

It compares two cycles of financial crisis, one confirmed (2008) and one under possible formation (2023), by discussing their two main triggers: inflation and economic underperformance. We review undertaken measures to limit the new crisis formation and we assess the current outcomes.

The four components of the qualitative approach are: review of literature, phenomenological investigation, grounded theory and case report. The four components are attained in interrelation and in a sequential trail. The Cantillon effect is discussed and its continuous applicability over changing economic paradigm is emphasized.

### **4. Findings**

#### **4.1. Comparison of the 2023 upsurging crisis with the confirmed 2008 crisis**

According to FDIC data, the assets of all federally insured banks that failed in 2023 were greater than the assets of all 25 banks that failed in 2008, with inflation factored into the equation. The three banks' combined assets, according to the New York Times, were \$532 billion. When adjusted for inflation, that amount exceeds the \$526 billion held by the 25 banks that failed in 2008 during the height of the global financial crisis. Small bank failures typically go unnoticed on the larger market. For instance, more than 500 federally insured banks failed between 2008 and 2015. But among US banks ranked by assets, the three that collapsed in first half of 2023 made the top 30.

Up to \$250,000 is insured for US bank accounts. The vast majority of individual bank accounts are fully insured, according to the most recent data. However, due to the concentration of some very large accounts, particularly in the corporate sector, uninsured deposits have tripled since 2009 to \$7.7 trillion. Large amounts of uninsured deposits raise the risk of bank runs as businesses withdraw money from weaker banks. The FDIC released its most recent reform recommendations this week, taking into account three main alternatives. The first choice would be to keep things as they are, but doing so would make more failures likely. Another choice would be to insure all deposits and do away with the insurance ceiling entirely. The FDIC has significant concerns and noted that completely eliminating the cap could be expensive and could ultimately undermine financial stability because banks might take greater risks if their deposit bases are seen as more stable. It believes that implementing reforms with stronger protection for business accounts would be the most advantageous course of action. According to the FDIC, an insurance plan that would significantly increase or even provide unlimited coverage for such business accounts could improve financial stability by decreasing the likelihood that those depositors would flee a bank in large numbers.

Risk appetite is invariably reduced by concerns about the banking industry, particularly those related to contagion concerns and worries that rising interest rates will result in more casualties. As several analysts noted, it is difficult to assess where the next problem is going to manifest in a world where leverage has been very high because of very low-interest rates for a long period of time, while in the current situation, liquidity is not going to be as ample as before. US and international stock markets are likely to decline, and the US dollar also has a tendency to gain net support due to defensive factors.

Also, there are significant ramifications for the US economy as well. With the need to tighten lending standards and limit the amount of credit available in the economy, banks will inevitably be more cautious when making loans. Loans will be harder to obtain for businesses and people. Additionally, there is a chance that riskier loans made to businesses will be called in, increasing the chance of business failure. The commercial sector is particularly vulnerable to this threat. Before the end of 2025, more than \$1 trillion in commercial real estate loans will become due. As banks tighten their underwriting, many borrowers may find it difficult to refinance their debts.

The economy could be impacted by the tightening of credit standards, which will also have a significant impact on financial conditions. The Federal Reserve will find it much harder to defend any additional interest rate increases in this situation. Is this situation going to potentially create stirring conditions for the next financial tornado? Almost certainly yes, in a globalized economy where many States take the US Dollar as a currency choice for the national reserve. We note though that the preference for the US Dollar as a global reserve decreased from 72% to 58% between 2000 and 2022 [IMF data, 2023]. The same dataset speaks about financial fragmentation under increased geopolitical volatility.

#### **4.2. Monetary mass and inflation**

Depending on the rate and the perspective, inflation can have either good or negative consequences on the economy. According to economists, moderate inflation can promote economic expansion and consumer spending, whereas severe inflation can erode purchasing power and deplete savings. The European Central Bank (ECB) tries to keep inflation at or below 2% over the medium term in order to ensure price stability. Examples of demand-pull inflation include the 2006 increase in US housing prices. This resulted from a new insurance product that enhanced demand for asset-based securities and created a housing bubble by guaranteeing against mortgage and other loan defaults. Also, the inflation and economic development in the UK since 1980 resulted from declining interest rates, income tax rates, growing home prices, and increased consumer confidence, all of which increased aggregate demand and consumer expenditure.

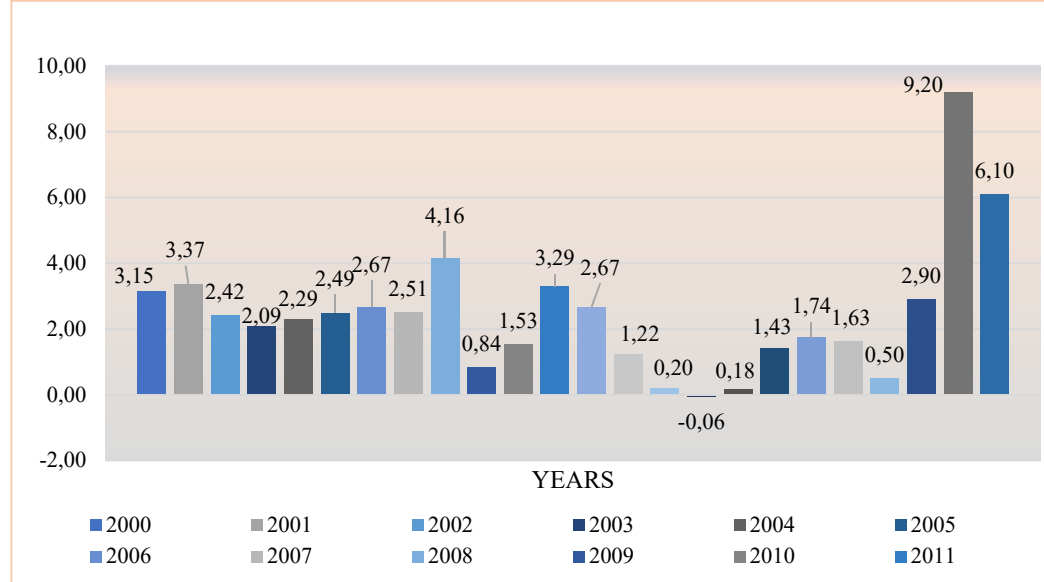
Along the same line, a decline in the value of the local currency can lead to a demand-pull inflation scenario by lowering export prices and raising import prices, which raises home demand and lowers international competition.

Despite all these well known, recurring scenarios that we can enumerate, what we can clearly see are the unwanted consequences of the inflated money, which find their primary source in the same old, simple and tempting maneuver that all administrations tend to recur to: printing money.



The money, as main exchange instrument, is not sensitive in nature, in the absence of the governments' intervention. With the development of the human society, also developed artificial ways in which natural phenomena (demand, offer, equilibriums, consumption, prices, etc.) are detoured and manoeuvred to obtain specific configurations and effects in certain moments by the governments in place. For insignificant and volatile advantages (for example illusion of prosperity for the voters), the administrations ruin well established equilibriums and postpone natural adjustments which would be applicable to correct or integrate misperformance.

Figure no. 2. Dynamics of the annual inflation rate in the Euro zone between Dec 2000 and May 2023 (%)



Source: World Bank, 2003

In the small consumer unit, the money creation process starts with a client defining a project. Sources of funding for the project are immediately sought, and a bank is chosen to finance it, after checking, variably thoroughly, on the client's solvability. It might be small projects, like buying a house or a car, refinancing an older credit, sending a child to college, or for medical expenses.

It is said that the commercial banks are in the business of transforming the duration. They attract short-term deposits and give out medium or long-term credits thus transforming the short-term liabilities into long-term assets. A part of the deposits is kept at the central bank or the Fed as compulsory reserves earning little or nothing at all. In fact, when a prospective client requests a loan, the bank is issuing a security with a face value equal to the loan plus costs and provisions. The Fed or the central bank like ECB is buying these securities by crediting the bank's account with new currency (asset purchase program). This stage is where the monetary mass increases, new money is pumped into the system.

The maturity of the security should be the same with the maturity of the loan so, at the end of the contract, the bank is redeeming the security and cancelling it. In fact, the existence of the secondary market requires that the securities remain valid and in circulation. They are different from the shares although they might pay a coupon as well. It appears that the value of the security is given by the quality of the loan collateral with all its fluctuations, but as too often seen, there could be securities not backed by any assets.

Another way to increase the money supply is a straightforward loan extended to the commercial banks. The third way is to manipulate the required reserves that the banks must maintain at the central bank. These reserves were reduced to zero by several central banks during the Covid'19 pandemic. No precautionary systemic measures were put in place, as force majeure could be invoked. The other banks whose assets do not qualify to the asset purchase programs, can still borrow, and extend loans in the fractional reserve system.

## 5. Conclusions

Between 2000 and 2021 the average inflation rate in the Eurozone was remarkably steady with a minor peak at 4.16% in 2008, thus not very shaken by the turmoil over the ocean, on the Dollar (see Fig. 2). Should it be linked to the fact that subprime crisis is more an American style of crisis or that the over-regulation on the Euro had favorable effects for once. Many were the circumstances, but the fact remains. Euro continued less traumatized by the American financial crisis, which contracted economies globally, and that despite its numerous objectionable components, given by its very aggregated, artificial nature.

At the same time, while a certain turmoil was forming, financially, around the post-pandemics' new context, the inflation rate on Euro jumps from 2,90% to 9,20% in 2022 as compared to the previous year. As mentioned, significant, unpredictable triggers such as pandemics and the war in Ukraine have set the scene for the monetary skid and these are certainly most authentic reasons that could cause inflation and financial crisis. Energy crisis, gas prices bouncing up, boycott to the Russian energy sources can also strain the monetary aspects of the Euro zone.

Additional aspects such as climate awareness determine costly choices for economies that already suffer the pressure of under-performing due to uncontrollable, exogenous factors but also due to erroneous management decisions. Still, in a visibly forming crisis, the governments' response for additional sources of financing deficits and under-performance remains the same solution: money printing. The cheapest answer to years of self-indulgence, lack of economic vision and of realistic economic measures.

There are several distortions that such mechanisms are introducing in the economy. First, the choice made by the central bank on which assets to buy and how much to change the required reserves is political in nature: no economic free will, no natural formation of phenomena. Political decisions are not economic in substance, they do not take into consideration the logic of economics, in other words they tend to be less efficient thus leading to malinvestment. Free will exists in the economy for a reason: against imposition of exogenous factors and policies, which – even with best intentions – will introduce distortions of phenomena. Secondly, the issuance of additional money against securities has a huge potential to be inflationary if its rate is higher than the productivity increase; in other words, more money will chase less merchandise and services. The Cantillon effect, which disrupts relative pricing of products and services, promotes redistribution of purchasing power among individuals, and causes the misallocation of limited resources, is still very much in evidence.

When there are no productivity questions, no natural adjustment to the cyclical contraction or the evident crisis triggers, the stirring-down of the economy is ensured. As per the known paradigm, when from the same actions governments expect different outcomes, the economic pathology can only be the same.

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## Administration, Financing and Decentralization of the Schools System in Romania

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### Abstract

*This article aims at depicting practical hypotheses of the concept of decentralization in the Romanian pre-university education system, from both financial and administrative perspectives. It shall comprise aspects related to territorial decentralization and decentralization of services. It uses both quantitative and qualitative research methods and underlines the complex advantages which multi-level-governance - related principles can bring to the Romanian education and, within a wider framework, to the overall administration.*

*Definitions and approaches to the decentralization process clearly show an evolution in both the concerns of practitioners and specialists. This evolution must be understood in the context in which even the process of decentralization is not a static reality, suffering transformations depending on the geographic, historical, socio-economic context etc.*

*When talking about decentralization, we must consider both the basic and intermediate level of the local public administration. Therefore, an evolutionary presentation of decentralization also logically includes regional decentralization or regionalization.*

**Key words:** pre-university education, multi-level governance, decentralization, administration, schools

**J.E.L. classification:** I28

### 1. Introduction

The term decentralization encompasses various concepts, such as: local form of government, democratisation, alternative ways of providing public services, privatization, efficient government etc. Within these approaches, the emphasis is placed on decentralization as a means to achieve the objectives mentioned above. However, it should be highlighted that these approaches can, terminologically speaking, come into contradiction with approaches from the judicial perspective.

As a first meaning, decentralization refers to the process of restructuring or reorganisation of authority, thus, leading to a system of co-responsibility shared among institutions of public administration from central, regional and local level, based on the subsidiarity principle, thus improving the quality and the efficiency of the system of governance as a whole, as well as the authority and capacity of sub-national levels. Decentralization can also contribute to key elements which denote a good form of government - such as, the increase in the citizens' opportunities to take part in the making of economic, social and political decisions, the development of people's abilities to take action, growing transparency and responsibility of state institutions (Alexandru, 1999).

As a sequel to the previous definition, another approach tells us that decentralization should not be seen as a purpose in itself, but as a means to generate a more transparent and efficient local governance, which meets citizens' needs, and to create systems of decision-making at local level by its elected representatives. When local and regional entities are allowed to administer their own interests and to facilitate a closer relationship between central and local authorities, it means that local forms of government allow men's needs and priorities to be known and governmental interventions to answer various social needs. Gradually broadening the meaning of decentralization, it is thought that while the implementation of strategies concerning long-lasting human development requires decentralized processes, both local and participative, through which high priority objectives can be identified and solved in the fields of poverty reduction, creating new opportunities for employment, gender equality and the protection of the environment.

A third definition is concerned with the benefits associated with the decentralization process. Thus, it primarily stimulates the search for innovations in what concerns public policies and programmes, as decentralization itself means innovative practice in the structuring of governance. Secondly, it encourages innovation since it 'forces' local administration to assume new responsibilities covering a wider area within the process of providing public services. It is envisaged that assuming new responsibilities as a consequence of decentralization often leads to: the improvement of techniques and practice in the area of planning, budgeting and management; the development of new instruments; the development and training of human resource needed in order to provide decentralized programmes and activities.

Another definition states that decentralization is a complex phenomenon which involves several geographical entities, social actors and sectors. Geographical entities include international, national, regional and local levels. Social actors refer both to public and private sectors, as well as civil society. Social sectors include fields, such as the political, social and cultural ones, as well as the environment. While projecting the decentralization policies it is essential to use a systematic approach - so as to include all these domains, which sometimes overlap, but at the same time, their characteristics and the way they influences decentralization should be taken into account. If we consider all these dimensions and the actors involved in decentralization, then it could be defined as a mixture of political, administrative and fiscal functions and relations. All these should be included in the making of a decentralized system.

Decentralization is not an alternative to centralization. They are both necessary, although in different proportions. This is a complementary relationship. Instead, it should be stated that the concept of centralization is used with a broad meaning, and it is sometimes identified with de-concentration.

Decentralization does not mean exclusively the reform of the public sector. As we have previously stated, administrative decentralization is only one of the dimensions of the decentralization process at the social level.

It involves the role and the relationships among all social actors - the public and the private sectors, alongside the civil society. When the collocation "decentralized governance" is used, one tries to incorporate the idea that decentralization is not strictly limited to the public sector.

## **2. Theoretical background**

Among the characteristics of the process, we should primarily mention decentralization as a tendency. Both in the private (e.g. management by results) and public sectors, the efforts concerning decentralization are to be situated within the international tendencies –the collapse of the centralized regimes and the emergence of claims in the area of autonomy /the state fragmentation, as well as a poignant mistrust in governance, in general.

Decentralization should be regarded as a process. Decentralization should not be perceived as a mere transfer of power, from the centre towards the sides of the administrative system, because the public administration's capacity is not the same. There may be differences between the central and the local level, as well as at the local levels, according to certain variables (for example the differences between the urban and the rural administrative institutions). The power transfer should be regarded as a two-sided coin - on the one hand it can improve the performance in the public sector; on the other hand it might generate various problems, such as corruption and nepotism, the

emergence of local clans etc, especially in countries which are in the transition process (Alexandru, 1999).

Another approach that we have identified is that of decentralization as a counterpoint to globalisation. National states are losing more ground in favour of the globalization of the economic activity and the creation of organisations/super-state forms which take over the attributions specific to national governments. In this context, decentralizing certain activities/processes at the local or regional level makes citizens feel less isolated in relation to supranational bureaucracy.

On the other hand, decentralization could be a mixture of 4 dimensions, namely: collective/exterior - institutional/legal forms and procedures; collective/interior - social culture, which is often under a latent form; individual/exterior - the individual's exterior observable behaviour in different social institutions; individual/interior - the individual's mentalities, values, mental constructions, emotions in different social institutions. Every decentralization process should take into consideration all these 4 dimensions.

Decentralization should be seen as a systematic and holistic approach or as being limited and exhaustive. We talk about a gradual process, which should neither be too extended nor limited to only one sector. It is important to find a balance for the developing countries.

At the local level of the development programmes, we might talk about decentralization and the management of development programmes. This is a relevant aspect especially for the countries which benefit from foreign financial assistance for their development programmes. The decentralization of responsibilities regarding the development programmes should be performed at the public administration level, as well as at the level of other institutions which represent local communities such as non-governmental organisations. The technical assistance coming from financing institutions is coupled with real responsibilities regarding project and resource management; the legitimacy of the public administration and community institutions will improve.

The process of decentralization still remains a priority for the Romanian Government, as it has also been laid out in the Strategy for Public Administration Consolidation 2014-2020, approved by Government Decree No. 909/2014, a national strategic act which, on the one hand, reflects public policy solutions that firmly address the needs of the Romanian public administration, and, on the other hand, represents an ex-ante conditionality in the 2014-2020 budgeting process.

The strategy of decentralization is a strategic document grounded in the principles of the Framework-law on decentralization no. 195/2006, with the subsequent modifications and completions, and the law regarding the local public finances with the subsequent modifications and completions.

The principle of subsidiarity means the exercising of competences by that local public authority which lies at the administrative level closest to the citizen and which is endowed with the required administrative capability.

Another principle is that of ensuring the resources suitable for the transfer of competences. According to the law, one must respect the principle of responsibilities of local public administration in relation to their competences, which imposes the obligation to meet the standards of quality for providers of public services and utilities and, also, that of ensuring a stable and predictable process of decentralization based on objective rules and criteria that should not restrain the activity of local public administration authorities or limit the financial local autonomy (Barna, 2003).

On the one hand, the principle of equity ensures access for all citizens to public services and utilities, and, on the other hand, the principle of financial local autonomy is the one according to which the administrative territorial units are entitled to sufficient financial resources which the local public administration authorities can use in exercising their duties based on the law and within its limits.

Another principle is that of proportionality, according to which the financial resources of the administrative territorial units must be proportionate to the responsibilities of the local public administration authorities established by law, and last but not least, the principle of consultation according to which local public administration authorities, through their associated structures, must be consulted on the process of allocating the financial resources from the national budget to the local ones (Dinca, 2013).

The main objective is to consolidate the capacity of the public administration to deliver diverse and high quality public services through the transfer of new competences from the central administration to the local public administration authorities. As a result of the decentralization process, local public administration authorities will acquire new competences in agriculture, culture, tourism, environment, health, education - extracurricular activities, youth and sports.

The specific objectives of the National Decentralization Strategy refer to many aspects such as managing the transfer of the competences from the central level to the local one, which enables consolidation in the application of the principle of subsidiarity and improvement in exercising decentralized competences in order to ensure high quality of public services and of how public funds are spent.

Managing the transfer of competences from the central level to the local one which enables consolidation in the application of the principle of subsidiarity involves the following activities: going through the preliminary stages of the decentralization process according to Law No. 195/2006, with the subsequent modifications and completions, the transfer of competences from central public administration authorities to the local ones, as well as the transfer of the social assets related to the decentralized competences through the sectoral laws of decentralization.

During the implementation of the decentralization process, Ministry of Regional Development, Public Administration and European Funds, through the specialised directorates, will offer technical support in drawing up the impact analyses regarding the solutions proposed in ensuring decentralization.

To achieve the specific objective regarding the improvement of the decentralized competences in order to ensure high quality public services and spending public funds, the following activities are carried on : drawing up and updating the cost and quality standards in providing decentralized public services, periodical monitoring and evaluating sectoral strategies regarding the decentralizing of competences, and, if needed, developing/consolidating the mechanisms of methodological coordination, monitoring, inspecting and supervisory body with regard to the manner in which the legal provisions are respected, and strengthening the ability of the local public administration authorities to efficiently perform the decentralized competences (Popa, 2018).

### **3. Research methodology**

Starting from the necessity of re-examining the competences of the central public administration authorities within the context of improving their activities, this strategy outlines, at a sectoral level, the guiding lines for reallocating the competences between the central level and the local one of the public administration, from the perspective of improving the way of providing public services.

The actions proposed to be carried out within the decentralization process aim to achieve the specific objectives of the strategy in order to allow a unitary and coherent approach for each of the fields included in the decentralization process. This one aims to take short-term measures through setting up flexible structures able to closely and promptly meet the real needs of the population,

Pursuant to Article 3, Letter a) of Law no. No. 195/2006 with its subsequent modifications and completions, the principle of subsidiarity consists in the performance of competences by that local public authority which lies at the administrative level closest to the citizen and which is endowed with the required administrative capability for exercising the service. On the basis of the guidelines laid down by the coordinating ministry in charge with the decentralization process, all the other ministries involved in the process of transfer of competences will carry out all the preliminary steps, pursuant to Article 3, Letter a) of Law no. No. 195/2006 with its subsequent modifications and completions: an overall strategy for decentralization drafted by the Ministry of Regional Development, Public Administration and European Funds.

In the absence of an overall strategy for decentralization, that analyses the timeliness of the transfer of competences from the central government administration to the local public administration authorities, the other ministries or competent bodies should develop sectoral strategies of decentralization; the identification by the government, ministries or other competent bodies of the central government administration of the necessary resources, full costs associated with the competences to be transferred and of the budgetary sources on the basis of which they are funded, as well; the organisation by ministries or other competent bodies of the central government

administration of pilot scheme in order to test and evaluate the impact of the solutions proposed in order to decentralize the competences, which are not exercised by structures subordinated to the competent Ministries organised at the local level; the drawing-up of the impact assessments of the competence transfer by ministries or other competent bodies of the central government administration; the drawing-up by ministries or other competent bodies of the central government administration of draft sectoral laws allowing the transfer of competences to the local public administration authority; the transfer, if applicable, of financial, human and material resources in order to perform the transferred competences after the sectoral law comes into force.

The competencies proposed to be transferred from the level of the central public administration to the level of the local public administration authorities strictly concern the competencies related to the implementation of both national policies/strategies and the regulations in force at local level. In applying art. 6 of the Framework-law on decentralization no. 195/2006, as subsequently amended and supplemented, and art. 6 of the Law no. 273/2006 regarding the local public finances, with the subsequent modifications and completions, in the areas included in the decentralization process, the competencies transferred will be accompanied by the necessary resources for their exertion, namely: human, financial and material resources.

National regulatory competencies, policies and strategies, the methodological coordination of the work carried out by the structures responsible for the exercise of decentralized competencies, as well as the inspection and the control over the manner in which the legal provisions are complied with – all of these will be exercised by the central authority in the field, with the purpose of uniform implementation of national and EU policies and strategies.

Thus, the local public administration authorities will remain responsible to the competent ministry for the method applied to exercise their competencies. The inspection and control function is exercised with regard to the activity of the local public administration authorities, in regard to their competence to issue authorizations /notifications/agreements, as well as the way they have ensured that all these are observed, and the measures taken in case of non-compliance and so on.

In order to substantiate the decision on the timeliness of the transfer of competencies from the level of the central public administration to the level of the local public administration authorities, the ministries in charge of the seven fields subject to the decentralization process will produce impact analyses and submit them for approval by Government.

Following the approval of these impact analyses and in the light of the results obtained, it will be decided whether the drawing up of sectoral bills will be elaborated, by which the decentralization of competencies will be carried out, in accordance with the provisions of both the Framework-law on decentralization no. 195 / 2006, as subsequently amended and supplemented, and the Government Decision no. 139 / 2008, as subsequently amended and supplemented.

The overall strategy for decentralization aims mainly to analyze the timeliness of the transfer of competences from the level of the central public administration to the level of the local public administration authorities and to map out courses of action at the level of each ministry involved in the decentralization process, according to the applicable legal framework.

The current strategy aims at identifying the fields subject to the transfer of competences, and after that, all the competencies that are to be transferred from the level of the central public administration to the level of the local public administration authorities shall be fully and exhaustively identified within the impact analyses, elaborated by the line ministries (Profiroiu, 2003).

The fields included in the decentralization process are: agriculture, culture, tourism, environment, health, education – extracurricular activities, youth and sport.

In the field of agriculture, it is envisaged the transfer of certain competencies pertaining to the central public administration in this field to the local public administration authorities, process which was initiated at the end of 2009, by founding the county chambers of agriculture, resulted from the reorganization of the agricultural consultancy offices, decentralized public institutions, with legal personality, subordinated to the county councils. In August 2016, the chambers of agriculture were taken over from county councils and subordinated to the Ministry of Agriculture and Rural Development.



Thus, in accordance with the provisions of Law no. 157/2016 regarding some measures for the reorganization of some subordinated/coordinated structures of the Ministry of Agriculture and Rural Development, the directorates for county agriculture and the municipality of Bucharest have reorganized themselves, by taking over the activity, the patrimony and the personnel of the directorates for county agriculture and the municipality of Bucharest, agronomic houses, functional departments under the Inspection, Control and Monitoring Department, within the Ministry of Education and Rural Development, as well as of the county chambers of agriculture, which are all dismantling structures.

In order to make the territorial delivery of services efficient in the sphere of central public administration in the field of agriculture, respectively to improve the communication with the beneficiaries (the agriculturists), there is a proposal to transfer some competencies from the Ministry of Agriculture and Rural Development (MARD) to the county authorities of local public administration. Thus, this strategy aims at analysing the possibility of transferring - at county level - the competences regarding the implementation of the national policies and regulations in the field of agriculture and rural development, currently exercised by: the county agriculture directorates and of the municipality of Bucharest, respectively, as they were reorganized according to the provisions of Law no. 157/2016, the county offices of pedological and agrochemical studies, the regional subsidiaries under the National Agency for Fisheries and Aquaculture.

In order to substantiate the resolution regarding the appropriateness of competence-transfer process, the Ministry of Agriculture and Rural Development draws up the impact analysis, which will be submitted for approval to the Government of Romania. Thus, at a governmental meeting, the Minister of Agriculture and Rural Development shall give an informative presentation on the conclusions of the impact analysis, in view of the opportunity for the drafting of the sectoral law on transfer of competencies in the field of agriculture.

In the field of culture – the Ministry of Culture and National Identity initiated the decentralization process as early as 1996, with several transfers of competencies of some public cultural institutions to the local public administration authorities. Thus, as a result of the decentralization process, the local public administration authorities in the counties exercise exclusive competencies on: county public libraries, county museums, county centres for the preservation and promotion of traditional culture, public institutions of performances and concerts (theaters, philharmonic orchestras, bands and artistic ensembles), popular universities with legal personality.

At the level of the local public administration authorities from the level of communes, towns and municipalities, competencies were transferred regarding: cultural homes, public universities with legal personality, public libraries and museums, public institutions of performances and concerts (theaters, philharmonic orchestras and orchestras and artistic ensembles).

In applying the principle of subsidiarity in the field of culture, local public administration authorities are most interested in managing, protecting and capitalizing on the resources on their territory, including mobile and real estate assets. In this respect, they are best placed to exercise competences in managing, protecting and capitalizing on assets belonging to the mobile and real estate property of local interest (excluding Class B historical monuments).

Thus, the strategy aims at the transfer at county level of competencies regarding the implementation of national policies and regulations in the field of culture, as follows: the competencies exercised by the county directorates for culture and the national patrimony, and of the municipality of Bucharest, respectively, the competencies regarding: endorsement of the concession, free use of public utilities or rental of buildings, belonging to the public property of the administrative-territorial unit, which are historical monuments; endorsement of interventions on Class B historical monuments; endorsement of the classification and downgrading of Class B historical monuments; endorsement of urban planning and spatial planning documentation for the establishment, delimitation and regulation of the construction of protected areas for historical class B monuments or built protected areas with historical class B monuments.

In order to substantiate the decision on the appropriateness of the transfer of competencies, the Ministry of Culture and National Identity elaborates the impact analysis, which will be submitted for approval to the Government of Romania. Thus, at a Government meeting, the Minister of Culture and National Identity will give information on the conclusions of the impact analysis in

view of the opportunity elaborate the Sectoral Law on the transfer of competencies in the field of culture (Nicola, 2003).

Thus, the strategy aims at analysing the opportunity of transferring competences that regard the implementing of national policies and regulations in extracurricular education on a county level, being currently applied in children's palaces and clubs, as well as in school sports clubs. With a view to grounding the decision regarding the opportunity of transferring the competences, The Ministry of National Education is working on the impact analysis, which will be subject to approval by the Romanian Government. Therefore, the Minister of National Education will present before the Government a report concerning the conclusions of the impact analysis related to the opportunity of drafting the sectoral law of transferring competences in education.

In what concerns youth and sports, there has not been significant evolution of decentralization, starting with 2010, the transfer measures from central to local level aiming mainly at moving estate from the public state domain to the public domain of administrative-territorial units. Thus, between 2011 and 2012, 16 Government decisions were made, which were passed towards 26 leisure centres.

Consequently, the strategy aims at analysing the opportunity of transferring, on a county and municipal level, the competences regarding the implementation of national policies and regulations in the field of youth and sports, currently exercised by : the county department for sports and youth, on county level and Bucharest respectively ; leisure centres on county level and Bucharest respectively ; students' cultural houses on county level and Bucharest respectively ; sports clubs and sports facilities within the administrative-territorial unit they belong to.

With a view to grounding the decision regarding the opportunity of transferring the competences, The Ministry of Youth and Sports is working on the impact analysis, which will be subject to approval by the Romanian Government. Therefore, the Minister of Youth and Sports will present before the Government a report concerning the conclusions of the impact analysis related to the opportunity of drafting the sectoral law of transferring competences in youth and sports.

The expected outcome of the general strategy of decentralization will materialize in an institutional and legal framework that is appropriate for the implementing of the decentralization process, as well as in creating systems/tools of monitoring and streamlining the exercise of the decentralized competences.

The monitoring indicators will be: the number of sectors/domains in which the decentralization of competences has been applied; the number of sectors/domains in which the decentralization of competences has entailed the transfer of resources necessary for exercising them; the number of sectors/domains for which standards of cost and quality in providing public services have been drawn or, where applicable, updated.

The financial impact regarding financing the decentralized competences on a county/local level is estimated in relation to the approval of sectoral bills on decentralization and in accordance with the provisions of Article 6 of Law No 273/2006 on local public finance, with all subsequent amendments and completions, as follows: the decentralization of some activities and the Government's transfer of some public expenditure to the administration and financing of the local public administration authorities, as a consequence of the decentralization of some competences, as well as other new public expenditure will be done according to the law, upon ensuring the necessary financial resources, based on the respective cost standards of public services, and until their approval, based on the sums approved in the previous year, updated in accordance with the Consumer Price Index, as follows: in the first year, by the distinct inclusion in the annex to the state budget law of amounts allocated for special purpose, necessary for financing the transferred public expenditure or of new public expenditure, as well as of the grading criteria; in the following years, by including the respective resources in the amounts allocated for balancing the local budgets allotted to the administrative-territorial units, except those specifically mentioned in the annex to the state budget law.

Implementing this strategy involves drafting, amending, completing or repealing, where applicable, both the legislation that sets the legal status of the organization and functioning of the central and local public administration undergoing decentralization, and the legislation within the area of activity undergoing decentralization.

The expected main legal implications refer to: amending the framework legislation and the subsequent legislation applicable to the local public administration following the process of decentralization; drafting sectoral laws for materializing the transfer of competences together with the transfer of patrimony related to exercising these competences; amending/ completing/ repealing primary level legislation (laws, emergency ordinances, simple ordinances) and secondary level (Government decisions, orders of ministers etc.) that regulate the competences within the process of decentralization.

#### **4. Findings**

Based on the following assumptions that the school belongs to the community of which it is a member, it adapts to its culture and values and meets the Community's educational needs, decentralization of the system of financing and administration of schools it achieves by allocating funds from the local government budget from each locality. In Bucharest, through the HCG of Bucharest nr. 5/25.01.2001, the land and buildings on which the public education units operate have been transferred to the administration of the district halls.

The administration of the schools in the six sectors of Bucharest has the following areas:

- Directorate subordinated to local administration;
- Rehabilitation of educational establishments;
- Equipment, school furniture and consumables;
- The continuous improvement of the conditions for education;

The school administration manages the entire school network in Bucharest administratively and financially, carrying out the following activities: accessing projects for investment, modernization, expansion and rehabilitation of schools, obtaining ISU approvals for educational establishments which have been in the process of modernization, rehabilitation or consolidation, upgrading of sport halls and land, thermal repair and building facades, sewerage, electrical installations, carpenter repair, classroom hygiene, sanitary groups, equipping schools with technological equipment and sanitary materials.

The challenges of 2020, regarding decentralization in the field of education, in the context of the pandemic with the Covid-19, have led school administrations in the districts of Bucharest to take a number of measures regarding the best way of doing teaching-learning-evaluation in the online system.

The measures involved technological and information investments in providing schools with equipment, high-performance computers, the acquisition of educational platforms and the expansion of internet connection traffic by concluding contracts with leading suppliers on the market.

#### **5. Conclusions**

In the field of education, the transfer of skills from the Ministry of Education and Research level to local public administration and the leadership of the educational establishment has been shown to be beneficial to all actors involved in the educational act (students, principal, teachers, parents, authorities, other bodies and NGOs).

Also, a turning point to be focused on represents the challenges of the year 2020, regarding decentralization in the field of education, in the context of the pandemic with the Covid-19, have led school administrations in the districts of Bucharest to take a number of measures regarding the best way of doing teaching-learning-evaluation in the online system.

The measures involved technological and information investments in providing schools with equipment, high-performance computers, the acquisition of educational platforms and the expansion of internet connection traffic by concluding contracts with leading suppliers on the market.

Another key point of this research represents the expected outcome of the general strategy of decentralization which will materialize in an institutional and legal framework that is appropriate for the implementing of the decentralization process, as well as in creating systems/tools of monitoring and streamlining the exercise of the decentralized competences.

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## Researching Local Community Satisfaction in Mihai Viteazu Village

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### Abstract

*Satisfaction represents a major factor for success, and when it comes to relationships between tourists, local communities and state authorities, each one of them is involved in the tourism processes.*

*The local community discuss continuously with the customer and with other customers to discover ways to deliver better value.*

*The suggestions about improvements that can be made by the local community to raise tourists' satisfaction are very important. On the other hand, local community satisfaction will determine the tourists' satisfaction.*

*In this new perspective, the local community in a village plays a crucial role in raising the tourism and economic potential. Why? Because: local community is involved in any process related with tourism and with the state authorities also. Researching local community satisfaction in Mihai Viteazu village represented our paper goal and the results have shown that local community in Mihai Viteazu village is satisfied in a proportion of 75%.*

**Key words:** Tourism, satisfaction, research, marketing, local community

**J.E.L. classification:** Z3, M31

### 1. Introduction

The satisfaction represents „a fulfilment of one's wishes, expectations, or needs, or the pleasure derived from this” (Siebert et.al., 2019). While satisfaction is sometimes equated with performance; it implies compensation or substitution whereas performance denotes doing what was promised (Li et.al, 2019).

The relationships between tourists, local communities and state authorities play an important role in the tourism processes. The local community discuss continuously with the customer and with other customers to discover ways to deliver better value.

The suggestions about improvements that can be made by the local community to raise tourists' satisfaction are very important. On the other hand, the local community satisfaction will determine the tourists' satisfaction.

In this new perspective, the local community in a village plays a crucial role in raising the tourism and economic potential. Why? Because: the local community is involved in any process related with tourism and with the state authorities also. Researching local community satisfaction in Mihai Viteazu village represented our paper purpose.

## 2. Theoretical background

A relevant characteristic of any community is supported by the differentiating level of the community development process. Thus, the existence of the specific differentiating characteristics may contribute to precise highlight of the strategic elements of the community (Cucerzan, 2010). A community which is satisfied and feels prosperous with its economical welfare is interacting much better with the potential tourists. The interaction implies fulfilling of tourists' needs, their proper guidance and counselling (Dachin, 2003).

At the level of Cluj County, an action plan was created for the period 2014-2020 and its main goal represents the elaboration and updating the Development Strategies. The purpose of existence of such strategy is maximizing the chances of the Mihai Viteazu commune and its members to access non-refundable funds for the economic and social development of the commune.

Mihai Viteazu commune is part of Transilvania region, which lies in the south-eastern part of Cluj County at the western border of the Transilvania Planes and mostly the depression Turda - Câmpia Turzii, formed in the middle-stream and down-stream of Arieş river. The Turda - Câmpia Turzii depression is having a land area surface of 4753 ha, from which 1129 ha is Mihai Viteazu commune (Mihai Viteazu 880 ha, Cheia 114 ha, Corneşti 135 ha). The administrative centre of the Mihai Viteazu commune is the Mihai Viteazu village which lies on the national road 75 (DN75) Turda – Câmpeni, at 6 km away from Turda city.

From the geological point of view, it predominates meadow and terrace riverbeds. These geological formations constitute the base ground of Mihai Viteazu and Corneşti villages, both of them situated on the third terrace of the right bank of Aries River, on the terrain with gentle and very gentle slopes (small tilt angle) to the south.

Within Mihai Viteazu commune there are recorded around 200 economical agents, in various activity domains like: commerce, tourism, constructions, agriculture, services and industry. In Mihai Viteazu commune the main occupation of the population is agriculture. Here are being developed a wide range of agricultural activities. The economical entities recorded on the Mihai Viteazu commune with agricultural activity domain are representing 6% from the total number of the economical agents (Bi et. al, 2019).

The stable population represents the population made up of persons that live in the commune with all its component villages, with the residence address in one of the commune villages at that time. Thus, according to the census of 2018, the stable population of the Mihai Viteazu commune is made up of 5423 persons, where 4129 persons are in Mihai Viteazu village, 769 persons are in Corneşti village and 525 persons are in Cheia village.

Considering the number of persons and their repartition on the Mihai Viteazu commune component villages, it can be observed that Mihai Viteazu village has the biggest percentage / impact regarding the stable population, consisting of 76%, Corneşti village represents 14% and Cheia village represents 10%.

In conformity with the data taken from the Agricultural Register of the Mihai Viteazu commune, in the commune exists a total number of 2534 farm households (1897 farm households in Mihai Viteazu village, 355 farm households in Corneşti village and 282 farm households in Cheia village).

## 3. Research methodology

The questionnaire is a research instrument which comprises a certain number of questions, which are arranged in a logic and successive order that tend to form a whole. By applying the questionnaire, the inquiry operators must record in written format all the data they receive. If the questionnaire is well structured, then the research project might just have a real success.

The questionnaire has been applied to 100 residents in Mihai Viteazu commune with the purpose of following the satisfaction level of the local community and their welfare level. Data collecting process has been carried out on the field, on site, in Mihai Viteazu commune, between May 2018 and August 2018.

#### 4. Findings

Regarding the question „How long have you lived in the commune?”, it resulted that a number of 45% of individuals have answered (checked in the questionnaire) they have lived between 20-40 years in the commune; 30% have answered they have lived in the commune between 10-20 years and 25% of individuals have answered they have lived for more than 40 years in the commune. Thus, the population of the Mihai Viteazu commune is not an old one yet.

How satisfied are you in general about the following (see Figure no. 1)?

Figure no. 1. The way of life for the local community of Mihai Viteazu commune



Source: Made by the authors

The statement, „the satisfaction about personal way of life” (Fig. 1), the maximum grade is 5 representing the „very satisfied” answer and corresponds to 55% of the responses. The minimum grade is 4, resulting 45% of the responses.

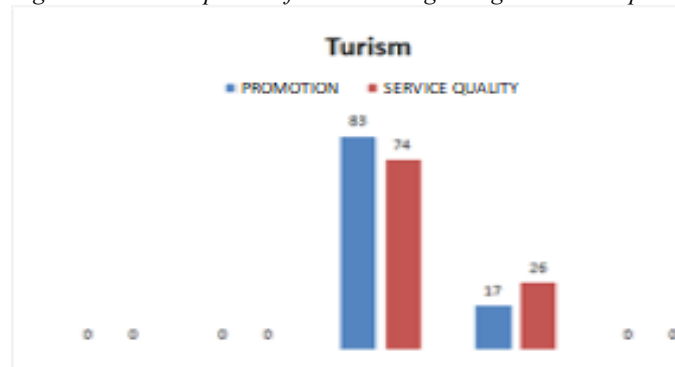
The next statement, „the village where you live” (Fig. 1), the maximum grade is 4, „satisfied” and corresponds to 59% of the responses. The grade 5, „very satisfied”, corresponds to 41% of the responses. According to collected results the village is very well developed.

The third statement, „the street where you live” (Fig. 1), leads to 52% of responses with grade 4 and 41% of responses with grade 5. This statistic highlights the inhabitants of the commune are satisfied about their chosen street.

The last statement, „your house / place” (Fig. 1), leads to 100% of responses to be graded as 5, meaning the people are very satisfied about their houses.

Next, we wanted to find out the local community’s opinion about the practiced tourism in the Mihai Viteazu commune (see Fig. 2) (Marin-Pantelescu, 2009).

Figure no. 2. The opinion of the locals regarding the tourism practiced in Mihai Viteazu commune



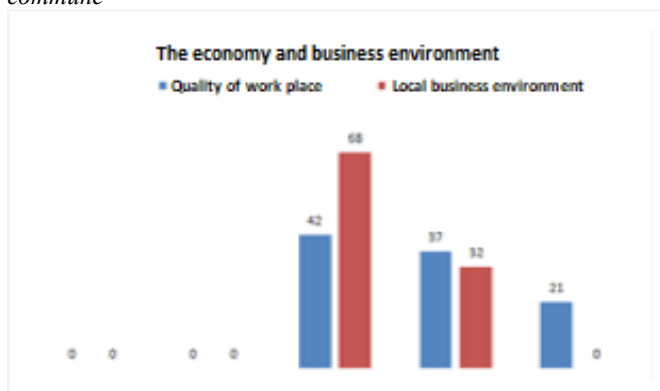
Source: Made by the authors

Promoting the touristic objectives from the surroundings of the commune (Fig. 1) are representing 83% of the responses with grade 3 and 17% of the responses with grade 4. This means that on the commune level there are some minuses / weaknesses regarding the process of promoting the image of the commune on the tourism "realm" (marketing process).

To increase the promoting process of the commune (touristic level) it is proposed to access more funds.

The service quality of the provided accommodation units (see Fig. 2) is forecasted to be 74% with grade 3 (average) and 26% with grade 4 (satisfied / good). The accommodation units' services must be extended and substantially improved for better image impact on the tourism level. In this way the visibility and image of the commune will increase as well as the number of tourists.

Figure no. 3. Locals' opinion regarding the economy and business environment of the Mihai Viteazu commune

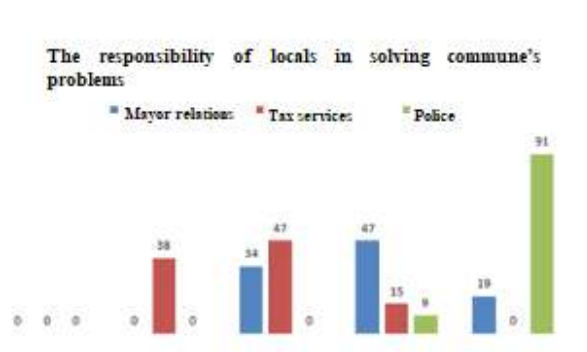


Source: Made by the authors

The quality of the work / job environment (Fig. 3) corresponds to 21% of the responses with grade 5 (very good / very satisfied), which is a small percentage because the commune lacks jobs and often, the locals are forced to look for a job elsewhere (outside the commune). Grade 4 (good / satisfied) corresponds to 37% of the responses and 42% of the responses corresponds to grade 3 (average). These forecasts are more or less at the same level resulting, somehow, in very strict employers (Merce et. all, 2009).

The local business environment corresponds to 68% of the responses (Fig. 3) with grade 3 (average), resulting in this case that development (as a direct action) of the local business is necessary. In present we have 56% level of local development, percentage given by the agricultural activities where we can identify four big local producers. Commerce represents 25%, resulted from the agricultural products. In this case (agricultural products), the commune is very famous for its sweet onion of Arieș. Also, 32% represents the responses (also Fig. 3) corresponding to grade 4 (good / satisfied) (Ulrich et. all, 2019).

Figure no. 4. The satisfaction of the locals regarding the relation / interaction with the authorities in Mihai Viteazu commune



Source: created / made by the authors



The relation / interaction with the mayor office corresponds to 34% of the responses with grade 3 – average (see Fig. 4) and 19% of the responses are corresponding to grade 5 (very good / very satisfied). This relation is given: by the access to the local data of the commune and by informing the locals about all the implementations and activities conducted. For example, before starting some local projects (which were already implemented at the present time), it was conducted a feasibility study (a detailed analysis) regarding the real needs of the locals (Otiman et. all, 2013).

The relation / interaction with the Taxes and Fees Service (Fig. 4) is corresponding to 38% of the responses with grade 2 (the minimum score – below average) and 47% of the responses with grade 3 – average. From these forecast results that the citizens of the commune are not attracted by the taxes and fees (Rusu et. all., 2011).

The relation / interaction with the Police Service is corresponding to 9% of the responses with grade 4 (good / satisfied) and to 91% of the responses with grade 5 (maxim grade – very satisfied). According to the graphic from Fig. 4 and judging by the number of questionnaires applied, we conclude that the locals have a close relation with the Police Service (they feel protected and defended by this Service) (Rusu et. all, 2008).

## 5. Conclusions

In the present paper we studied / presented the satisfaction level of the community of Mihai Viteazu commune, Cluj County. In this research activity / study we wanted to identify some relevant aspects regarding the local community and the first aspect considered was: how happy are the locals regarding their way of life. They (the locals) declared themselves very satisfied (55% of the locals) and satisfied (45% of the locals). These answers are contributing in a good way for the commune.

Also, we wanted to hear the opinion of the locals regarding tourism in the commune / area. Thus, 17% of the locals declared themselves pleased / satisfied about the tourism practiced in the area, but 83% gave only 3 points on a scale from 1 to 5, where 5 is the maximum score / grade. In this way, we propose new measure for promoting the Mihai Viteazu commune: on the Internet, on specific websites, on social networks and by more visible and customized traffic signs highlighting, where the case, potential local attractions (churches, museums, special buildings with rare architecture, special markets, special unique relief structures of the area, special / famous local people, etc.).

The quality of the services in Mihai Viteazu commune must be improved and diversified according to locals' opinion and approximate 74% of them support this idea.

The quality of the work environment corresponds to 21% with maximum satisfaction (grade 5). It is a low percentage because of the lack of jobs in the area and the locals are forced to travel bigger distances (or to relocate) for a job. Also, 37% of the responses have the grade / score 4 (satisfied) and 42% of the responses are having an average grade (score 3). Here, a strict employer(s) can lead to these results.

The local business environment corresponds to 68% of the responses given for an average score 3, which means the necessity of developing (with some smart and courageous initiatives) the local business environment. In the present, we have a 56% development point which is given by the existence of four big agricultural economical entities (producers). Then, commerce is represented by 25% (very satisfied) resulted from the agricultural products (the commune is famous for its sweet onion of Aries) and 32% of the people are only satisfied. The relation / interaction with the authorities is good and the locals have a close relation with the police.

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## Leap-Frogging the Competition through Blue Ocean Strategy: A Compelling Case For Small and Medium Enterprises

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### Abstract

*In today's competitive business landscape, Small and Medium Enterprises SMEs face challenges in standing out and expanding their market reach. Traditional approaches like cost-cutting and price competition may not be sufficient for sustainable growth. To overcome these challenges, SMEs can adopt a Blue Ocean Strategy (BOS) to create uncontested market space and leapfrog the competition. It involves finding and creating a new market space, rather than competing in existing markets, by offering a unique value proposition that attracts new customers. This paper explores the key concepts of the Blue Ocean Strategy and how SMEs can apply them to their businesses. It also presents case studies of successful SMEs that have used the Blue Ocean Strategy to achieve significant growth and profitability. These case studies show how SMEs can find new market spaces and create differentiated value propositions to attract new customers, outcompete and outperform their rivals.*

**Key words:** Blue Ocean Strategy, Small and Medium Enterprises, value proposition, strategy canvas, recreannovationism

**J.E.L classification:** O3, O31, O32

### 1. Introduction

Small and Medium Enterprises (SMEs) play a critical role in driving economic growth and job creation, specifically employment generation worldwide. However, SMEs face considerable and significant challenges in competing with larger and more established firms, particularly in highly competitive industries; even among SMEs themselves. To succeed in today's business environment, SMEs need to adopt strategies that enable them to differentiate themselves from their competitors and find new markets or create new ones. One such strategy is the Blue Ocean Strategy (BOS), introduced by W. Chan Kim and Renee Mauborgne in their ground-breaking book "*Blue Ocean Strategy: How to Create Uncontested Market Space and Make the Competition Irrelevant*." Blue Ocean Strategy offers a scaffolding template for building a strategy, which emphasizes the creation of new demand and differentiation rather than competing in existing market spaces. It involves finding and creating a new market space by offering a unique value proposition that attracts new customers.

In this paper, we explore the key concepts of BOS and how SMEs can apply them to their businesses. We also present case studies of successful SMEs that have used BOS to achieve significant growth and profitability. The paper concludes that BOS is a powerful tool for SMEs to carve a niche for themselves and thrive in today's challenging business environment and that it can help them achieve sustainable growth and profitability.

## 2. Literature review

The traditional strategy approach to business and the modern approach have both evolved over time to adapt to changing business environments and emerging trends. The traditional approach focused on setting up and keeping a competitive advantage over rivals. This involved analyzing the industry structure, finding market opportunities, and formulating strategies to differentiate the organization from its competitors, and this is the Structuralist School of thought. This approach is an embodiment of what we call the 'Red Ocean' strategy in the field of play in the market space, where boundaries for the competition are set with well-established rules of engagement, usually anchored based on cost trade-off. Each player or participant tries to compete and outdo each other for market share based on the current demand profile; and, based on the competitive advantage each has; in terms of price and other offerings. But over time such 'shark-infested' waters (market) get 'bloody' and saturated, occasioned by inflated costs and shrinking profit margins leaving most players bloody. Fortunately, the modern approach to strategy encapsulated by what we called the 'Blue Ocean Strategy' based on research has conclusively established that companies can leap-frog out of the fiercely competitive bloody 'red ocean' into the 'blue ocean' by creating an unencumbered 'virgin' market space that renders such competition inconsequential and unnecessary (Kim and Mauborgne, 2004).

However, the modern approach recognizes the need for agility and flexibility in response to rapid changes in the business environment. It emphasizes the ability to quickly adapt strategies and business models to seize emerging opportunities or address potential threats. This approach embraces innovation and disruptive thinking as essential components of a strategy. It encourages organizations to constantly seek new ways of creating value, challenging existing business models, and using technology to gain a competitive edge. It also laid a strong emphasis on understanding and meeting customer needs and expectations. New strategies have been developed with a deep understanding of target markets, customer insights, and the delivery of exceptional customer experiences.

Studies have established that new markets can be created and expanded by employing the 'Blue Ocean Strategy,' which emphasizes maximizing opportunities, minimizing risks, and achieving simultaneous cost reduction and value addition. This approach extends frontiers, creates new boundaries, and underscores its pertinence.

Therefore, the Blue Ocean is anchored on the principle of opportunity and risk. I will call the recreannovationism or Recreannovationist school of thought based on the fact that market boundaries are not static but fluid and a firm can leap-frog the 'red ocean' and establish a virgin market that is free from the competition through value position to both existing and new customers that can be 'created' as a result of value innovation. Recreannovationism is a concept where new markets are created through the crucible of Value Innovation in product or service offerings, new markets can be created and expanded using the 'Blue Ocean Strategy.' This approach maximizes opportunities, minimizes risks, and introduces customers to offerings they never contemplated or imagined existed, thereby extending frontiers and creating new boundaries.

### 2.1. Blue Ocean Strategy

Blue Ocean Strategy (BOS) is a research-based and tested schema that lays out a systematic approach to creating new market space and making the competition irrelevant. The central premise of BOS is that businesses can achieve high growth and profits by creating a new market space rather than competing in existing market boundaries which can be termed the 'Red Ocean'. Achieving the creation of a new market can be accomplished by finding and targeting non-customers who have dissimilar needs or preferences than existing customers, creating a differentiated value proposition that meets their expectations/needs, and delivering it at a lower cost or higher value than existing competitors.

The Blue Ocean Strategy framework involves two key concepts: "*value innovation*" and "*strategy canvas*." Value innovation refers to the creation of new value for customers while simultaneously reducing costs. The key aim of the blue ocean strategy is to create value innovation – driving costs down while simultaneously driving value up for buyers. Value innovation is the cornerstone of the

blue ocean strategy. Value to buyer = offering utility – offering utility's price  
Value of the company = offering's price – offering's price's cost.

The focus should be driven by minimizing inherent risks against taking such risks; and so, maximizing the opportunities available by such a course of action taken. Blue Ocean Strategy is about creating demand, shifting from leap-frogging competition to value creation, which is the key to unlocking latent and/or uncreated demands.

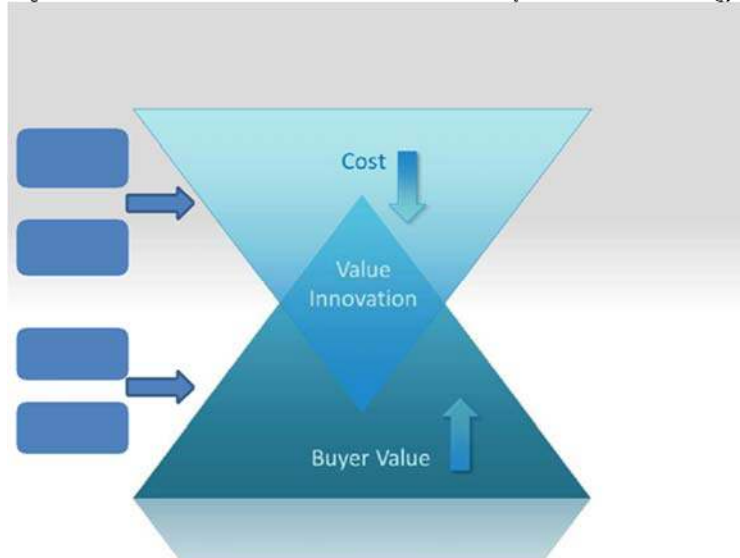
### 2.1.1. Value innovation

Value Innovation is a core Blue Ocean Strategy concept that refers to the creation of new value for customers while simultaneously reducing costs. The term "value" here means the perceived benefit or satisfaction that customers derive from a product or service, and "innovation" refers to the creation of something new or different which can be called 'recreannovationism' - a pathway to creating and implementing a successful Blue Ocean Strategy.

According to Kim and Mauborgne (2004), the creators of the Blue Ocean Strategy, value innovation is achieved by pursuing differentiation and low cost simultaneously. This approach enables businesses to create a leap in value for both the company and its customers and to open new market spaces where competition is irrelevant. The concept of value innovation has been applied successfully in many industries, particularly for example, Cirque du Soleil created a new form of entertainment by combining elements of circus and theater –a hybridization of intrinsic value, resulting in a product that was significantly different from traditional circuses and attracted a new customer base. Similarly, Southwest Airlines in the US revolutionized the airline industry by supplying low-cost, no-frills flights to customers who previously could not afford to travel by air.

By focusing on value innovation, companies can differentiate themselves from their competitors and create a unique position in the marketplace. This approach is particularly relevant for small and medium enterprises (SMEs) that may lack the resources to compete on price or marketing, making differentiation critical to their success. The Concept of Value Innovation is depicted in the diagram below. Value innovation has upturned the toga of dogmatism underlying the concept of Value-cost-trade-off inherent in a traditional strategic thing that broke the 'mold'.

Figure no. 1: Value Innovation: The cornerstone of Blue Ocean Strategy



Source: (Kim and Mauborgne, 2005)

Conversely, Strategy Canvas on the other hand is a visual tool that helps businesses locate and find their current market position and potential areas for differentiation. By combining these two concepts, businesses can find new market spaces and create innovative value propositions that meet the needs of non-customers.

### 2.1.2 Strategy canvas

The Strategy Canvas is a key tool in the Blue Ocean Strategy framework, and it supplies a visual representation of a company's current strategic position vis-à-vis or relative to its competitors. The canvas finds the factors that are most important to customers and the factors that the industry competes on, and it helps businesses to find potential areas of differentiation. It entails what we call **Visual and mental awakening**: This step involves creating a visual representation of the current market space, called the "strategy canvas," to find areas where the business can differentiate itself and create a new market space.

Kim and Mauborgne (2005, p. 25) describe the Strategy Canvas as "capturing the current state of play in the known market space." They note that traditional strategic planning often focuses on benchmarking against competitors, which can lead to a "red ocean" of competition where businesses are all fighting for a share of a limited market space. In contrast, Strategy Canvas helps businesses to look beyond the existing market space and to find new areas of opportunity.

Strategy Canvas is divided into two main axes: the horizontal axis is the key factor of competition in the industry, while the vertical axis is the level of offering that customers receive. By analyzing these factors, businesses can find areas where they can differentiate themselves and create new value for customers. The purpose of the strategy canvas is to capture the field of play briefly within the captive market boundaries and enable the players to shift their attention from competitors to uncharted alternatives and from existing customers to uncreated customers within a given industry. Invariably, this allows the players to see how a valuable innovation through Blue Ocean can help them leap-frog out of the current red ocean.

A well-known case study that successfully uses the strategic Canvas kit is Cirque du Soleil, a Canadian entertainment company that used the Blue Ocean Strategy framework to create a new market space in the circus industry.

By analyzing the traditional factors of competition in the circus industry (such as animal acts and star performers) and the key factors that were important to its customers (such as music, lighting, and storytelling), Cirque du Soleil was able to create a unique entertainment experience that was not offered by any other circus.

Through the delivery of innovative value propositions, SMEs can achieve high growth and profitability never imagined within a 'Red Ocean'. This is called **Value Innovation**. Value innovation involves creating a new value proposition for customers by simultaneously reducing costs and increasing the perceived value of the product or service being offered.

The Blue Ocean Strategy framework is particularly relevant and appropriate for SMEs that face resource constraints and need to compete in highly competitive industries. With case studies, the Blue Ocean Strategy has been successfully applied by companies such as Roche Bobois, AirAsia, Zipcar, Nespresso, and a host of many other businesses; , to create new market spaces and gain a competitive advantage. Through the prism of Strategy Canvas, these companies were able to differentiate themselves and create new value for customers in their respective industries.

As earlier stated, a well-known case of reference that has successfully used the strategic Canvas tool is Cirque du Soleil, a Canadian entertainment company that has proven its practicability in creating a new market space in the circus industry. By analyzing the traditional factors of competition in the circus industry (such as animal acts and star performers) and the key factors that were important to its customers (such as music, lighting, and storytelling), Cirque du Soleil was able to create a unique entertainment experience that was not offered by any other circus. Therefore, through the delivery of innovative Value Propositions, SMEs can achieve high growth and profitability that could never have been imagined within a shark-infested 'Red Ocean'. While offering customers Value and Innovation companies should be **focused on the Execution** of their proposition. Once a new market space has been identified, the business must focus its efforts on creating and delivering the new value proposition to the target customers, and lastly, is to ensure a **Fair process**, and this entails involving all stakeholders in the strategy development process and ensuring that decisions are made fairly and transparently.

### 2.1.3 Diagnostic paradigm and tools kits for Blue Ocean Strategy

There are some fundamental analytical tools as well as guiding principles in risk mitigation that should guide any organization that wants to create a virgin market in transiting from the 'Red Ocean' to the 'Blue Ocean', and these have been expounded by Kim & Mauborgne (2005) in their books. Creating a blue ocean requires a business to think creatively about its boundaries and offerings. Some of the key factors that are germane to its successes are enumerated here.

One of the key factors is to **Identify the Current Industry Boundaries**. This involves finding the current state of the industry and the key players in the market. This can be done using tools such as Porter's Five Forces analysis or SWOT analysis. Understanding the existing boundaries of the industry is critical to finding areas of opportunity that the organization might take and maximize it. This can involve examining the size of the market, the competition, and the customer segments that are being targeted.

The second key factor to consider is **Explore New Customer Groups**. By targeting new customer groups within the industry, a business can create a new market space that is not currently being served. This can involve finding underserved or overlooked customer segments and designing products or services that meet their needs. This can help show areas of differentiation and opportunities for innovation. Another critical key factor is to **Create a Unique Value Proposition**. To stand out from the competition, a business needs to offer a unique value proposition that is different from what is currently available in the market. This can involve finding areas where customers are experiencing pain points, both existing and non-customers in the industry, and developing solutions that address those pain points in a creatively new and innovative way.

The fifth step involves crafting a value proposition that addresses the pain points and unmet needs shown in the earlier steps. This can involve creating a new product or service, improving an existing product or service, or changing the way products or services are delivered.

This can be done by conducting market research, surveys, and focus groups. **Finding Potential New Market Spaces** is also an extremely critical step, which is to find potential new market spaces by focusing on the pain points and unmet needs of customers and non-customers. This can be done using tools such as the Buyer Utility Map or the Four Actions Framework.

Redefining a product or service offering can unlock hidden customers. **Redefine the Product or Service Offering**. A business can create a blue ocean by rethinking and tinkering with its product or service offering and adding or subtracting features to make it more attractive to customers, with enhanced utilitarian intrinsic value. This might involve creating a new product category or a new market segment and designing products or services that meet the specific needs of that segment. Organizations can **Consider Alternative Pricing Models**. Pricing can be a key factor in creating a blue ocean, as it can help a business to differentiate itself from competitors. This can involve developing new pricing models that are different from what is currently available in the market, such as a subscription-based model or a pay-per-use model.

Offering complementary products or services can help a business to create a more complete solution for its customers and differentiate itself from competitors. This may entail finding products or services that are related to the core offering and bundling them together to create a more comprehensive solution.

Technology can be a powerful tool for creating a blue ocean, as it can help a business to innovate and develop fresh solutions that are not currently available on the market. **Embracing Technology** can be a very ingenious way of creating a Blue Ocean. This can involve using emerging technologies to create new products or services or using technology to improve customer experience or reduce costs. And the final stage is to **Test and Refine the Strategy**. The decisive step is to assess and refine the strategy through prototyping, piloting, and feedback from customers and non-customers. These action frameworks are described in detail in the book "Blue Ocean Strategy" by W. Chan Kim and Renée Mauborgne (2004), which is considered the definitive guide to creating and implementing a Blue Ocean Strategy.

## 2.2 Small and Medium Enterprises

What constitutes Small and Medium Enterprises (SMEs) varies from nation to nation, but it is defined as businesses with fewer than five hundred employees and less annual revenue than larger firms, and they play a critical role in driving economic growth and job creation worldwide. They are often considered to be more innovative and adaptable than larger firms, and they account for a sizable part of new job creation in many countries. (Ayyagari & Demirguc-Kunt, 2007). The exact definition of SMEs varies by country and industry, but they are smaller than large corporations and larger than micro-enterprises. However, SMEs face significant challenges in competing with larger and more established firms, particularly in highly competitive industries. SMEs often lack the resources and scale to compete on cost or marketing, making differentiation critical to their success.

Research has shown that SMEs that adopt innovative strategies are more likely to achieve sustainable growth and profitability. In a study conducted by Kim and Renee (2005) on businesses of 108 companies, 86% of the companies competing in the 'Red Ocean' generated 62% of the total revenue while accounting for only 39% of their profits. The remaining 14% which towed the path of blue ocean creation, surprisingly generated 38% of the overall revenue and yet they accounted for 61% of the profits. It is instructive to note that many SMEs struggle to adopt such strategies due to a lack of resources or knowledge. BOS supplies a framework for SMEs to create new market spaces and differentiate themselves from their competitors, making it a powerful tool for SMEs to compete in today's business environment.

## 3. Research methodology

The research method for *"Leap-Frogging the Competition through Blue Ocean Strategy: A Compelling Case for Small and Medium Enterprises"* is a combination of a literature review and a case study analysis. The literature review involved an extensive study of books, blogs, and search in academic databases and relevant journals to find existing research on blue ocean strategy and its application in small and medium enterprises. The purpose of the literature review was to gain a comprehensive understanding of the theoretical underpinnings of the blue ocean strategy and its practical implications for SMEs.

The review was conducted systematically, with an emphasis on showing key themes, concepts, and findings related to the Blue Ocean Strategy and Small and Medium Enterprises.

The case study analysis involved the selection of multiple SMEs that have successfully implemented the blue ocean strategy in their respective industries. The purpose of the case study analysis was to show common patterns and factors that contributed to the success of the Blue Ocean Strategy in Small and Medium Enterprises. The case study analysis was conducted using a qualitative approach, which involved collecting and analyzing data from multiple sources, including interviews with SME owners and managers, company documents, and secondary sources. The data collected from the literature review and case study analysis was analyzed using a thematic analysis approach. The aim of the analysis was to find key themes and patterns that appeared from the data, which were used to develop the arguments and recommendations presented in the paper. Overall, the research method used in this paper is a combination of a systematic literature review and a qualitative case study analysis, which allowed for a comprehensive understanding of the blue ocean strategy and its application in SMEs.

## 4. Findings

### 4.1 Case studies

Multiple case studies demonstrate the effectiveness of BOS for SMEs, highlighting its importance and the need for organizations to embrace a Blue Ocean strategy to achieve substantial growth and surpass the competitive 'red ocean' market.

Roche Bobois successfully adopted BOS by offering high-end, customizable furniture, differentiating itself from competitors. Collaborating with renowned designers, they created unique furniture collections tailored to customer preferences, capturing a new market space and attracting dissatisfied customers from traditional retailers. (Palan and Helmsing, 2015)



Roche Bobois created an immersive shopping experience by designing stores as living spaces, allowing customers to envision furniture in their homes. They offered personalized advice from interior design experts, differentiating themselves from competitors. These strategies led to significant growth and profitability, establishing Roche Bobois as a leader in the furniture industry. (Lafarge and Leclercq, 2016).

AirAsia disrupted the airline industry by creating a low-cost, no-frills business model, attracting previously underserved customers. By offering affordable flights and reducing costs, AirAsia carved out its own blue ocean in the industry.

AirAsia disrupted the airline industry by offering low-cost air travel with essential services, targeting budget-conscious travelers. By prioritizing operational efficiency and cutting back on frills, AirAsia created a new market space and rendered the competition irrelevant. AirAsia simplified operations and reduced costs by using a single type of plane, the Airbus A320. They optimized turnaround time with a streamlined boarding process, maximizing the number of flights per day. Utilizing technology, AirAsia enhanced the customer experience alongside their low-cost business model. AirAsia pioneered online booking, becoming a leading low-cost carrier, showcasing the power of Blue Ocean Strategy.

Cirque du Soleil: Innovative circus-theater hybrid created new market space, captivating global audiences, and Zipcar: Disruptive car-sharing model revolutionized transport industry, targeting urban dwellers with convenience and affordability. There is also Nespresso: Transformed coffee industry with premium single-serve system, targeting home and office markets with convenience and customization.

Bemerald Drycleaners in Nigeria achieved rapid growth using Blue Ocean Strategy. In 2001, Bemerald Drycleaners Limited was established as a laundry service company in Jos, Plateau State, by my friend Mr. John Onigbinde, who has over 20 years of experience in the laundry business. After running the business successfully in Jos, relocated the company to Lagos.

Bemerald Drycleaners targeted a niche market and received advice on untapped demand, leading to a Blue Ocean. Tiered pricing for mainland-to-Island commuters was suggested, creating a new market. The company established a delivery service three days a week (Mondays, Wednesdays, and Fridays) for convenient pick-up and drop-off of clothes at clients' offices on specific days. Within three months, the customer base grew significantly, leading to the need for a new branch to accommodate the influx of new customers. Bemerald offered value innovation by eliminating and reducing the burden on busy executives, providing customized services that surpassed established dry cleaners' expectations.

Xiaomi: Chinese company, offered affordable smartphones, online sales, user feedback, ecosystem integration. Disrupted smartphone market, gained brand loyalty. SMEs can achieve growth with Blue Ocean Strategy.

#### **4.2. Compelling case for Blue Ocean Strategy**

Blue Ocean Strategy revives SMEs, offering higher profit margins and growth. Research shows its effectiveness (Kim & Mauborgne, 2004). Implementing the Blue Ocean Strategy can reduce competition for an organization. By creating new market spaces, companies can render competition irrelevant and minimize industry rivalry. This alleviates the need for price wars and costly competitive strategies. AirAsia successfully reduced competition in the airline industry by targeting budget-conscious travelers who previously couldn't afford air travel (Kim & Mauborgne, 2005).

SMEs benefit from pursuing the blue ocean strategy through increased customer loyalty and retention. By providing unique value to non-customers, companies can foster strong loyalty, reduce customer churn, and build long-term relationships. Cirque du Soleil's success in creating customer loyalty with its innovative circus experience exemplifies the power of the blue ocean strategy (Kim & Mauborgne, 2004).

The Blue Ocean Strategy offers SMEs a way to minimize risk and maximize opportunities. By creating new market spaces, companies can reduce reliance on saturated or declining markets, mitigating the risks associated with a specific product or market. Nintendo's success with the Wii console, targeting casual gamers, illustrates how the blue ocean strategy can reduce risk (Kim & Mauborgne, 2005).

In conclusion, based on extensive research and case studies, I highly recommend SMEs to adopt the Blue Ocean strategy and consider the following key factors for achieving significant growth and profitability:

1. **Embrace Value Innovation:** Embrace Value Innovation: Prioritize value innovation by pursuing differentiation and low cost simultaneously. Challenge industry norms, identify unmet customer needs, and deliver exceptional value through innovation
2. **Find Untapped Market Spaces:** Find Untapped Market Spaces: Actively search for untapped market spaces with limited competition. Conduct market research, analyze customer segments, and explore different industries or buyer groups to create unique market opportunities
3. **Focus on Niche Segments:** Focus on Niche Segments: Target niche segments or underserved customer groups. Understand their specific needs and preferences, tailor offerings accordingly, and build strong customer loyalty while creating barriers to entry for competitors
4. **Foster a Culture of Innovation:** Foster a Culture of Innovation: Cultivate an environment that encourages innovation and creativity. Empower employees to generate ideas, promote cross-functional collaboration, and embrace experimentation and learning from failures.

## 5. Conclusion

Although the term 'Blue Ocean' as introduced and popularized by Kim & Renee is relatively new, the underlying concept of creating uncontested market spaces has always been a fundamental and distinguishing aspect of business, both historically and in the present day. Kim and Renee codified Blue Ocean Strategy for SMEs' growth by focusing on value innovation, uncontested markets, and leadership. Implementation requires mindset shift, risk-taking, and adaptability. Effective change management, continuous evaluation, and innovation culture are crucial for differentiation and success. Blue Ocean Strategy empowers SMEs to thrive and find new markets.

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## The Transition to a More Sustainable Business Model in Tourism. Sustainable Coastal Destinations Best Practices

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### Abstract

*The article aims to bring a fresh perspective on current trends of global tourism by providing examples of best practice of coastal tourism as key driver of sustainable regional development. Following the example of Balearic Region of Spain, the article is designed to contribute to a more sustainable approach to destination management.*

*Tourism is one of the world's fastest growing industries and an important source of foreign exchange and employment, while being closely linked to the social, economic, and environmental well-being of many countries, beginning with small countries and ending with large geo-economic regions.*

*Over the last years, sustainability became a top priority for many industries, including global travel and tourism, which accounts for between 8 and 11 percent of the world's emissions. Given its importance, tourism has the opportunity and responsibility to address many of the challenges faced by our societies while transforming itself to address its socio-economic impacts.*

**Key words:** Inclusive and equitable development, green tourism, coastal tourism destinations, best practices, sustainable development goals

**J.E.L. classification:** A11, F64, O19, Q24, Q25, Q53, Q54, Q56, Z32

### 1. Introduction

The purpose of the article is to analyze current sustainability trends and global efforts to transform tourism by adopting a more sustainable approach to travel. Considering the environmental and social sensitivities of coastal tourism, the article provides examples of good practice where coordinated actions and cooperation between all actors for the long-term recovery and sustainability of tourism will unlock its immense potential to deliver a safer, healthier, more sustainable and more equitable future.

The recommendations of World Travel Organization – UNWTO and World Travel & Tourism Council – WTTC, together with the example of Balearic Region of Spain should provide a good model in adopting a sustainable long-term strategy for tourism development on the Black Sea coast.

Accounting for over 10% of global GDP and supporting more than one in ten jobs worldwide in 2019, the Travel & Tourism sector has been a key global driver of economic prosperity and employment opportunities for decades. In many countries around the world, tourism presents one of the most important sources of economic income. What's more, given the extent and complexity of the Travel & Tourism value chain and its strong interlinkages with other industries, the sector has both a responsibility and significant potential to be a catalyst for profound system change. (WTTC Economic Impact Research 2023)

Tourism has a particularly important impact on the economy, both on the natural and built environment, on local populations within destinations, but also on visitors. The impacts of tourism are both positive and negative, and the stakeholders involved in tourism activities are diverse and numerous.

In tourism circles, sustainable tourism has been an important topic of discussion for several decades, particularly after the 1987 Brundtland Commission Report entitled 'Our Common Future' and particularly after the Rio Summit on Sustainable Development in 1992.

The conventional (classic) tourism makes the object of much criticism. For instance, most of developing countries cannot "master" tourism flows. (Juganaru et al, 2008, p.802) At the same time, sustainable tourism refers to those tourism activities that respect the environment, conserve natural and cultural resources, and are socially and economically sustainable and equitable. It is that tourism that considers the basic principles of sustainable development, showing respect for the environment, local communities, but also for the local economy and culture in tourist destinations. From an ecological perspective, sustainable tourism refers to the multiplication of responsible initiatives and permanent care for the conservation of natural resources, but also to the dissemination of examples of good practices in this field. (Jugănar, 2007, pp. 275-276)

## 2. Literature review

Among the current global trends, it is important to remember that climate change is a set of global threats. The World Economic Forum top risks have shifted to the now dominance of environmental risks since 2017. In most recent Global Risk Report, climate change continues to be perceived as the gravest threat to humanity. Global Risks Perception Survey's respondents rate "climate action failure" as the risk with potential to inflict the most damage at a global scale over the next decade. (WEF Global Risk Report 2023, p 29)

Climate change affects the global economy and day to day life, having a profound impact on all economic sectors and local communities at an alarming pace. The pandemic accelerated the process and made clear the dependencies between nature, the health of the people and the future of our planet. We became more conscious that during such tragic events we are vulnerable and we put at risk the future of humanity. COVID-19 provided us an opportunity to rethink the way we do business and our ways of life. The pandemic helped to raise awareness of the urgency for action on climate change, social inequality and sustainable development.

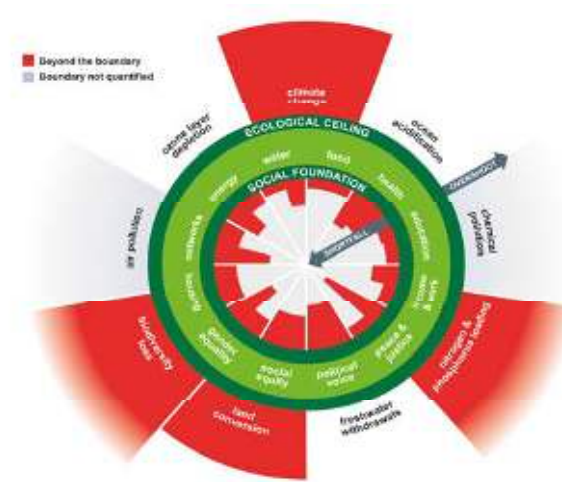
Intergovernmental Panel on Climate Change (IPCC) stated in 2021 Report that climate change must become the urgency of our live. Travel & Tourism is strongly affected by effects of climate change, but as many other sectors, is also an important emitter of greenhouse gas (GHG) emissions contributing to negative consequence of climate. "It is therefore of utmost importance to decarbonize the sector as quickly as possible and reach net zero by 2050" (WTTC A Net Zero Roadmap for Travel and Tourism, p. 5)

Tourism depends on economic, environmental and social conditions, and businesses dependent on tourism rely on local communities, natural health and biodiversity that have suffered from the dramatic effects of climate change. Considering all these dependencies, there are concerns about the negative impacts the sector can have on both local communities and the planet and its ability to help preserving biodiversity and environment, contributing to a more sustainable development.

Studying the impact of human activity on the health of our planet, Stockholm Resilience Centre has identified nine 'planetary boundaries' within which humanity can continue to develop and thrive for generations to come. Unfortunately, in 2015 found that four – climate change, loss of biosphere integrity, land-system change and altered biogeochemical cycles (phosphorus and nitrogen) – have been crossed. Two of these – climate change and biosphere integrity – are considered 'core boundaries', for which significant alteration would 'drive the Earth System into a new state'. (Raworth, 2017, p.1)

A popular framework that builds on that of 'planetary boundaries' is the doughnut economics. The Figure 1 shows this visual framework. It is a diagram developed by economist Kate Raworth that combines planetary boundaries with the complementary concept of social boundaries. The name comes from the shape of the diagram, a disc with a hole.

Figure no. 1. Shortfalls and overshoot in the Doughnut



Source: (Raworth, K., 2017)

According to UNEP and UNWTO, sustainable tourism can be defined, as tourism that takes full account of its current and future social and environmental impacts, addressing the needs of visitors, the tourism industry, the environment, and host communities in destinations alike. (UNEP and UNWTO, 2004, p.12)

Contrary to widespread misconceptions among many tourists, tourism service providers and stakeholders, sustainable tourism is not a distinct form of tourism, a niche market, for tourists more sensitive to the environmental and social impacts of tourism. On the contrary, the “term sustainable tourism”, applied to tourism based on the principles of sustainable development, refers to a fundamental objective, that of making all forms of tourism sustainable. Therefore, the term “sustainable tourism” should be used to refer to a condition of tourism and not to a particular type of tourism.

In order to transform the sector and have a more sustainable tourism, a number of actions should be undertaken, mainly:

- Making best use of environmental resources, maintaining essential ecological processes and supporting efforts to conserve natural resources and biodiversity.

- Respecting the socio-cultural authenticity of host communities, preserving their built heritage and life, their traditional values, and contributing to efforts of good understanding and cross-cultural tolerance.

- Ensure viable and long-term economic activities that ensure equitable socio-economic benefits for all stakeholders, including the creation and stability of jobs and income opportunities for communities in tourist destinations, thus contributing to poverty reduction. (UNEP and UNWTO, 2004, p.11)

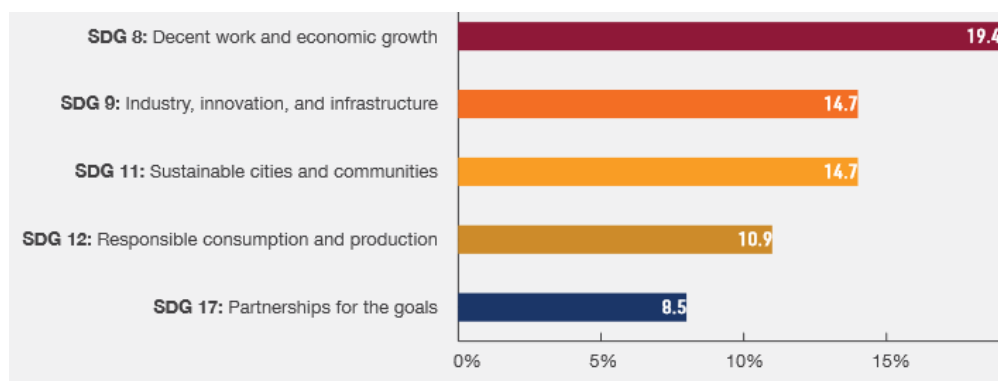
The Sustainable Development Goals (SDGs), agreed by all UN members in 2015 in replacement of the UN Millennium Goals, are the UN’s blueprint to address the key global challenges. The 17 goals are all interconnected and particularly aimed at governments, with Paris Agreement being one of its goals. The SDGs have become a powerful framework to these two actors, with some investors already reporting against their impact on the SDGs and driving capital to contribute to their achievements.

Recently, United Nations General Assembly by Resolution 77/178 of 14 December 2022 on the “Promotion of sustainable and resilient tourism, including ecotourism, for poverty eradication and environment protection” has recognise the role of the Travel & Tourism sector in addressing Sustainable Development Goals and contributing to *2030 Agenda for Sustainable Development*.

The UN resolution has also placed the sector at the forefront of the global sustainability processes. „It also calls for the support from all relevant stakeholders to promote approaches that reduce greenhouse gas emissions, and ensure sustainable consumption and production patterns to transform the tourism sector.” (UNWTO - Goa Roadmap for Tourism as a Vehicle for Achieving the Sustainable Development Goals, p 13)

In order to highlight the complex relationship between tourism and the SDG's, in June 2023 a survey has been conducted among the G20 members to identify the most critical aspects to be considered and how tourism can contribute to the SDG's. (UNWTO 2023, p 14). Figure no. 2 represents the link between tourism and five relevant SDG's.

Figure no. 2. G20 Tourism Working Group survey results on the top Sustainable Development Goals that tourism contributes to, 2023 (%)



Source: (UNWTO, 2023)

### 3. Research methodology

Our work is a desk research, based on secondary information, extracted from reports, studies, analyses, statistics of specialized international bodies and organizations, regarding the current approach to the problem of sustainable development of tourism. We also tried to identify examples of best practices in coastal tourist destinations, which can be multiplied in coastal tourism in Romania, in terms of achieving the objectives of sustainable tourism development.

The main objective is to identify the key factors and aspects that should be taken into account in planning and implementing a more sustainable business model in tourism. Issues such as how to better measure sustainability in tourism remain under discussion, without any particularly clear conclusions being reached.

### 4. Findings

We need to understand the most relevant aspects to be addressed in achieving a more sustainable business model. According to the latest survey conducted by G20 Tourism Working Group in June 2023 there are five priority areas to be considered by tourism sector to transform the business model into a more sustainable one. As a result of a sectorial analysis including best practice recommendations, reports and case studies, a set of critical factors have been identified as “cross-cutting key enablers”. (UNWTO, 2023, p 26)

Each key aspect identified by the report is an entry point in understanding how to leverage tourism to further SDGs progress and address G20 priority areas and is reflected in the objectives set in the roadmap.

Cooperation between central and local governments, private organisations, tourism associations and charities, addressing in a coordinated way the climate action and environmental protection at international level will enable a more equitable business model in tourism. By encouraging the sector to rethink and redefine the relationship with nature, understanding the impact of its policies and operations, tourism can contribute to the nature regeneration, human health, a more sustainable social



and economic environment and Paris Agreement goals.

Over the last few years, the concerns and efforts in addressing climate change impact in the tourism reached a turning point, with more and more public and private organisations and destinations determined to achieve ambitious targets to accelerate the shift towards a net zero future for the sector.

Considering the importance of tourism in the global economy with a contribution of more than 10% of global GDP, the sector represents one of the most important sources of national and local income being a key global driver of economic and social development. In this context, the tourism sector has the opportunity "to intensify its efforts to fight climate change by all available path pathways towards net zero with strong, tangible commitments and actions that accelerate change within and beyond the sector's boundaries". Current joint efforts in Travel & Tourism include Tourism Declares a Climate Emergency and the Glasgow Declaration on Climate Action for Tourism, while at an individual business level, as of October 2021, a total of 34 Travel & Tourism businesses joined the SBTi (of which 38% are WTTC members) and 39 businesses are officially in the Race to Zero (of which 18% are WTTC members) (WTTC, 2021, p 8)

WTTC issued "The Net Zero Roadmap" (Figure no. 3) in 2021 to support tourism industry on its journey towards net zero emissions. The report targets each specific industry of the tourism sector, as accommodation, tour operators, aviation, cruise, and OTAs and travel agencies, and provides a decarbonization framework with a pragmatic action plan to support companies in their efforts to achieve a net zero business model.

The potential of tourism to contribute to the achievement of the SDGs has been highlighted in numerous studies and initiatives, such as the UNWTO's Tourism for SDGs platform. Osorio et al measured the carbon footprint of tourism in Spain. Thus, according to these calculations, for example, Spanish tourism generated a total carbon footprint of 47,825 ktCO<sub>2</sub>e in 2019, both in direct and indirect production, to cover all tourism consumption in Spain (14.2% of the total Spanish carbon footprint) (Osorio et al, 2023, p. 308, 314)

Figure no 3. WTTC Decarbonisation Action Framework



Source: (WTTC, 2021)

Tourism is interconnected with other sectors; therefore, a positive impact might be achieved across numerous industries. By encouraging a sustainable consumption and production, tourism has the opportunity to support a circular approach in agri-business, construction, transportation and local communities. The movement towards sustainability requires a coordinated action and a significant investments effort and a shift toward regenerative mindsets, policies to ensure effective approaches in achieving the SDGs.

Addressing the issues of vulnerable social groups as young generation, women, local communities and proactively inclusive tourism and persons with disabilities will determine a proactive approach to inclusion in tourism sector.

There is a need for enhanced and adapted policies and measures that provide an equitable and positive work environment with decent work opportunities for all. Ensuring a fair distribution of its gains, tourism can play its role to support business creation, encourage innovation, improve productivity and addressing the needs of all actors for a sustainable and resilient sector.



Throughout local and international partnerships between public and private organisations, involving capital owners, social and environmental associations and tourism workers, there will be identified and developed more innovative and sustainable tourism initiatives. On the other hand, the visitors have a critical role in transforming the sector asking for sustainable tourist services. The shift in tourist's behaviour and expectations is a reality and the pace is growing, putting pressure on tour operators, hotels and airlines.

At the same time, the tourists should be better informed on the benefits of sustainable destinations and services to encourage a larger offering and define their expectation to drive a positive change in tourism. According to a WTTC survey (Figure no. 4), the global travellers are sensitive to sustainability aspects. Acting as relevant and powerful stakeholders, visitors have the power to push for a real transformation of the sector. Involving all actors and stakeholders to contribute and collaborate will encourage the formation of sustainable partnerships. These collaborations drive a positive change, develop new services and new ideas that support innovative, inclusive, and sustainable tourism.

*Figure no 4. Relevance of sustainability among global travellers*



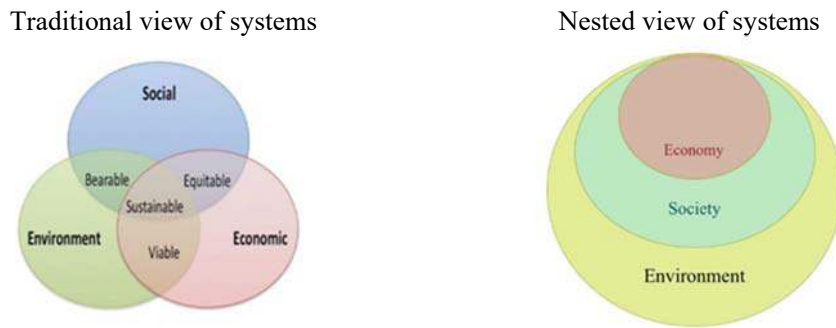
*Source: (WTTC, 2021)*

Addressing social inequality, inclusion and social justice, the tourism sector has the opportunity to cooperate with governments and local communities to invest in training programs aiming upskilling, reskilling and new skilling tourism actors, focussing on vulnerable groups (such as youth, women, Indigenous Peoples and persons with disabilities). Developing new skills and expanding knowledge on digital and financial tools and methodologies, there is a huge opportunity in reducing gaps in gender, between developed and developing countries as well as between urban and rural areas.

In pursuing a more sustainable business model that determines a real change in the way of doing business, organisations have to rely on environmental and socio-economic data to understand the external and internal nature context. One of the challenges organisations face integrating sustainability is the lack of reliable economic, social and environmental data and concrete solutions to identify and assess related risks and opportunities. In this sense, the international Statistical Framework for Measuring the Sustainability of Tourism provides a common ground to assess the role of tourism in sustainable development.

The aim of the Statistical Framework for Measuring the Sustainability of Tourism is to provide to all decision makers and stakeholders a sufficiently comprehensive set of data to make their own assessment of sustainability in tourism in a holistic and well-informed way. The current trend at global level is to consider the interconnected relation between the economy, the environment and society using a nested systems framing (Figure no 5), here the economic system is embedded within a social context which in turn sits within an environmental system.

Figure no 5. The different approaches between the economy, the environment and society



Source: (UNWTO, 2022)

Harnessing the latest scientific and social research to better understand the role of tourism in the global socio-economic environment and encouraging the exchange of knowledge between traditional and non-traditional actors will reduce knowledge gaps and help design innovative approaches to meet the SDGs.

Considering all these key enablers that offer the tourism the great opportunity to transform its business model in a more sustainable, equitable and inclusive one, the sector will enhance also the long-term planning capability to foster its resilience.

As many other industries, tourism is facing a challenging period, after pandemic, current geopolitical unrest, energy transition and climate change are putting a huge strain on destinations, tour operators, hotels and local communities. A holistic approach to a more efficient and sustainable destination management will help the sector adapting to today's challenges.

The Glasgow Declaration on Climate Action in Tourism, defined the objectives of reducing emissions by 50% before 2030 and reaching Net Zero, at the latest by 2050. In the same time five lines of action were proposed: measurement, decarbonisation, regeneration, collaboration, and finance.

Regarding the measurement of the carbon footprint, an important step is the transition to the responsibility of the producer and the territorial one, to the responsibility of the consumer. (Osorio et al, 2023, p. 314)

## 5. Sustainable Coastal Destination Management Best Practice – Balearic Region of Spain

Destination management has a traditional approach, focusing on promoting its services and products. Over the last years, many countries and destinations understood the need for a more holistic approach to address the needs of all stakeholders across tourism value chain.

Destination management needs to extend the traditional approach of destination marketing and design and implement policies and actions to create a more stable and equitable ecosystem for the sustainable development of tourism in its three dimensions – social, economic and environmental.

Implementing a strategic approach to plan and manage the destination, encouraging partnerships, sharing best practices and promoting participatory socio—economic platforms, the leaders have an opportunity to build up a more adapted business model and offerings that “encompass the entire customer journey and maximize the visitor experience while benefiting local businesses and improving the quality of life of residents”. (UNWTO, 2023)

Have a long tradition as management destination, post pandemic the Balearic Region has become Spain's most successful tourist area. However, the experience of last years demonstrated that sustainability is a pure necessity in the region for the future growth of tourism. As a result, in May 2002, the local government passed new legislation with the aim of making the region's tourism industry environmentally friendly and to create a sustainable and regenerative tourism model for the Balearic Islands.

The Balearic Islands Region has adopted 17 goals to help transform our world, as set out in the 2030 Agenda for Sustainable Development by the United Nations Member States. These goals include the End of Poverty; improved Health and Wellbeing; Clean Water and Sanitation; Affordable and Clean Energy; Responsible Consumption and Production; Climate Action; protection and regeneration of marine life.

In Mallorca there are increasing number of companies and initiatives aware of the need to work to ensure a sustainable future both for the island and for tourism that remains the island's most important source of income. (News Mallorca, July 2022)

As results, the "Consell de Mallorca" through the Mallorca Tourism Foundation has created the Sustainable Tourism Observatory of Mallorca (STO Mallorca) in accordance with the principles and recommendations of the World Tourism Organisation (WTO). The mission of the Sustainable Tourism Observatory of Mallorca is to generate valuable information to guide public and private sector decisions, providing intelligence to the entire value chain in order to increase its competitiveness and productivity, always taking into consideration the guiding principles of sustainability. Since 2021, the initiative is part of the International Network of Sustainable Tourism Observatories (INSTO), a network of tourism observatories that monitor the economic, environmental and social impact of tourism at destination level.

Having as main objective to position the island among the leading tourist destinations in terms of tourism management based on quality, sustainable development and collaborative work, STO Mallorca has the vision to generate strategic knowledge by applying innovative research techniques to the changing environment and tourism demand.

Through an active participation of all decision makers and cooperation between local tourism actors, the initiative generate synergies and cooperative learning between the public and private sectors, facilitating the design of policies and strategies based on the inalienable criteria of sustainable development, taking advantage of technological advances and caring for the socio-cultural heritage. (Sustainable Tourism Observatory of Mallorca, 2023)

The future of tourism lies in sustainability and inclusion, and the role of tourism in progressing the SDGs is increasingly recognized in national development agendas. Emerging enablers identified as key aspects to be addressed in pursuing a sustainable tourism will have varied applications in every country. Each country should prioritize their national needs in development.

## **6. The Romanian Black Sea Coast tourist destination**

Tourism is an important sector of the economy of Romania. In 2019, tourism directly contributed RON 31.6 billion to Romania's economy, equating to 3.0% of total GDP. The sector directly supported 412649 jobs, representing 6.3 % of total employment in Romania. The impacts of the COVID-19 pandemic saw tourism employment fall to 393427 jobs in 2020, or 6.1% of the workforce. (OECD, 2022).

The tourist resorts of Romania on the Black Sea are located on the same geographical coordinates (between parallel 44 25' and parallel 43 25' north latitude) as other famous tourist resorts in Europe, such as San Remo, San Marino, Monaco, Rimini. (Jugănaru, 2004, p.54)

The existing tourist accommodation capacity of these coastal resorts and touristic localities was (according to statistical data collected by the NIS from tourist accommodation structures with an existing accommodation capacity of at least 5 beds), in the year 2021, of 92,901 beds, in 1207 accommodation structures having tourist functions, representing 13.2% of the number of units and respectively 25.49% of the total tourist accommodation capacity of Romania, according data of the National Institute of Statistics (Tempo online) (NIS, 2023)

The existing tourist resources in Constanta, at city level as well as at the level of the area whose center it is (the metropolitan area, the county, including the area neighbouring the Danube Delta) compose a complex, diversified tourism product with a great potential to meet distinct needs and reasons to travel. All tourist resources consist of the natural and man-made heritage, the material and immaterial heritage of the area, the built, economic or symbolic capital of the area.

Considering all the advantages of Constanta Region, in the context of current trends of sustainable tourism, Black Sea Coastal tourism has the opportunity to adopt a sustainable tourism model to thrive as major touristic destination.

Working towards the most relevant aspects for Dobrogea Region as climate action, environmental protection, inclusive tourism, international cooperation and local partnerships, Black Sea Coastal tourism should define a long-term forward planning to build a sustainable tourism fostering competitiveness and resilience. The opportunities that derive from key enablers of Black Sea Coastal tourism define the strategic development objectives, establishing a roadmap based on key area of action. Each of those areas should include a list of identified opportunities, associated objectives, recommended actions as well as their connection with the SDGs.

Following the best practice in the coastal tourism development as Balearics sustainable tourism model, Black Sea Coast should adopt a roadmap to guide its journey to become a sustainable destination. On the road to progressing the sustainable tourism, India's G20 Presidency has identified five priority areas for the Tourism Working Group (TWG) (Figure no 6) where the tourism sector can lead in making important contributions. Should be noted that these five priority areas are interrelated and should be addressed collectively. (UNWTO, 2023)

Figure no 6. G 20 tourism priority areas ranked by importance by the G20 Tourism Working Group, 2023



Source: (UNWTO, 2023)

## 7. Conclusions

The development of sustainable tourism requires the informed participation of all relevant stakeholders, as well as strong political leadership to ensure their broad participation and involvement and to build consensus in decision-making.

Sustainable tourism is a continuous process and requires constant monitoring of impacts, implementation of preventive and/or coercive measures, as appropriate, when necessary. On the other hand, sustainable tourism must maintain a high level of tourist satisfaction and provide them with meaningful, memorable experiences, raise their awareness of sustainability issues and promote sustainable tourism practices among them. (Niedziółka, 2014, p.160)

In Romania, relatively recent amendments to the legislation on Destination Management Organizations (DMO) allowed the creation of the first such organizations, created as Public-Private partnerships, between local public authorities and private tourism entrepreneurs in each destination. These DMOs will be established on 4 levels: local (at tourist destination level, county, regional and national - the National Tourism Destination Management Organization. (Jugănar, 2022, p. 303)

According to data published on the official website of the Romanian Ministry of Economy, Entrepreneurship and Tourism, on 17.05.2023, the updated list of DMOs already established included 11 organizations, of which 9 at local level, one at county level and one at regional level. Of these, the third established, chronologically, was DMO Mamaia-Constanta, the only one in the coastal area of Romania, until that date. (MEET, 2022)

Negotiations are underway for the signing, in a short time, of the founding documents of DMO at the level of Constanta County, on whose territory are located all the tourist resorts of national interest in the coastal area of Romania.

These organizations will have to play an essential role in developing, then implementing destination development and marketing strategies, including an action plan that will achieve a sustainable model in tourism in the coastal area of Romania, taking over the best examples of good practices in the field, at European and global level.

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## Credibility and Convergence: Did Euroization Deliver for Montenegro?

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### Abstract

*Using Montenegro as a case study, this paper evaluates the viability of currency substitution, in this case euroization, as a response to increased financial volatility. Proponents of euroization outline a series of expected benefits, while critics point to what they perceive as much larger costs. The paper contrasts the macroeconomic developments of Montenegro and how it fared during the Global Financial Crisis and the shock triggered by the Covid-19 pandemic with the performance of its regional peers and the euro area overall. The findings are contrasted to how the various expectations played out for Montenegro, drawing further lessons on the role of monetary policy and domestic monetary sovereignty.*

**Key words:** Monetary policy, Euro, currency substitution

**J.E.L. classification:** E42, E50, F30

### 1. Introduction

In an increasingly uncertain global context, where the repercussion of the shock triggered by Covid-19 and the spillovers of Russia's war in Ukraine and a global financial system reshaped by geopolitical tensions, exchange rate and capital flow volatility are putting additional pressures on policymakers, particularly in emerging and developing markets (Drehmann and Sushko, 2022). Within this context, debates around the issue of dollarization and currency substitution more broadly are reemerging as a possible path towards gaining more credibility in financial markets and thus achieving more stable outcomes, as well as to speed up the convergence and integration with a stronger anchor (Winkler et al., 2004). Euroization, refers to the full, or partial replacement of a domestic currency with the euro, an occurrence that is overall less common than dollarization, largely due to the it being a much younger currency.

This paper will focus on the case of Montenegro, a small open economy in the Western Balkans that unilaterally adopted the euro as its sole currency. This paper provides an overview of the main features of euroization identified by different strands of the literature, and the possible channels of transmission to the economy. Through a contrast of developments in Montenegro and its regional peers, which have not taken the step to unilaterally adopt the euro, this paper examines whether how euroization has played out for Montenegro, and whether it has enhanced its convergence with the euro area and the credibility of its policies. Montenegro, along with its partially recognized neighbor Kosovo are the only two countries that have moved to adopt the euro fully and unilaterally as their only official currency, a step that is distinct from the adoption of the euro by European Union (EU) members who join the European Monetary Union (EMU) upon meeting the established criteria. It is this type of adoption, and substitution of a domestic currency that is the focus of this analysis.



## 2. Literature review

Full euroization results in an abdication of a country's ability to issue coinage and of its sovereignty over monetary policy decisions, which can be described as the adoption of a "hyper-fixed" exchange rate regime (Nuti, 2002). Adopting the euro would address the issue of exchange rate volatility, as well as make transactions with the anchor area less costly, however it would immediately result in the central bank losing its ability to act as a lender of last resort, support domestic fiscal policy through the purchase of bonds, and inject liquidity, (Winkler et al., 2004). Within the literature there are diverging views about whether these features are to be perceived as costs or benefits which are reminiscent of the overall debates around the idea of currency unions (Rochon and Seccareccia, 2003).

For proponents of euroization, one of the main perceived advantages of currency substitutions is generating a positive sentiment amongst investors and having the policy credibility of the anchor area extended to them (Winkler et al., 2004). Through this confidence channel, integration with the anchor would increase through investment and trade, and overall convergence would speed up (Berg and Borensztein, 2000). The inability to support domestic spending, which ensures fiscal discipline is within this perspective a benefit. However, the flip side of a stable exchange rate is the inability to use it as a response to external shocks. For proponents of euroization two competing explanations ensue on why despite this risk, the perceived benefits of euroization continue to outweigh the costs. One is that other adjustments mechanisms such as wage and price flexibility are available due to increased trade and financial integration (Mundell, 1961). Another reasoning suggests that exchange rate adjustments, as well as monetary tools overall have no long-term impact over output (Arestis and Sawyer, 2006).

In other strands of the literature, euroization is met with more skepticism. De Paula, Fritz and Prates (2017); Fritz, de Paula and Magalhães Prates (2018) empirically analyzed exchange rate volatility and capital flow fluctuations and concluded they are overwhelmingly linked to global cycles, rather than country-level policies or perceived credibility. It follows that euroization would have limited impacts on investment flows, and furthermore, that interest rate differentials will persist due to different perceived currency risks (Fields and Vernengo, 2013). Thus, there is a much higher cost resulting from the loss of a domestic lender of last resort, with the likely outcome being a financial environment with a high cost of credit and lower investment (Ponsot, 2019). Izurieta (2003) further raised the issue of a potential significant impact resulting from the loss of the exchange rate as an adjustment mechanism to an external shock, as such shocks would deteriorate the current account position, concluding that overall euroization would hamper a countries long-term growth trajectory. The lack of an exchange rate adjustment could further hamper competitiveness and further weaken the external position of a euroized economy, which is more likely to become dependent on external financing (Missaglia, 2021).

## 3. Research methodology

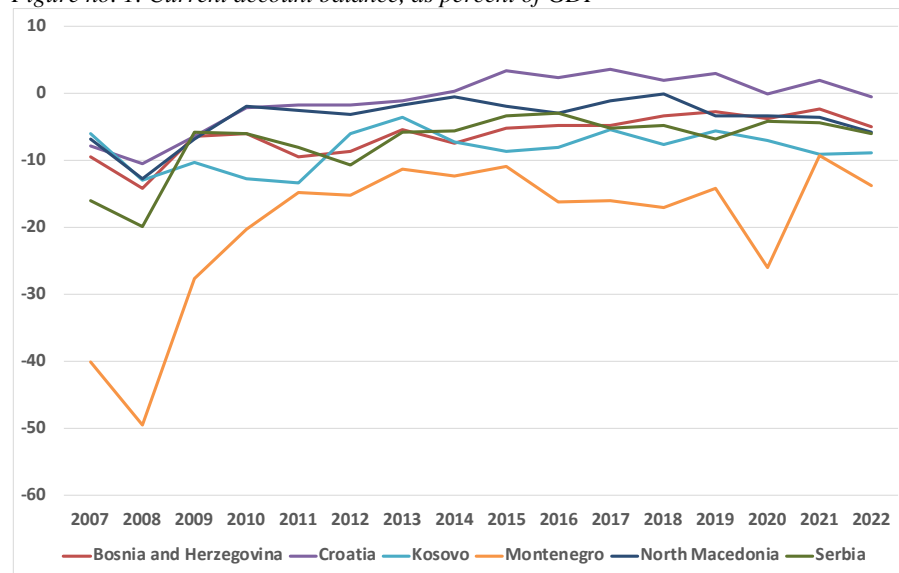
This study investigates whether currency substitution in Montenegro increased its convergence with the Euro Area and improved its overall economic performance, as proponents of this measure suggest. Towards this goal, we use macroeconomic indicators, collected through databases provided by the International Monetary Fund (IMF) and the World Bank, as well as information provided by IMF country reports and look at both the domestic performance of its economy, as well as its external position. Data from Montenegro's central bank is used for detailed information on its external accounts and to obtain a breakdown of sources and direction of foreign investment.

To provide a benchmark, we compare Montenegro's performance in some areas to its regional peers, as well as to the euro area members. As regional peers, we focus on Bosnia and Herzegovina, Croatia, North Macedonia, Serbia, and Slovenia, which alongside Montenegro make up the former members of Yugoslavia, but also represent an economically diverse sample of countries with different income levels and industries. The findings of this empirical analysis are contrasted and analyzed within the context of the literature on euroization, using Montenegro as a case study for how risks and benefits of such a measure can potentially materialize.

#### 4. Findings

In its report on Montenegro, the IMF noted the countries' large external imbalances, which are attributed to a lack of competitive, weak exports, and a large reliance on external financing for its euroized economy, noting the need to attract investments towards a more diversified economy with higher value added exports (International Monetary Fund, 2022a). Montenegro's current account deficit stands out amongst its peers and reached almost half of the size of its entire GDP during the Global Financial Crisis (GFC). The current account balance as a percent of GDP is shown in Figure 1. Montenegro had a larger deficit pre-dating the GFC, and while it narrowed in the years after it consistently surpassed 10 per cent of its GDP and widened to about 25 per cent of GDP when Covid-19 hit its economy. This deficit in the context of a euroized economy means Montenegro needs to consistently find external sources of financing, through either investment, borrowing or remittances to fill the gap.

Figure no. 1. Current account balance, as percent of GDP

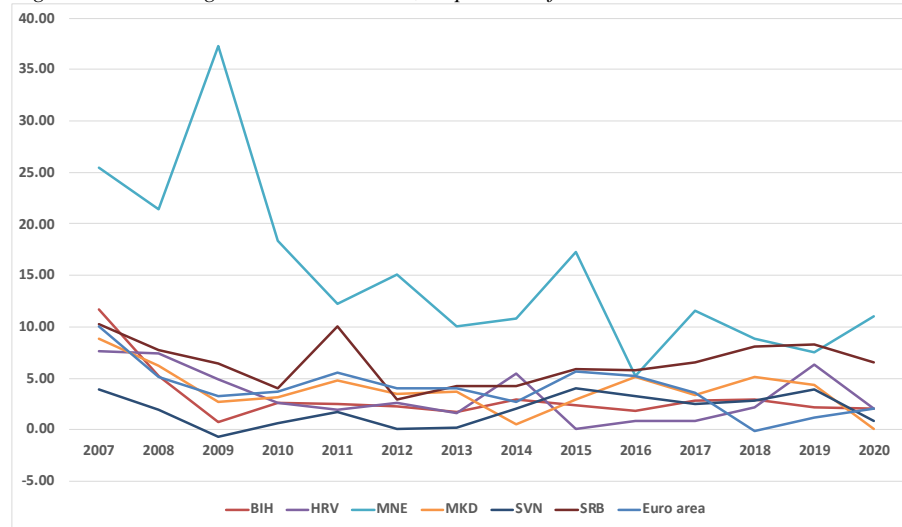


Source: (International Monetary Fund, 2023)

One area where Montenegro outperformed its peers is in its ability to attract large amounts of Foreign Direct Investment (FDI), as shown in Figure 2. Montenegro has almost consistently brought in large amounts of FDI, which during the GFC made up almost a third of its entire GDP. These high levels of FDI are consistent with the idea that the euro would increase foreign investment. However, the quality of the investment, and its long-term impact require further scrutiny. Reports from Montenegro's Central Bank document that a large amount of FDI is directed towards purchasing real estate (CBM, 2022). Apart from FDI, other sources of revenue and currency for Montenegro are remittances sent by workers from abroad, as well as increasingly services purchased by foreign tourists visiting the country (International Monetary Fund, 2022b). However, these inflows are insufficient to cover the financing needs of the government, which relies on large amount of external borrowing (International Monetary Fund, 2022b).



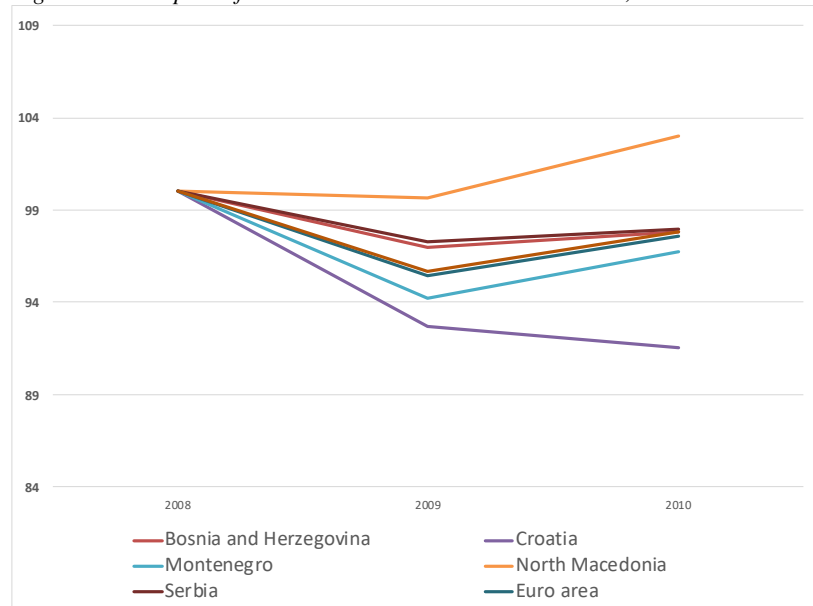
Figure no. 2. Foreign Direct Investment, as percent of GDP



Source: (World Bank, 2022)

In the last two decades, the global economy was hit by two large external shocks, first following the 2008 GFC, then the shock triggered by the Covid-19 pandemic. Figure 3 shows the impact on real GDP on Montenegro and its peers of the GFC. Indexed on 2008 values, Figure 3 illustrates the cumulative impact on real GDP in 2009 and then in 2010.

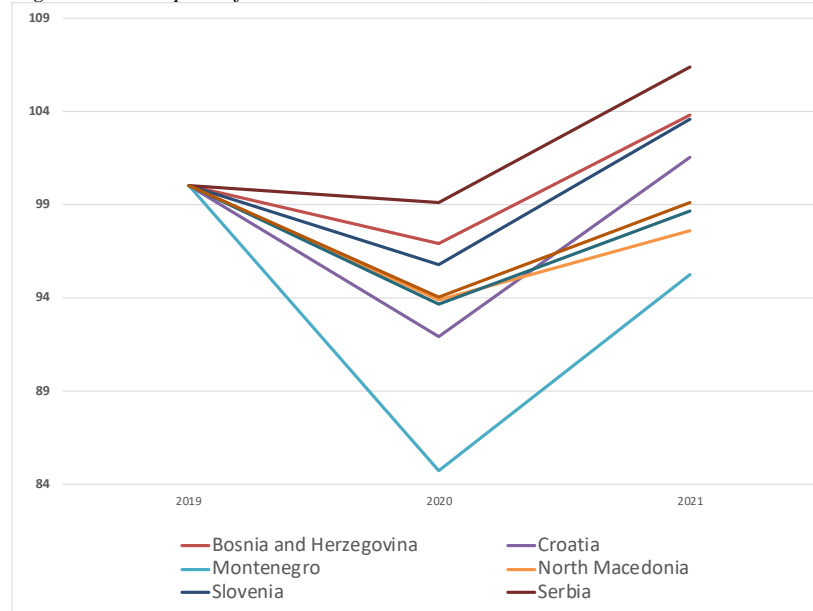
Figure no. 3. Impact of Global Financial Crisis on real GDP, 2008=100



Source: Authors' calculation based on (International Monetary Fund, 2023)

In the aftermath of the GFC, Montenegro had a similar trajectory to its peers and the euro area overall, with a decline in its GDP in 2009 and a slow recovery but with its economy still below 2008 level in 2010. In 2020, the aftermath of Covid-19, things looked differently. The increased reliance on external financing and tourism for Montenegro after the GFC and as part of its recovery, amplified the impact of the Covid shock. Figure 4 illustrates how Montenegro is an outlier in the case of the Covid-19 pandemic.

Figure no. 4. Impact of Covid-19 on real GDP, 2019=100



Source: Authors' calculation based on (International Monetary Fund, 2023)

Montenegro's tourism industry provided a lifeline in the aftermath of the GFC but increased its exposure to the pandemic. Its lack of competitiveness and decreasing trade levels with the EU make it difficult to address the imbalances (International Monetary Fund, 2022a). Montenegro's largest trading partner, Serbia, is outside of the EU or euro area, and account for over a quarter of all transactions, while trade with EU countries has been in a steady decline since the GFC (Economist Intelligence Unit, 2023). High unemployment in Montenegro persists and remittances from a large share of the population living abroad are essential to its economy (International Monetary Fund, 2022a).

## 5. Conclusions

The performance of Montenegro's economy over the last years does not support the idea that currency substitution increases integration or convergence with the anchor. Montenegro has struggled to respond to the two large shocks and has become less, not more integrated with the EU. In an increasingly connected global economy prone to shocks, the loss of exchange rate mechanism and monetary policy seems to have limited Montenegro's growth trajectory and set the country on a path of growing imbalances. A further question that arises is what type of monetary policy tools a country such as Montenegro would have been able to use absent euroization. Future work plans to look at the response of its peer, which all have financial systems that are partially euroized, yet maintain their own sovereign currencies as well (Brown and Stix, 2015).

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## How Effective Was Assistance to the Vulnerable Countries During the Pandemic? Comparing the Debt Service Suspension Initiative and Special Drawing Rights

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### Abstract

*This paper compares the actual and potential resources derived from the G20's Debt Service Suspension Initiative and the actual and potential resources from International Monetary Fund's 2021 allocation of Special Drawing Rights. These programs were two main sources of support for 73 vulnerable countries during height of the COVID-19 pandemic. For these countries, Special Drawing Rights provided much greater potential support when compared to the Debt Service Suspension Initiative. Special Drawing Rights deployed more actual resources as well. When these programs are evaluated from the perspective of the countries receiving assistance, Special Drawing Rights are found to have several characteristics that are more desirable. As such, as a tool, Special Drawing Rights have several advantages that should be taken into account during discussions about policy responses to global challenges in the future.*

**Key words:** International Monetary Fund, SDR, Special Drawing Rights, DSSI, Debt Service Suspension Initiative

**J.E.L. classification:** E02, E60, F33, F53

### 1. Introduction

The COVID-19 virus, which spread rapidly in early 2020, killed nearly 7 million people to date, according to the World Health Organization (WHO, 2023). Apart from this devastating human toll, the pandemic also threw vulnerable countries into even more precarious economic situations, starving governments of revenue as spending for vaccines, personal protective equipment, and social programs became necessary. Growth projections plunged, leading the International Monetary Fund (IMF) to call the downturn the worst since the Great Depression (Gopinath, 2020). Health, education, and living standards, as measured by the Human Development Index, fell for the first time since 1990 (UNDP, 2022).

Vulnerable countries experienced various shocks due to the pandemic. For example, many countries dependent on tourism, an important source of hard currency, saw that industry shut down overnight, while countries with large export markets experienced demand, supply chain, and production issues. Generally, as money moved out of vulnerable countries, they faced either challenges with maintaining reserves and/or keeping their local currencies stable. These problems can compound rapidly, leading to difficulties servicing debt, exchange rate pressures that made imports expensive, and/or a hollowing out of the state's capacity to spend (Cashman et al., 2022). The world needed new tools to provide resources and liquidity to struggling countries that also did not add to their debt loads.

Facing these issues, the Group of 20 launched the Debt Service Suspension Initiative, or DSSI (G20 Information Centre, 2020). The poorest countries, according to the United Nations' definition or those eligible for International Development Assistance, that also have debt outstanding to the World Bank or IMF, were eligible for the DSSI. This amounted to 73

countries in total. From May 2020 to December 2021, the G20 says the DSSI suspended \$12.9 billion in official debt payments to 48 countries (World Bank, 2022).

The IMF's Board of Directors also initiated a program to assist countries facing challenges from the pandemic. In August 2021, the IMF allocated \$650 billion worth of Special Drawing Rights, or SDRs, to all of its members. A unique tool, SDRs are reserve assets that can be exchanged into hard currency (usually the United States dollar) if a country has a need to do so. The IMF would then find another member country that would agree to accept SDRs in exchange for hard currency. SDRs are not loans but carry a non-compounding interest rate that has a 0.05 percent floor and is 3.9 percent currently (IMF, 2023a). \$209 billion was deployed to low- and middle-income countries in 2021, and these resources were used extensively in 2021 and 2022.

Apart from using them as reserves on a balance sheet (which requires no action), 104 vulnerable countries used SDRs, either by exchanging them for hard currency, using them to service IMF debt, or for fiscal purposes. For example, 69 countries used SDRs for fiscal purposes amounting to \$80.4 billion (Arauz and Cashman, 2022). These uses are not necessarily additive, however, due to different accounting methods.

This paper will compare these two programs based on their potential impact, assessment of the actual impacts, and the characteristics of each program, as well as provide background on how SDRs work. This information will be of use to policymakers and governments in evaluating potential responses to future crises.

## **2. Theoretical background**

In 1969, the IMF created SDRs — a reserve asset — as a supplement to the reserves of its member countries. As a reserve asset, SDRs do not represent debt or loans, but function as a unit of account at the IMF level. IMF member countries, and some other entities such as development banks, have accounts at the IMF denominated in SDRs. The IMF creates a market for buying and selling SDRs among holders by asking well-resourced countries to commit to accepting SDRs in exchange for hard currency, or currencies that have value globally.

Right now, the value of the SDR is determined by a basket of five currencies, but the United States dollar holds the most significance (IMF, 2023b). When countries exchange SDRs for hard currency or pay the IMF itself, their SDR holdings fall below its allocation, or the total amount of SDRs they been given over time. These countries must pay an interest rate on the difference between their holdings and their total allocation. This interest paid is given to countries that have a surplus of SDRs, or more holdings than their respective allocations. The interest rate is determined regularly but varies from a floor of 0.05 percent. It is just under 4 percent today (IMF, 2023a). The interest rate, even at nearly 4 percent, is desirable because it is lower than the market rate many countries would pay and because the interest accrued is non-compounding.

In total, there have been four allocations of SDRs during the program's existence (IMF, 2023c). Before the pandemic, the last time an allocation occurred was in 2009, when \$250 billion in SDRs aimed to provide liquidity globally during the Great Recession.

The process for allocating SDRs is administratively a quick one — once political will exists among its membership. This decision must include key members such as the United States, which has the power to stop an allocation of SDRs on its own. US law also limits SDR allocation to under just over \$650 billion, unless the allocation is approved by US Congress (Cashman et al., 2022). One of the main impediments to the allocation in 2021 was that the United States' initially opposed a new allocation.

## **3. Research methodology**

Potential DSSI use was extrapolated from the calculations provided by the World Bank (World Bank, 2022). Actual DSSI use was also found via the World Bank at the conclusion of the DSSI program, yet this did not include breakdowns by country for the 48 countries that participated in the program or indicate whether this figure include the sole private creditor that participated.

Potential SDR use (from the 2021 allocation) was found in Cashman et al. (2022); actual SDR use was taken at the one-year mark by Arauz and Cashman (2022), published in August 2022.

The 68 DSSI-eligible countries with available data in the World Bank's International Debt Statistics database (World Bank, 2023) comprised the sample by which aggregates and country-by-country data was compiled. This assumes that the 68-country sample includes all 48 participants in the DSSI program.

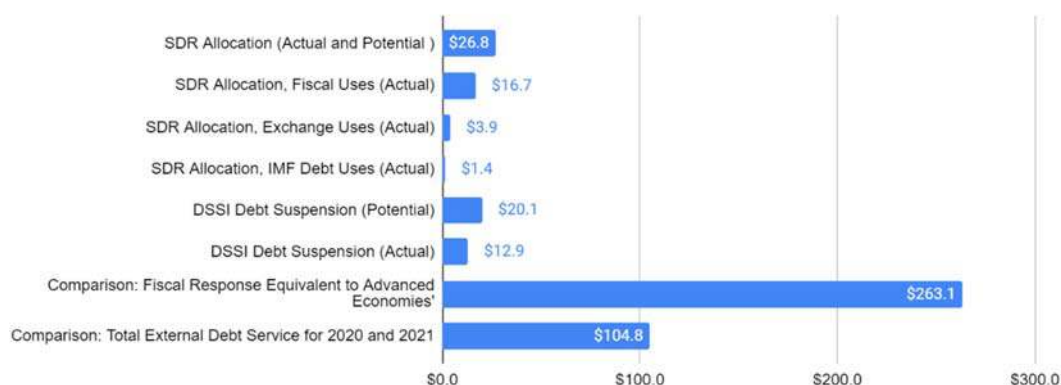
For comparison purposes, total external debt service was also found in the International Debt Statistics database. Data aggregating the fiscal responses to the pandemic by advanced economies was also collected for comparison purposes from the IMF's fiscal response database (IMF, 2021). This data was then adjusted so it was in proportion to the aggregate size of the economies in the sample of 68 countries.

#### 4. Findings

For the sample of 68 countries with data available both for DSSI and SDRs, Figure no. 1 compares the aggregate actual and potential use for each program. SDRs allocated to this group of countries amounted to \$26.8 billion at the time of allocation. This is both an actual and potential figure since SDRs were automatically added to member countries' accounts at the IMF in August 2021, at the time of the new allocation. Thus, as reserve assets, this is a use, although no action was taken by these countries at that point. Research by Arauz and Cashman, shows that this sample of countries used SDRs in the amount of \$16.7 billion for fiscal uses, \$3.9 billion for exchange uses (acquiring hard currency), and \$1.4 billion for IMF debt relief (Arauz and Cashman, 2022).

The SDR allocation was significantly greater than the potential DSSI debt suspension, which was \$20.1 billion. The actual estimates suspension of debt via DSSI from the G20 was only \$12.9 billion, also significantly less than the overall SDR allocation and the fiscal uses of SDRs by these countries. The \$12.9 billion figure may even be an overstatement. The World Bank states only \$8.9 billion of official debt suspended under DSSI (World Bank, 2022b).

*Figure no. 1. Aggregate Amount of Potential and Actual Use of DSSI and SDRs for 68 DSSI-Eligible Countries, in Billions USD*



*Sources:* Authors' calculations based on (Arauz and Cashman, 2022)

Both programs are inadequate, however, when considering the amount of resources advanced economies created by themselves to respond to the pandemic. Although the countries in this sample do not have the fiscal space to create resources like advanced economies, if they did, they would have created \$263.1 billion for fiscal use to respond to the pandemic, when scaled for the aggregate size of their respective economies. Likewise, although DSSI and SDRs were tools deployed to temper the effects of the pandemic, the most optimistic reading of their actual impact is dwarfed by the total external debt service for 2020 and 2021 for the countries in this sample, which comes to a whopping \$104.8 billion.

Table no. 1 shows the data from Figure no. 1 broken down by country. Although aggregate actual use of DSSI is available, it is not available by country. Of the 68 countries, 60 of them used SDRs in some way other than simply having the allocation on their books. This drops to 53 when excluding 15 countries with marginal (under \$5 million) SDR use.

*Table no. 1. Amount of Potential and Actual Use of SDRs and Potential Use of DSSI for 68 DSSI-Eligible Countries, in Millions USD*

Country	SDR Allocation (Actual, Potential Use)	SDR Fiscal Uses (Actual)	SDR Exchange Uses (Actual)	SDR IMF Debt Uses (Actual)	DSSI Debt Suspension (Potential)
Afghanistan	\$442	\$0	\$0	\$6	\$73
Angola	\$1,010	\$497	\$0	\$83	\$2,900
Bangladesh	\$1,456	\$0	\$0	\$183	\$615
Benin	\$169	\$166	\$0	\$4	\$33
Bhutan	\$28	\$0	\$0	\$15	\$144
Burkina Faso	\$164	\$162	\$0	\$0	\$33
Burundi	\$210	\$0	\$80	\$0	\$8
Cabo Verde	\$32	\$32	\$32	\$0	\$34
Cambodia	\$239	\$0	\$0	\$0	\$378
Cameroon	\$377	\$213	\$213	\$1	\$672
Central African Republic	\$152	\$140	\$140	\$4	\$14
Chad	\$191	\$184	\$184	\$7	\$102
Comoros	\$24	\$24	\$24	\$0	\$5
Congo, Dem. Rep.	\$1,455	\$503	\$503	\$0	\$276
Congo, Rep.	\$221	\$278	\$278	\$0	\$333
Côte d'Ivoire	\$888	\$873	\$0	\$186	\$150
Djibouti	\$43	\$0	\$43	\$1	\$142
Dominica	\$16	\$0	\$0	\$2	\$8
Ethiopia	\$410	\$404	\$404	\$5	\$685
Fiji	\$134	\$0	\$0	\$0	\$30
Gambia, The	\$85	\$20	\$0	\$2	\$13
Ghana	\$1,007	\$330	\$0	\$123	\$355
Grenada	\$22	\$0	\$0	\$3	\$11
Guinea	\$292	\$150	\$284	\$5	\$104
Guinea-Bissau	\$39	\$38	\$0	\$2	\$7
Guyana	\$248	\$243	\$243	\$0	\$28
Haiti	\$224	\$110	\$110	\$6	\$128
Honduras	\$341	\$336	\$336	\$4	\$53
Kenya	\$741	\$728	\$0	\$99	\$1,190
Kosovo	\$113	\$111	\$0	\$1	\$8
Kyrgyz Republic	\$242	\$0	\$0	\$13	\$118
Lao PDR	\$144	\$0	\$70	\$0	\$619
Lesotho	\$95	\$0	\$0	\$5	\$14
Liberia	\$353	\$347	\$0	\$10	\$5
Madagascar	\$334	\$334	\$0	\$9	\$19
Malawi	\$189	\$189	\$181	\$5	\$37

Maldives	\$29	\$29	\$28	\$0	\$229
Mali	\$255	\$255	\$0	\$10	\$102
Mauritania	\$176	\$176	\$166	\$9	\$218
Moldova	\$235	\$221	\$221	\$14	\$63
Mongolia	\$99	\$0	\$0	\$6	\$134
Mozambique	\$310	\$305	\$0	\$0	\$565
Myanmar	\$705	\$0	\$0	\$5	\$794
Nepal	\$214	\$211	\$0	\$0	\$51
Nicaragua	\$355	\$0	\$0	\$0	\$43
Niger	\$180	\$177	\$0	\$11	\$55
Nigeria	\$3,351	\$3,294	\$0	\$38	\$325
Pakistan	\$2,772	\$2,725	\$0	\$433	\$5,404
Papua New Guinea	\$359	\$353	\$0	\$0	\$73
Rwanda	\$219	\$215	\$0	\$22	\$27
Samoa	\$22	\$0	\$0	\$2	\$18
São Tomé and Príncipe	\$20	\$20	\$20	\$1	\$6
Senegal	\$442	\$434	\$0	\$4	\$339
Sierra Leone	\$283	\$56	\$0	\$14	\$17
Solomon Islands	\$28	\$0	\$0	\$0	\$2
Somalia	\$223	\$84	\$84	\$0	\$39
St. Lucia	\$29	\$0	\$0	\$0	\$7
St. Vincent and the Grenadines	\$16	\$0	\$0	\$1	\$6
Tajikistan	\$238	\$0	\$0	\$2	\$104
Tanzania	\$543	\$0	\$0	\$0	\$463
Timor-Leste	\$35	\$0	\$0	\$0	\$0
Togo	\$200	\$197	\$0	\$0	\$49
Tonga	\$19	\$0	\$0	\$0	\$14
Uganda	\$493	\$242	\$0	\$0	\$231
Uzbekistan	\$752	\$0	\$0	\$1	\$526
Vanuatu	\$32	\$0	\$0	\$2	\$13
Yemen, Rep.	\$665	\$0	\$0	\$9	\$281
Zambia	\$1,335	\$1,313	\$281	\$0	\$529

*Sources:* Authors' calculations based on (Arauz and Cashman, 2022)

## 5. Conclusions

These programs illustrate two different approaches to tackling the twin health and economic crises posed by the pandemic. DSSI provided official debt suspension to countries that applied, while ensuring that the net present value of the loans stayed constant despite the suspension. Clearly, the program was attractive to a set of countries that were eligible for it since 48 of 73 countries received debt suspension via the program. Although DSSI was supposed to serve as a model for private creditors, which represent around half of external debt globally and 25 percent of debt for this sample, only one private creditor voluntarily participated (World Bank, 2022).

In contrast, the 2021 SDR allocation provided reserve assets to all IMF member countries, regardless of their need for the resources. While this may seem counterintuitive as richer countries also receive resources, these resources are not useful to countries in stronger economic positions. Thus, SDRs automatically provide resources to the countries that need it, within the structure of the IMF system, where countries are treated more like peers rather than debtors.



(While there are democratic deficits within the IMF system, it is inherently more democratic than the G20.)

Table no. 2 compares various relevant characteristics of both programs.

*Table no. 2. Select Characteristics of SDR and DSSI Systems*

Characteristics	SDR	DSSI
Eligibility	All 190 IMF members	73 eligible countries
Uptake	Of 68 in sample, 60 countries	48 countries
Conditionality	No, apart from showing need via a self-assessment	Yes, various conditions, e.g. commitment to take on no new debt
Use	Countries may use SDRs in a variety of ways that extend the resources above the allocated value. They may exchange them for any of the currencies in the SDR basket, in any amount (provided a counterparty is available); they may use them to pay the IMF directly; and as property of governments (except when otherwise indicated by local laws), they may use them in fiscal accounts without exchanging them.	Temporary debt suspension only, a debt standstill
Focus	In 2021, providing countries with liquidity via a flexible tool to address macroeconomic problems and specific problems related the COVID-19 pandemic; this could be extended for various other global challenges	Suspension of official debt only, which is a fraction of total debt and did not include private creditors formally
Cost	SDR allocations are cost-free, and if they are exchanged, they benefit both parties as the purchaser of SDRs receives the interest paid by the seller. Users pay an interest rate that is non-compounding and is usually below market rate. Even with extensive interest rate increases globally in 2022 and 2023, the rate sits below 4 percent. Further research could explore the risk of excessively tight interest rate policy on the SDR interest rate.	Designed to be net present value neutral to creditors, payments deferred under new terms
Duration	Although users pay a non-compounding interest rate if they hold fewer SDRs than the amount allocated to them, this can continue indefinitely	DSSI, which started in May 2020, wound down in December 2021
Institutional Framework	IMF's system of governance, which includes all members but gives disproportionate influence to advanced economies, especially the United States (via the US Treasury or the US Congress)	G20, excluding target countries
Mobilization	Can be quickly mobilized and deposited in IMF accounts	Can be mobilized quickly via G20, but countries must meet conditions and go through an application process
Effectiveness	SDRs are distributed to all member countries but cannot be wasted because countries that do not need them do not find their use attractive	Excludes vulnerable countries that do not meet specific criteria or countries that do not wish to apply for whatever reason
Sanctions-compliant	Yes, the IMF follows its member countries' guidance on recognition, or suspension of recognition, of governments of member countries. Additionally, member countries need not transact with specific countries.	Yes, creditor governments do not need to suspend the debt of a particular debtor government if they were ever in this unlikely situation

*Source:* Authors' analysis based on (Cashman et al., 2022)

This discussion does not intend to imply that programs like the DSSI are not valuable. Indeed, vulnerable countries clearly benefited from both programs. Intervention to aid vulnerable countries was also necessary at many different levels due to the inability of the private sector to respond to global challenges. But DSSI only created temporary fiscal space via a debt standstill for a small portion of vulnerable countries' debt service; they must continue payments on the rest.

With an eye to the future, SDRs seem to be more advantageous. SDR allocations have many benefits that may be applicable to old challenges, like the potential global debt crisis on the horizon, and new challenges, like the ones posed by climate change, that do not neatly fit into a debt framework. SDRs also allow for liquidity to be increased over the long term, not just for a temporary period.

Indeed, the 2021 SDR allocation has kickstarted a discussion within civil society about new allocations of SDRs: over 150 organizations have signed onto support another allocation of SDRs (CEPR, 2022). There is interest in rechanneling SDRs allocated to richer countries to poorer countries, while preserving the unique aspects of the tool (Arauz, 2022). In addition, the United Nations has proposed the IMF "[automate] SDR issuance in a countercyclical manner or in response to shocks, with allocations based on need."

The SDR system has proven its usefulness to its users, vulnerable countries. Time will tell if there is political will to firmly integrate this unique tool into the global financial architecture.

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## The War Economy in The Russian-Ukrainian Conflict

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### Abstract

*The paper below represents the result of research from an economic point of view since the outbreak of the Russian-Ukrainian conflict. The governments' response to the overlapping economic crises generated by the war in Ukraine has generated various macroeconomic imbalances whose correction will have to be realized in the coming years. The list of crises to which Europe will have to respond in the coming years does not refer only to pandemics or war, but to a more volatile list, a "permacrisis". The only European chance to overcome these challenges lies in the fact that the EU states must work together.*

*It will be interesting to study if in the future the governments, which have the impression that they can control the effects of energy crises, will manage to implement, together, the measures necessary to calm the energy markets and not only that.*

**Key words:** economy, war, crisis, energy, inflation

**J.E.L. classification:** Q40, E60, O40

### 1. Introduction

Contemporary conditions degraded by Russia's invasion of Ukraine as well as European governments' reactions to them force governments to switch to a wartime economy, to manage its impact with global chaos. How have world economies reacted to previous conflicts and how have governments, even those not directly involved, reacted to this military conflict? The shocks on countries' economies derive from three directions that are amplified by testing internal economic balances. What was the reaction of governments in times of war and what remained, in times of great turbulence, of market economies? What was and is the evolution of macroeconomic indicators, from inflation to external debt, from deficits to capital expenditures? It is known that at the macroeconomic level, the economic consequences of a war are like the economic consequences of a deadly pandemic.

Russia, the main belligerent, has made natural gas supplies a veritable weapon used against Europe, with the aim of undermining European economies, respectively breaking their solidarity with Ukraine, the invaded country.

The result: Europe's economies changed radically and went into a war paradigm (the reduction in the volume of natural gas led to a chain of explosive price increases that penetrated all markets. Governments were put in a situation where a multitude of economic crises simultaneous shocks rocked the cost of living for citizens and the economies themselves. Thus, government interventions in the private economy were explosive in scope through the adoption of policies unthinkable in peacetime and liberal economies.

We are facing a behavior specific to belligerent situations, where classic weapons are complemented by the weapons of natural resource management that bring national economies to their knees and intoxicate society.

All this war behavior is done with massive loans and when the long-desired peace is returned, they will represent the bill that will have to be paid for years to come. The condition will be that this bill does not represent the motivation for the emergence of a new war.

## 2. Theoretical background

"Inflation represents a monetary-real macroeconomic imbalance reflected in the increase in the monetary mass in circulation over the needs of the economy, a fact that leads to monetary depreciation and the abnormal, cumulative, and generalized increase in prices". (Ignat I., 2002). "In monetary terms, inflation represents the fact that the prices of goods and services increase, the amount of money (physical and on account) increases, and the purchasing power of a monetary unit decreases" (Țugui A., 2000). The war economy represents, in the classical sense, that economy that has restructured to meet the needs of a production affected by the support of large-scale military conflicts. In its current meaning, the war economy implies either the operation of the war economy on its territory, or a process of material reconstruction to eliminate the destructive, physical consequences of armed conflicts.

"The variant of an economy with specific potential for aggressions is currently taking shape, which develops branches capable of providing war material or simply of supporting the threat of the use of nuclear, chemical, biological weapons, etc." (Economic Dictionary, 2001).

## 3. Research methodology

The methodology used here derives from the concepts related to energy crises, war economy and recession. The main purpose of this article is to present the energy crisis that started last year, its impact in Europe and the measures taken by the European Union authorities, using the qualitative research method. The article begins with a review of the concepts of energy crisis and war economy and providing at most representative definitions, then presented the impact of the war in Ukraine on the community economies and the measures taken to counter its effects.

This research is divided into sections as follows: in the first part it is presented the manipulation of energy prices by Russia and the premises of the armed conflict, and the research question was formulated: what were the signals that predicted the invasion of Ukraine by Russia. Second, it is presented the concept of inflation and the economic situation in some European countries. The last part of this paper highlights the findings regarding the impact of the war on European economies and the measures that governments are trying to implement to counter the effects of the war economy. The multiple crises at the European level as well as the measures taken by the authorities I formulated are among the main conclusions of my research.

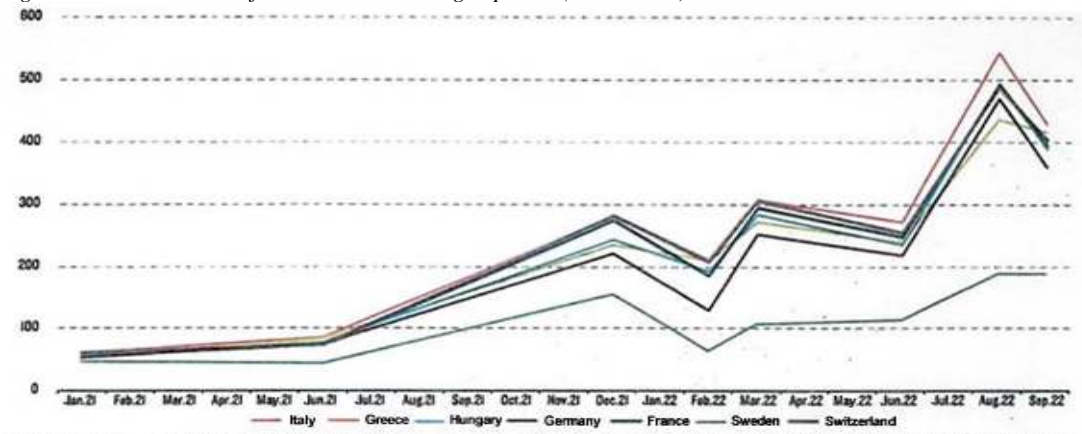
## 4. Findings

The war economy involves pouring out all the resources of a country in conflict, exerting not only maximum military effort, but also putting production at the service of the army's needs.

The use of the Russian economic weapon (natural gas) increased in intensity with the merging of troops with conventional weapons on the borders with Ukraine. This form of major Russian pressure began as early as 2021, on emerging European economies, before the invasion of Ukrainian territory. In the second half of 2021, Russia manipulated energy prices, through Gazprom, draining European gas reserves where extraction was cheaper. Combined with the forcing of the Nord Stream 2 gas pipeline into operation, the blackmail on European governments is being recognized late by them.

In 2022, until October, the volume of gas exported through land pipelines decreased almost five times (to the value of 536 million cubic meters). Consequence? The explosion of electricity prices (even by 1000%) in most European countries (800% in Romania). The pressure exerted by Russia was highlighted in December 2021 by the price peaks on emerging economies (Figure no. 1).

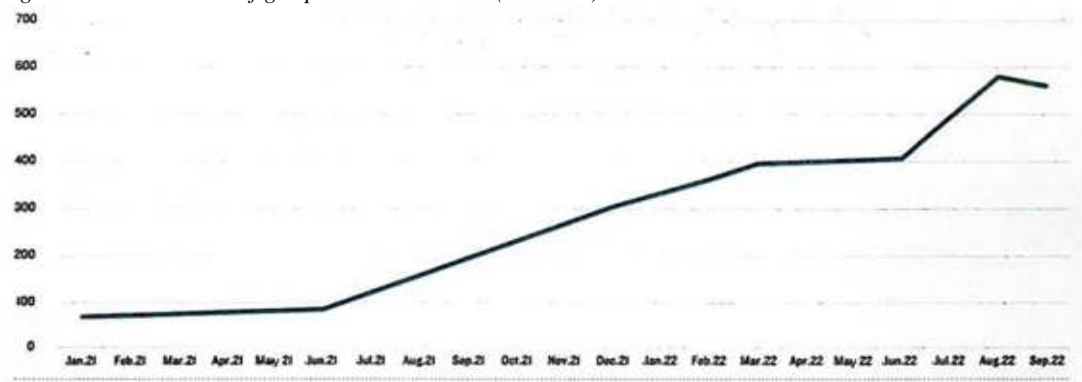
Figure no. 1. Evolution of wholesale natural gas prices (euro/MWh)



Source: <https://insse.ro/cms/>

The same thing is happening, in parallel, on the electricity market, as an effect of the war, and the setback in September 2022 is the clearest proof (Figure no. 2).

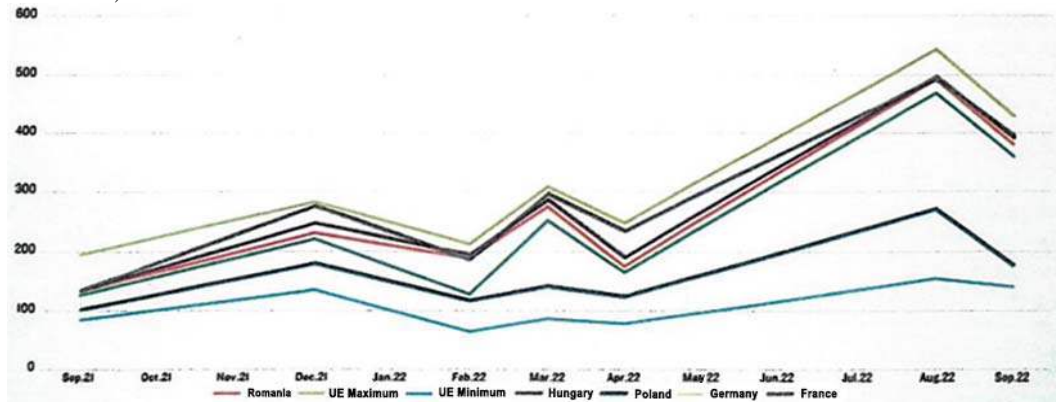
Figure no. 2. Evolution of gas prices in Romania (lei/MWh)



Source: <https://insse.ro/cms/>

The market reacted extremely aggressively, evidenced by the fact that the difference between the minimum and maximum price for wholesale electricity transactions, with next-day delivery, is more than double the minimum (Figure no. 3).

Figure no. 3. Price evolution of wholesale electricity prices with next-day delivery (average price, euro/MWh)



Source: <https://insse.ro/cms/>

The phenomenon found the necessary foundation also through the lens of the fact that the "single market" is far from being what was wanted, being more fragmented. All this culminated in the fact that Germany shut down most of its nuclear power plants and the drought reduced hydroelectric capacities.

Romania has also registered on the same downward slope since 2019, to industrial production which decreased by 2% in 2022 compared to the similar period in 2021 (the first 8 months). The locomotive of the European bloc, Germany, registered a decrease in industrial production by 0.5% in August, compared to July, and in July by 0.4% compared to June, for the second time in a row. France nationalized the most important electricity company, E.D.F., by purchasing the last percentages it did not own (16%), to reduce dependence on fossil fuels.

Romania recorded the second highest annual rate of industrial inflation at European level (70.9%), after that of Ireland (97.4%), in August 2022. The European Commission is trying various extended emergency intervention plans, for the redistribution to the population of the amount of 140 billion euros from exceptional taxes. Small governments, like Romania's, with budget deficits, can barely compensate for capping energy prices to the population. The big consumers stopped or reduced their activity, waiting for the much-promised aid: Azomureș, ALRO, the Galati iron and steel plant, Chimcomplex. Sectors such as chemical fertilizers, aluminum and steel were the most affected by the explosion in electricity prices. The upheaval of the energy markets was also manifested in other markets, especially in those where Ukrainian and Russian exports mattered. Foods suffered major price increases, raising many uncertainties for analysts.

Wheat prices rose from \$795/bushel (1 bushel = 27.2 kg) to \$1,252 on March 7. The price of aluminum (in which Russia counts) reached an all-time high of \$4,073/ton in the first quarter of 2022. Uncertainties of war caused demand to scale back again, and the price of aluminum lost another 47%.

There are several reactions of governments, several measures of central banks and several ways of propagating imbalances that make this crisis different from a financial or "ordinary" crisis. Among the particularities of the war economy, we distinguish:

1. The focus is on the "survival" of the population and on the protection of the population with public money: energy security, food security and medical security.
2. The priority is no longer economic growth but the preservation of macroeconomic balances, inflation control and energy independence from Russia.
3. Increasing war expenditures and prioritizing these expenditures in the government procurement list: restoring ammunition reserves, contributions to NATO, and supplementing expenditures with national armies.

The paradigm is already known that in times of war, liberal economies are unable to provide prompt and effective solutions to emerging needs. This led to changes in public policies. The state began to make its presence more intensely felt through its involvement in national economies. Companies in strategic fields are nationalized or aided. State aid rules have been relaxed at the European level, with governments given the green light to intervene and support community economies.

Brussels is considering the adoption of legislation that would give the European executive powers to impose on companies the creation of stocks or the termination of some delivery contracts, to support the supply chain in crisis situations, such as the one during the COVID 19 period.

Governments in Europe have allocated around 500 billion euros to protect their citizens and companies from the spectacular increase in energy and gas prices, either in the form of caps, or compensations, or state aid or tax reductions. Community states allocated 314 billion euros for measures to mitigate the impact of the energy crisis, while Great Britain allocated 178 billion euros for this purpose.

If the money for the nationalization of certain companies, considered strategic, is added, then the amount reaches over 450 billion euros. Germany alone spent the sum of 29 billion euros for the nationalization of the Uniper company, the largest importer of natural gas from Russia. Even in Romania, legislation was introduced to protect consumers, the anti-speculation law, a law that allows the government, in exceptional situations, to intervene and correct in real time the inappropriate behavior of traders, producers of goods and services or service providers.

"Wars inevitably cause shortages and inevitably generate windfalls for some at the expense of others. In the past, those who profited from war were executed. Today, among those who profit are many energy producers and traders - instead of being led to the gallows, they should pay otherwise, be subject to an exceptional profit tax" - Joseph Stiglitz, Nobel Prize laureate in economics the year 2001.

The illustrious laureate believes that peacetime policies do not yield results in wartime. Markets are deregulated and government intervention to stabilize them is inevitable. In his view, wars, where they occur, produce shortages due to the fragmentation of the supply chain. He believes that, in such moments, measures that are otherwise criticized should be implemented. An example would be the over taxation of energy companies, the "winners" of this armed crisis. "Markets are simply moving too slowly for the kind of major but necessary structural moves," the great economist said. If markets move too slowly then governments risk going too far with good intentions.

A few economists very seriously draw attention to the fact that the current inflationary crisis was also possible since in the last decade, central banks have pumped thousands of billions into the great economies of the world. Similarly, the current "interventionism" of the states will have a bill that could surprise in the coming years.

Among the most visible disruptions generated by macroeconomic shocks is their impact on public budgets. The belligerent situation between Russia and Ukraine has forced European governments to increase defense spending by at least 2% of GDP. Added to this are the expenses for protecting consumers against the energy crisis which represented 2.5% of GDP. The scale of government actions reminds us of the 2007-2008 crisis when "too big to fail" became a slogan for saving institutions private finance with direct government funding, a move that backfired on Wall Street.

The ingredients of a war economy are: 1. Recession; 2. Inflation; 3. Debts

Recession – is a price everyone will pay to bring inflation back under control. This fact does not scare investors as much as the phenomenon of stagflation scares them: the decrease in the rate of economic growth or even a contraction of the P.I.B. combined with high inflation. Europe is currently facing stagflation, a phenomenon it will face until at least the end of 2023. Anti-inflation tools - high interest rates that discourage consumption and demand, leading to a reduction in prices can exacerbate the economic contraction. Similarly, increasing defense spending can further fuel inflation.

As if that were not enough, governments will also face public debt pressures, fueled by record public deficits that have financed the recovery from the COVID-19 medical crisis and will finance the mitigation of the cost-of-living crisis. The increase in public debt overlaps with the fight against inflation, which involves the accelerated increase in interest rates, which implicitly leads to increased funding costs for the states. To roll over the credits, the states borrowed larger amounts, at higher interest rates than when they borrowed in the "cheap money era". And this fuels larger public deficits, as the days of government borrowing are paid annually from the consolidated state budget. In the second half of 2022, the public debt of the euro area was 94.2% of GDP, and that of the EU was 86.4% of GDP.

The situation in the community area, with the highest public debts, is Greece (182.1%), Italy (150.2%), Portugal (123.4%), Spain (116.1%), France (113, 1%) and Belgium (108.3%) and the lowest are found in Estonia (16.7%), Bulgaria (21.3%) and Luxembourg (25.4%). The "press" of the European Central Bank (ECB) stopped once inflation forced a switch from an expansionary monetary policy, designed to support economic development, to a restrictive policy, designed to combat inflation.

In the European Union but also in the USA two reasons were behind the increase in defense spending: the first consisted in the fact that governments are trying to increase their military arsenal to face an aggression by Russia, the escalation of the current conflict that can anytime expand and involve other states; the second reason is the replenishment of N.A.T.O.'s stockpiles of weapons. because of the aid given to Ukraine amid the state of belligerence with Russia. Global spending has increased since 2021 to a historic level of 2.1 trillion dollars, but it will surely increase against the background of the Russian-Ukrainian conflict. Only 6 member countries of N.A.T.O. now fulfill the obligation of 2% of G.I.P. for defense: Poland, Greece, Romania, Latvia, Lithuania, and Estonia. France increased its defense budget by 7.4%, reaching around 44 billion euros.



In September 2022, France officially announced that it would switch to a war economy and intensify the production of military equipment. Orders of two billion euros are forecast for 2023 indicating that France wants to replenish its stocks.

Romania has fulfilled its obligation of 2% of GDP for defense since 2015 and in 2023 it will increase it to 2.5% as it wants to purchase armored personnel carriers, fighter planes, but also submarines and tanks. The total bill will be around 12 billion euros. The most important investment was around 4 billion euros and consisted of the purchase of a PATRIOT battery that became operational. This is the most modern version of the PATRIOT missile defense system, consisting of radars, command, and control technology, as well as several types of interceptors capable of detecting, identifying, and destroying tactical ballistic missiles, cruise missiles, drones, aircraft advanced, etc.

An indicator of the pressure of defense spending on governments is that 9 governments say that arms spending should be increased without worrying about the EU bloc's ceiling on budget deficits. These rules were suspended during the COVID-19 pandemic, and the commission suggests that the period should be extended amid the Russian-Ukrainian crisis.

Relative to economic performance, Estonia, Lithuania, Letonia, and Poland provided the largest military and civilian aid to Ukraine in the period immediately following Russia's February 24 invasion. Poland offered 200 tanks to Kiev, of Soviet origin.

## 5. Conclusions

Every crisis of the last fifteen years has been followed by a spectacular increase in public and private debt to stimulate economic growth and support the current standard of living. The European Central Bank must act forcefully to fight inflation and preserve public confidence. Community monetary policy will therefore have to remain tight for a longer period. Central banks, by reducing aggregate demand, can act to bring inflation back as close to 2% as possible, which is not expected to happen before 2024.

It is also important that governments design fiscal support programs that do not fuel inflation again because this will lead to an even higher rise in the level of interest rates. Finance Ministries are more willing than Central Banks to accept higher inflation to reduce debt, in parallel with fiscal repression. But it is extremely important to remember that they recognize the harmful effects of high, double-digit inflation on economic, social, and political stability and accept the costs associated with reducing inflation. It is equally important that the Central Banks stop aspiring to reach their inflation figure of 2% and content themselves with bringing inflation back to a decent area (4%-5% / year).

States have borrowed massively during the pandemic and through inflation they will repay less purchasing power and reduce their level of indebtedness. The energy crisis will be a lasting one and we must adapt to the fact that energy will cost more in the future. In addition, fiscal-budgetary policy must work with monetary policy to reduce inflation and reduce economic imbalances.

In the long term, war could fundamentally alter the global economic and geopolitical order if energy trade changes, supply chains are reconfigured, payment networks are fragmented. Rising geopolitical tensions heighten the risks of economic fragmentation, particularly for trade and technology.

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## A Framework for Implementing a Twin Peak Financial Regulatory Model: Institutional Logics Theoretical Perspective

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### Abstract

*This paper examines the institutionalisation of the Financial Services Regulations Act, in South Africa which gave effect to a Twin Peaks Financial Regulation Model. The aim of the paper is to introduce an institutional logics framework that financial services institutions may use to identify enabling and disabling institutional assumptions, principles and values that lead to a successful institutionalisation of a Twin Peaks Financial Regulatory Model in a developmental state. Institutional logics, a strand of institutional theory, is the lens through which this paper examines the institutionalisation of the Twin Peaks regulatory regime in South Africa. South Africa is the only country in the African continent that has implemented the Twin Peaks regulatory Model; and is one of only 38 OECD countries that implemented the Twin Peaks model. The paper critiques the societal and institutional considerations that shaped the development of the Twin Peaks Model in South Africa.*

**Key words:** financial services regulation, Twin Peaks model, institutional theory, institutional logics, societal logics

**J.E.L. classification:** G28

### 1. Introduction

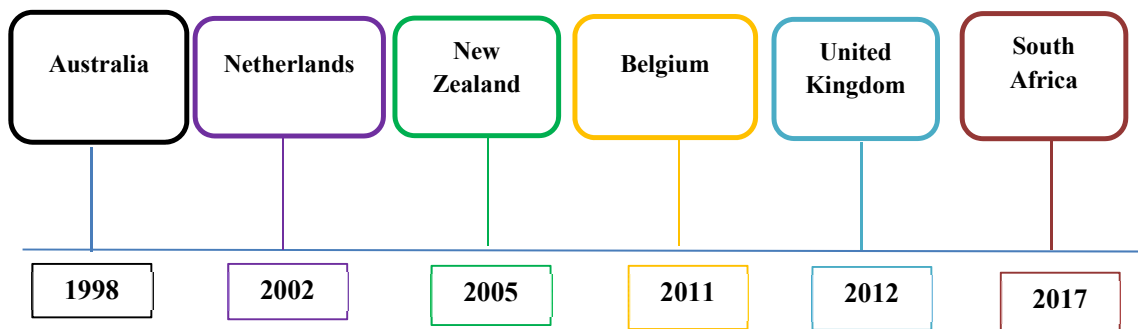
The financial regulatory sector revolves around a dominant financial logic which Jensen (2002), describe as a guiding force that focuses on individualism and profit maximisation. Some researchers argue that financial logics may be associated with the need for legitimacy in the financial markets and in regulatory institutions (Almandoz, 2012). Financial regulation concerns the regulation of the financial system as a whole, with different logics at play to ensure financial stability. There has been a growing attention on legitimacy of institutional logics where emphasis is placed on the role of the state, best policy practice, and how best resources can be distributed through new institutional practices derived from legislation and regulation (Zald and Lounsbury, 2010). Yan, et al., (2018) posits that even though financial logics compete and are complimentary with other social goals, embedding these in the social fibre of society depends on how the logics resonate with societal logics, that is, societal values, norms and belief systems. Because societal logics are a set of organising principles which define how social life operates, Zald and Lounsbury (2010), argues that financial logics and societal logics should have a close fit.

The institutional logic concept was conceived by Alford and Friedland (1985) to shed light on why contradictory practices and beliefs exist in institutions of developed countries. In getting to understand these contradictions in developed country's institutions, Friedland and Alford (1991) developed the concept of institutional logics to explain the interrelationships between individuals, institutions, and society. Societies in the developing world are very different to societies in developing countries with a dual economic system such as South Africa. South Africa introduced a new financial regulation legislation in 2017 that gave rise to the Twin Peaks regulatory model. The Twin Peaks Model in South Africa carves a space for a new work environment in financial services.

This new model also marks a departure from a sectorial approach in financial regulation to a regulatory model characterised by two regulators (two peaks) whereby one regulator, the Prudential Authority performs a risk-based safety and soundness function while the other regulator, the Financial Sector Conduct Authority, focuses on business conduct, consumer protection and market integrity. Central to the institutionalisation of the Twin Peaks Model in South Africa is how the unique societal contexts have been catered for in the crafting of the FSRA, given the dual economic system in the country.

The South African banking sector caters for a society deeply divided by its colonial and apartheid history. Added to that, South Africa is the only country in the African continent that has implemented the Twin Peaks regulatory Model; and is one of only 38 OECD countries that implemented the Twin Peaks model. This begs the question: what are the societal and institutional considerations that shaped the development and the institutionalisation of the financial services regulatory regime that gave birth to the Twin Peaks Model in South Africa? The newly adopted Twin Peaks Model in South Africa is uniquely positioned in this paper as a social laboratory to examine the enablers and disablers of effective implementation of a new financial regulatory model in a society with multiple actors that have multiple value systems within multiple and sometimes diverse institutional logics. As depicted in Figure 1.1 the Twin Peaks Model was pioneered in Australia and subsequently adopted by the United Kingdom, Belgium, New Zealand, the Netherlands and South Africa (Godwin, 2017 and Godwin, 2018).

*Figure no. 1 Countries that adopted Twin Peak model financial services regulatory regime*



*Source:* (Msweli and Ryneveldt, 2023)

Australia adopted the Twin Peaks Model in 1998, on the recommendation of the Wallis financial regulatory inquiry (Schmulow, 2015). The Twin Peaks Model was adopted in the Netherlands in 2002. And in New Zealand it occurred periodically in 2005 when the Reserve Bank of New Zealand was appointed as the prudential regulator, and in 2011, when the Financial Markets Authority came into existence (Godwin et.al., 2017). In 2011 the Belgian financial regulatory system transitioned to the Twin Peaks Model (Godwin et.al., 2017). South Africa is the only developing country globally, and the only country in Africa that has adopted the Twin Peaks Model as its preferred financial regulatory model.

The central question around which this paper is centred is that: given the dense institutional field characterised by two dominant institutional environments – the Prudential Authority and the Financial Services Conduct Authority, in a society with multiple societal and organisation value systems, what are the factors that enable effective implementation of the Twin Peaks model in South Africa? The next section discusses institutional logics as the theoretical lens through which the question was addressed.

## 2. Theoretical background: Institutional Logics

Thornton and Ocasio (1999:804) define institutional logics as *'the socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organise time and space, and provide meaning to their social reality'*. In reviewing the conceptualisation of institutional logics as set out by the above prominent researchers, institutional logics can be seen as a set of rules that confer organizational legitimacy and sustainability. At its core, institutional logics provide society's master principles that guide social action (Greenwood et al., 2010). Alford and Friedland (1985) introduced the institutional logics terminology to give a description of the different belief systems and practices inherent in organisations. For Friedland and Alford (1991) institutional logics is a means that drive organisational actors with institutional principles that enable them to achieve their end-goals by enacting the most appropriate action. In a different conceptual comprehension of institutional logics, Jackall (1988) defines it as a contingent set of rules that are constructed by complexities and social experiments which in turn give rise to how organisational actors enact and participate in a particular context that is predictable. With the benefit of Alford and Friedland (1985), and Jackall's (1988) seminal work, Table 1 summarises institutional logics definitions while simultaneously mapping out organisational actors' objectives.

Table no. 1 Institutional Logics definitions - organisational actors, means and objectives

Author	Organisational actors	Means	Objectives	Research focus
Alford and Friedland (1985)	Institutional participants	Institutional principles	Enacting the most appropriate action	Capitalism, bureaucracy
Jackall (1988)	Institutional participants	Set rules	Predictable action	Corporate Managers-moral mazes
Thornton and Ocasio (1999: 804)	Individuals	The socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules	Produce and reproduce their material subsistence, organize time and space	Executive Succession in the Higher Education Publishing Industry
Ocasio and Gai (2020:267)	Institutional participants	Socially constructed and historically contingent	Practices and vocabularies give rise to change in institutions	Institutional theory, mergence and growth of institutionalism

Source: (Msweli and Ryneveldt, 2023)

Barley and Tolbert (1997) define institutions as spaces where social actors share rules to legitimise the execution of specific activities organised in structured relationships. In comprehending the various elements of this definition and in an attempt to make it more inclusive, Scott (2008a) identifies three pillars on which institutions should be defined. For him institutions consists of (1) regulative, (2) normative and (3) cultural cognitive elements that work in unison to provide stability and meaning to social life through an active involved process of activities and resources. Institutions thus govern society's behaviour by institutionalising society's practices, with penalties in the event of any deviation (Jepperson, 1991). In furtherance of this view, North (1990) reiterates the importance to distinguish between institutions and organisations, where institutions specify the rules of the game, whereas organisations play according to institutional rules. Thus, institutions are guided and constituted by rules, culture and social structures (Ocasio and Gai, 2020). Ocasio and Gai (2020: 267) posit that institutional logics are *'socially constructed and historically contingent, as the practices and vocabularies associated with institutions change'*.

This definition implies that institutions are spaces defined by culture of change and how change is effected in institutions.

Jensen (2002), introduces a financial angle to institutional theory that he refers to as financial logic. Jensen defines financial logic as a guiding force that focus on individualism and profit maximisation. Some researchers even argue that financial logics or economic logic may be associated with the need for legitimacy in the financial markets, and in financial regulatory institutions, (see for example Almandoz, 2012; and Smets, Jarzabkowski, Burke, and Spee, 2015). DiMaggio and Powell (1983), postulates that institutional fields consist of various communities each with its own institutional logic. Fitzgerald and Shepherd (2018) go on to define two sets of logics: social and commercial logics and frame these logics in terms of the desired outcome, driver, tactic used, source of legitimacy and funding source. Fitzgerald and Shepherd's work makes a point around mediation and diffusion of incompatible logics in an organisational space. The authors argue that logic compatibility is impacted by the manner in which multiple sets of logics are integrated and allowed to co-exist without undue conflict. Such an integration as pointed out by Fitzgerald and Shepherd (2018) is influenced by a set of drivers, including source of funding, source of legitimation and structure selected by the organisation.

In this work, we posit that the Twin Peaks Model institutions operate within a set multiple institutional fields, made up of key suppliers, resources, services and products, consumers, regulatory institutions and other stakeholders that produce similar services or products' (see for example DiMaggio and Powell, 1983). With this understanding of institutional logics this paper focuses on two dominant institutional fields involved in the implementation of the Twin Peaks financial regulatory model in South Africa: the regulatory agency responsible for the safety and soundness of all financial institutions in South Africa – the Prudential Authority; and the regulatory agency responsible for regulating financial companies' marketing practice – the Financial Sector Conduct Authority. With a starting point on the societal and institutional basis for the implementation of the Twin Peaks Model, institutional theory states that embeddedness of institutions within the broader societal parameters depicts the co-evolution and co-existence of society and institutions (Hasse and Krücken, 2008; Wooten, 2016; Yan et al., 2018; Yan et al., 2021; Fitzgerald and Shepherd, 2018). While the embeddedness of institutions within society cannot be disputed, what remains ambiguous in institutional theory is how the compatibility or incompatibility of the societal and institutional logics affects the institutionalisation of statutes that govern institutions, in this case, the financial services sector. For instance, literature is replete with corporate governance failures in the financial services sector since the global financial crisis of 2008. However, institutional theory has not sufficiently probed the compatibility or incompatibility of the multiple value systems, norms, practices and beliefs that define social actors inside and outside financial services institutions and how these multiple value systems impact on the implementation of the Twin Peak Model financial regulation regime. This paper seeks to contribute to institutional theory by developing a framework and a set of indicators that can be used to assess the effective implementation of the Twin Peaks Financial Regulation Model.

### 3. Research methodology

To develop a framework as explained in the foregoing section, we started off by addressing this question: what are the factors that enable effective implementation of the Twin Peaks model in South Africa? Qualitative data for this study came from semi-structured interviews and from secondary sources, including the statutes, policy documents and annual reports from two case study financial regulatory authorities in South Africa. Participants were contacted via email after permission was obtained from two South African regulatory peaks – the Prudential Authority (South African Reserve Bank) and the Financial Sector Conduct Authority after ethical clearances were granted by the University of South Africa. These two Twin Peaks case study institutions are embedded within a country with multiple societal dynamics, and the dual economic context. The key institutional and societal themes that the paper focuses on are the ends, means and sources of legitimacy in institutions as guided by institutional theory.

A total of 20 interviewees participated in the study – nine (9) from the Prudential Authority and eleven (11) from the Financial Sector Conduct Authority. An inclusion criteria in selecting participants was that each participant is directly involved with the institutionalisation of South Africa's Twin Peaks Model. The number of participants in the research are subjected to qualitative

saturation methodological principles. Moore (2015) posits that saturation as a methodological principle can be regarded as a sample size measurement. However the sample size is not determined by participant numbers but is instead measured by the appropriateness of the data (O'Reilly and Parker, 2013). It is in the light of qualitative saturation principles, that this study justifies a sample size of 20 participants. Data were analysed making use of thematic content analysis method. The analytical process has a deductive approach where it commenced with preconceived categories and codes which were derived from the institutional logics theory literature.

Data collected from the interviews with participants were conducted virtually in accordance with University of South Africa's Covid-19 position statement on research ethics.

#### 4. Findings

Table 2 sets out the codes and themes that emerged from the primary data in respect to the effectiveness and efficiency of a Twin Peaks Model.

Table no. 2 Primary Data Codes Themes

Selected verbatim quotations	Codes	Emerging themes
<p><i>How they have to work to, <u>to work together</u> and for instance they have to make, they have to work together when they define the [indigenous language] ...so how they will use some supervisory powers (Int1)</i></p> <p><i>What they, how the <u>structured</u> themselves. How they <u>operate</u> want to mention in question 3 is what you will find in chapter 5 which is the <u>cooperation</u> and <u>collaboration</u> (Int5)</i></p> <p><i>And there is a lot of <u>cooperation</u> and <u>coordination</u> amongst the regulators (Int3)</i></p> <p><i>We need to <u>collaborate and cooperate</u> (Int4)</i></p> <p><i>we could have missed certain aspects of it, so the <u>consultation</u> then between the regulators, if I may put it that way (Int5)</i></p> <p><i>It means that you also <u>cooperate</u> in a supervisory committee (Int6)</i></p> <p><i>How do we <u>work together</u> between peak one and peak two (Int8)</i></p>	<ul style="list-style-type: none"> <li>• Relationship</li> <li>• Regulatory authority</li> <li>• Regulatory framework</li> <li>• Structure</li> <li>• Cooperate</li> <li>• Coordinate</li> <li>• Consultative process between the peaks</li> </ul>	<b>Collaboration</b>
<p><i>Yes, exactly yes, yes, and actually it is...so it is mainly...its goal is mainly to ensure that, <u>that all the players</u> who then, who have a role in financial stability regularly talk together and exchange views and perhaps make recommendations (Int1)</i></p> <p><i>Ja, probably scan is the right word to determine what <u>financial products, financial services and financial institutions</u> are there (Int2)</i></p> <p><i>It is the conduct, it is <u>the fair treatment of customers</u>, how they must behave (Int3)</i></p> <p><i>But high profitability can be at the <u>expense of consumers</u> (Int3)</i></p> <p><i>Customer satisfaction and customer <u>protection</u> (Int4)</i></p> <p><i>Now you need to share, to <u>change focus and not only on profit but on the customer</u> (Int4)</i></p> <p><i>you also created stability within the financial sector but at the same time you gave that level of <u>trust within the sector for, for, for users of financial products</u> (Int7)</i></p>	<ul style="list-style-type: none"> <li>• Regulatory objectives</li> <li>• Stakeholders</li> <li>• Financial stability</li> <li>• Communication</li> <li>• Financial services</li> <li>• Financial institutions</li> <li>• Financial products</li> <li>• Consumer rights</li> <li>• Consumer confidence</li> </ul>	<b>Stakeholder interest</b>
<p><i>The <u>competence</u> of the, the players who, who, who resides in the committee (Int1)</i></p> <p><i>So that is basically what it all comes down to but obviously with your <u>expertise and experience</u> you will be able to then go a little bit more deeply into that (Int3)</i></p> <p><i>and <u>build up skills and experience</u> to be able to supervise effectively your larger more complex groups (Int8)</i></p> <p><i>so, the <u>skills</u> that you actually attract into the organization (Int12)</i></p>	<ul style="list-style-type: none"> <li>• Skills</li> <li>• Knowledge</li> <li>• Experience</li> <li>• Expertise</li> </ul>	<b>Competency</b>

<p><u>we did not have the staff</u> so there is a of internal focus (Int13)</p> <p>the efficiency of supervision-which design places the least <u>administrative and financial</u> burden on institutions (Int1)</p> <p>Make it easier for your financial institutions to communicate with both of you and with <u>less costs</u> (Int4)</p> <p>There they go again, another model that is just gonna <u>waste resources</u> and not come up with any results (Int10)</p> <p>So, <u>concerns</u> are like <u>increased costs</u> (Int11)</p> <p>So it was always accepted I think that there will be an <u>increase in costs</u> (Int13)</p>	<ul style="list-style-type: none"> <li>• Institutional impact</li> <li>• Regulatory cost</li> <li>• Administration</li> </ul>	<p><b>Costs effective</b></p>
<p>But <u>communicate</u> to the public at large so that they understand (Int2)</p> <p>The need to engage, we cannot just operate in silos, we have <u>to be there and talking</u> (Int3)</p> <p>And very transparent, we have to be <u>transparent</u> (Int3)</p> <p>When I go to a bank and request information, is it possible that we <u>can share that information</u> so that my colleague from peak 2 does not go and ask for the same information (Int4)</p> <p>We were <u>not talking to each other</u>. We had different types of sector laws. Make it easier for your financial institutions to <u>communicate</u> with both of you (Int4)</p>	<ul style="list-style-type: none"> <li>• Public awareness</li> <li>• Transparency</li> <li>• Trust</li> <li>• Relationship building</li> <li>• Minimize regulatory duplication</li> <li>• Financial sector input</li> </ul>	<p><b>Communication</b></p>
<p>to really focus a <u>home in on those areas</u> which we had not paid sufficient attention to (Int3)</p> <p>would then become focused, then has <u>visibility over the whole financial group</u> (Int3)</p> <p>Now how do we do that if everyone is responsible for their own [indistinct] if we do not have a <u>holistic view</u> of what it entails (Int5)</p> <p>We did not have that birds <u>view in terms of risk</u> (Int7)</p> <p>As much as these are world class frameworks, they do not, they do not really look at you know in a <u>holistic manner</u> at your larger more complex groups (Int8)</p>	<ul style="list-style-type: none"> <li>• Financial regulation</li> <li>• Financial system as a whole</li> <li>• Business conduct</li> </ul>	<p><b>Comprehensive regulation</b></p>
<p>So, this goes to the <u>fairness</u> and efficiency of the financial markets (Int3)</p> <p>you know we are going to be introducing <u>legal material</u> we have got to <u>consult</u> and engage in a <u>real and material way</u> (Int3)</p> <p>So, it is and that goes to, it is not just, you do not just want to, you do not want a <u>big hammer when it is actually a small problem</u> (Int3)</p> <p>Also related to that, and <u>how we are seen in the public</u>. And also, the, <u>how are we seen by regulated entities</u> because really, they are our customers if we can, if you call it that. (Int3)</p> <p>I think the main principle for financial institutions is for them to <u>treat their customers fairly</u> (Int4)</p> <p>And what we have put in place is that each regulator will <u>contact each other and concur to our decision</u> (Int4)</p> <p>So that we get a holistic view then of the <u>risk</u> that are there, <u>sector specific</u> (Int5)</p> <p>Is how it has <u>impacting on the industry</u> as well and how the industry mind set is changing (Int8)</p> <p>Banks were <u>supervised</u> at a much <u>granular level</u>, whereas maybe insurers were supervised at a much <u>higher level</u> (Int9)</p>	<ul style="list-style-type: none"> <li>• Market conduct</li> <li>• Market access</li> <li>• Consumer treatment</li> <li>• Shareholders rights</li> <li>• Fair outcomes</li> <li>• Regulation laws</li> <li>• Objectives</li> <li>• Functions</li> <li>• Consultation</li> <li>• Legal material</li> <li>• Impactful</li> <li>• Proportional</li> <li>• Risk based regulation</li> <li>• Regulatory instruments</li> </ul>	<p><b>Consistent principles and rules</b></p>
<p>But we expect it to be <u>pre-emptive</u>, we expect it to be outcomes focused (Int3)</p> <p>So, I think you know leveraging, and I think more, and we are much more <u>visible</u> (Int3)</p>	<ul style="list-style-type: none"> <li>• Focused</li> <li>• Goal orientated</li> <li>• Visible</li> <li>• Proactive</li> </ul>	<p><b>Pre-emptive visible regulation</b></p>



<p>Be <u>proactive</u> now and if you are able to see that this financial institution might be focusing more on profits, let them know that their activity is going to lead to negative outcomes for the client (Int4)</p> <p>So that would allow that <u>supervisor to go more public</u> and it is still like that today (Int6)</p> <p>Because we said <u>there are such externalities that any crisis will hit</u>, they will be cross border (Int6)</p> <p>A largely conduct supervision or a largely conduct authority where the <u>focus</u> is more on conduct or market conduct aspects (Int7)</p>		
<p>And that is <u>modernizing</u> is, that in itself takes time. It is hard to set up the <u>technologies</u>, it is hard to get people to use the technologies (Int3)</p> <p>Another new department that was formed was about the <u>information communication technology department</u> (Int13)</p> <p>Data driven atomization (Int14)</p>	<ul style="list-style-type: none"> <li>• Modernization</li> <li>• Technologies</li> <li>• Big data</li> </ul>	<p><b>Information Technology</b></p>

Source: (Msweli and Ryneveldt, 2023)

## 5. Conclusions

Overall, the findings revealed that when it comes to the institutionalisation of the Twin Peaks Model, there must be due regard to employees' buy-in. The findings further revealed that change management plays a key role in the institutionalisation of the Twin Peaks model. An interviewee elaborated that in order to get the right financial regulatory calibration, the change management spectrum must be right. This fact is reiterated in Zucker and Schilke's 2019 work. One of the dominant themes emerging out of the data is communication. Not only communication between the regulators, but the right synergy must be attained and maintained across the institutional fields involved in the implementation of the Twin Peaks regulatory regime. The findings showed that there must be effective channels of communication between the frontline supervisors and the team that is supervised. In order to attain this open line of communication, an interviewee proposed an organogram structural change through a mapping process. According to another interviewee, change management must be people focussed, people must understand their purpose and role in the new structure and consequently they must accept the change and feel comfortable in their new roles.

It is apparent from the findings that the institutionalisation process of a Twin Peaks Model requires continuous assessments, in so far as it relates to resource utilization and how this utilization can be adapted to the changing world business environment. This implies that the appropriate resource allocation and utilization must be adapted in order for a regulator to fulfil its regulatory mandates in a continuum. This is congruent with the understanding that institutional change processes occurs over a length of time (Burns and Scapens, 2000). Human resource is a central theme in the data, a resource to which the necessary investments must be made while simultaneously creating a conducive environment for change and acceptance of new institutional structural modalities by institutional employees.

The findings also confirmed the existence of a relationship between the four institutional value moments - institution, production, territorialization and societal broad based value systems of accountability, excellence, integrity, open communication, respect, cooperation, trust, and reciprocity. The findings further confirmed that multiple societal level logics are imperative to inform an institutional working environment, and by so doing the data revealed that different logics are refracted in order for institutions to be compatible with an organisation's value system from a developmental state context.

The findings confirmed that a Twin Peaks Model must be uniquely aligned in accordance with a country's specific financial institutional environment, and that a one size fits all Twin Peaks Model is not conducive to attain a country's financial stability objectives. The findings further confirmed that institutional logics and societal logics have to be compatible and aligned to the financial regulatory framework. This study confirms Yan et al.'s (2021) view that within an institutional field working environment, social activities are regulated by a dominant institutional order where its logics

and associated practices are acceptable as the most appropriate solution. This is true for financial institutional fields, in that over the years the dominant institutional order were the financial institutional logics that took precedent over societal logics in South Africa. The findings reported in this paper have confirmed that over the years, the financial regulatory environment was predominantly focused on financial institutions as opposed to the financial interest of financial consumers. This translates into the dominance of commercial logics as opposed to societal logics. The commercial logic as pointed out by Fitzgerald and Shepperd (2018), focus on the main differential broad-based value systems between financial and societal logics.

## 6. Limitations and avenues for further research

This research is limited to institutional logic assumptions and rule patterns. Although reference were made to the United Kingdom's, Australia, New Zealand, and Belgium's Twin Peaks Models, the study reported in this paper did not examine and compare how the different Twin Peak models were institutionalised in different countries. No input has been gained from other financial sector organisational players, like financial companies and financial consumers. The inclusion of additional organisational players can provide further insights on the institutionalisation process of the financial regulatory institutions. This in particular can have different outcomes as to how and to what extent institutional and societal logics refract and converge to legitimise the creation of a new institution in a developmental state context.

Further research is encouraged on how institutional logics and societal logics refract and converge in financial institutions, as this can contribute to how best financial companies can refract and converge institutional and societal logics in their sphere of influence. At the same time research can also be conducted to understand how financial institutions had to adapt their business models in order to be compliant with the Twin Peaks Model legislations, rules and principles. To understand the role of institutional logics in newly formed institutions, further research can be conducted on old institutions institutional logics and how they are adapted and adopted into the new institutions. This is of particular interest in understanding how rules and principles change and are replaced to be more relevant to society's needs.

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# Voices of Women in Boards Count, Effective Participation Counts More: A Board Gender Diversity Theoretical Framework

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## Abstract

*This paper seeks to contribute to the board gender diversity debate by introducing a tool to capacitate women for effective and impactful board participation. The tool was developed using principal component analysis and incorporated the conceptual domain of board gender diversity and the lived experiences of board participants in South Africa. To validate the instrument, interviews were conducted with 19 participants from the boards of companies from three industry sectors; namely; oil and gas, mining and pharmaceutical sectors. The instrument was then completed by 193 respondents from the three sectors. The newly developed tool was found to be a 16-item tool with five dimensions named as: (1) valuability; (2) distinctiveness and confidence; (3) technical expertise; (4) worldly wisdom; and (5) industry and leadership experience. The tool introduced should be seen as a practical reference point to prepare women for effective board participation.*

**Key words:** women in boards, board gender diversity, board composition, effective board participation

**J.E.L. classification:** M14

## 1. Introduction

Board gender diversity (BGD) is about hearing different voices from all gender categories in the boardroom. The purpose of such diversity is to infuse collective wisdom and expertise when providing strategic leadership. However, this paper is focused on the inaudible voices of women as the consequence of their low representation in the boardroom. BGD scholars have built a strong global business case for the representation of women on boards based on economic and social benefits. For example, studies have found that the representation of women on boards increases the levels of cognitive functioning of boards (Desvaux, G., Devillard, S., Labaye, E., Sancier-Sultan, S., Kossoff, C., & de Zelicourt, 2017; Msweli & Singh 2014); increases stock market capitalisation (Francoeur, Labelle & Sinclair-Desgagné 2008, Ntim 2015; Fraser-Moleketi & Mizrahi, 2015; Brieger, Francoeur, Welzel, and Ben-Amar, 2017; Bertrand, Black & Lleras-Muney 2019); and taps into the social sensibilities of women (Dlamini, 2014).

There are also counter arguments around the representation of women on boards. There is a view that increasing the number of women on boards can have a negative impact on stock prices due to the appointment of inexperienced women to boards (Ahern & Dittmar 2012; Brieger et al., 2017; Gabaldon et al. 2016; Holst & Kirsch 2014). This study does not agree with this argument, but rather concurs with Brieger et al. (2017) and Gabaldon et al.'s (2016) work that showed that women are underprepared for board participation compared to their male counterparts. Gabaldon et al. (2016) identified the problem as the absence of mechanisms to overcome barriers and hindrances that women face in ascending board positions. Brieger et al. (2017) lamented the lack of coherent measures to explicate the determinants of gender diversity and how this has an impact on access to board positions.

There is no clear position in literature about the value that women bring in the boardroom. The conundrum is not just depicted in the divergent views regarding the value women bring to boards, but in the dearth of measures to assess their readiness to participate in boards. This article therefore seeks to contribute to the board gender diversity debate by introducing a measure to capacitate women for effective and impactful board participation. The measure is positioned within the board gender diversity theory, incorporating the lived experiences of board participants in South Africa. Going forward, we first provide an African outlook of board gender diversity. Thereafter we deploy, logically and historically, board gender diversity theory and literature, nuancing our arguments to capture enabling indicators of board gender diversity. We then discuss the methods used to develop the measuring instrument. We conclude this article by examining practical implications of the measure.

## **2. Theoretical background: Board gender diversity**

Du Plessis, O'Sullivan & Rentschler (2014) put forward a view that board gender diversity is a concept that encompasses a number of human attributes, with gender being one of these. Gul, Srinidhi and Ng (2011) operationalised board gender diversity as: (1) the number of female directors, (2) female independent non-executive directors, (3) the percentage of female directors out of all directors and (4) the percentage of female non-executive directors out of all non-executive directors (NEDs).

In this article, we advance a view that board gender diversity represents a diverse set of gender categories; namely; human characteristics and attributes imbued with unique expertise and wisdom to execute board functions with sensibility and prudence. Much work has been published on attributes that account for the gender gap in corporate boards (see for example African Development Bank 2015; April, Dreyer and Blass, 2007; Bertrand, Black and Lleras-Muney, 2019; Booysen and Nkomo, 2010; Egon Zandher, 2018; Johnson and Marthur-Helm, 2011; Hausmann, Tyson and Zahidi 2012; Hennessey, MacDonald and Carroll, 2014; ILO, 2015; Lee, Lan and Rowley, 2014; Lewellyn and Muller-Kahele, 2019; McKinsey, 2017; Willows and van Linde, 2016). The point of departure in this work is the focus on attributes that capacitate women to participate effectively on boards.

In the 1960s to late 1990s scholars focused on understanding attributes which women bring into boards and whether these attributes contributed to solving the governance challenges of the time. For example, Triandis, Hall and Ewen (1965) examined the relationship between board member heterogeneity in terms of attitudes, abilities and creativity. Triandis et al.'s findings supported Hoffman and Maier (1961), in their view that groups with heterogeneous attitudes solve problems more effectively and are potentially capable of solving complex problems and are thus more creative.

In 1972, Berger, Cohen and Zelditch investigated the social status attribute to see whether it affects how different genders interact socially. These authors found that in teams with mixed-status individuals, high-status individuals speak with more confidence and tend to exert influence in team discussions. A later study by Lenney (1977) showed that men are more confident than their female counterparts in achievement settings. In mixed gender teams, men tend to speak more often, are more influential, and are viewed as leaders more often than women (Lockheed & Hall, 1976).

As noted by Demsetz and Lehn (1985), earlier work around board gender diversity pointed out that companies were under pressure to meet societal expectations to have a fair representation of women in senior management positions. Kesner (1988) had a dissenting voice and opposed the idea of appointing women on boards for the sake of a firm's image and asserted that boards should not elect women to the board's most powerful and influential committees for tokenism. Such views (Kesner, 1988) seek to legitimise a patriarchal view that portrays women as incapable of performing effectively on boards based on gender. This study does not support such a view.

Mattis (1993) contributed to the board gender diversity debate by observing that there was a tendency not to want to invest in programmes to capacitate women and make them ready for boards, but rather to want 'ready-made' women with previous experience. Mattis (1993) mentioned that CEOs and chairpersons of boards want female board members with prior board experience. This view although not tested in literature has an intuitive appeal.

Wood and Inman's (1993) work supported the notion of having an inclusive and gender diverse board. The two authors (Wood and Inman) acknowledged that there are differences in the mode of thinking between men and women that need to be leveraged to solve complex organisational

challenges. This idea was supported by Rosener (1995) who argued that the diversity of thought and perspective is critical to maximising the talent of women who serve on boards. On the same point, Robinson and Dechant (1997) added that women's intuitive reasoning is a unique characteristic that improves a firm's competitive advantage.

In the mid-2000s there seemed to be a consensus around the idea that women bring specific attributes that make them effective. These attributes include educational qualifications (see for example Campbell & Minguez-Vera, 2008; Hansen, 2013; Reding, 2013; Ruigrok, Peck & Tacheva, 2007); independent thinking and courage to challenge the status quo (see for example Campbell & Minguez-Vera, 2008; Galbreath 2011; Reguera-Alvarado, De Fuentes & Laffarga, 2017). William (2003) found that firms that have a high proportion of women serving on boards to a greater extent engage in more corporate social responsibility initiatives. William's (2003) findings were based on a study that sampled 185 Fortune 500 firms for the 1991–1994 period to examine the relationship between the proportion of women serving on a firms' boards of directors and the extent to which these same firms engaged in charitable activities. Galbreath's (2011) work confirmed these ideas and pointed out that the relational abilities of women, such as confidence and assertiveness make them more likely to engage with multiple stakeholders, respond to their needs and explore avenues to demonstrate social responsiveness.

In the mid to late 2000s studies started to emerge that focused on enablers and disablers of board gender diversity. For example, several scholars found a correlation between the representation of women in boards and economic value (see for example Mkhize and Msweli, 2011; Ntim, 2015; Reguera-Alvarado, De Fuentes & Laffarga's, 2017). Other attributes that make women eligible for board selection include international exposure (Choudhury, 2014; Machold et al., 2013), business acumen, strong occupational profile or visibility (Guy, Niethammer & Moline, 2011) and an ability to provide strategic inputs in board committees as well as leadership and culture (Poletti-Hughes & Turrent 2019; Du Plessis, Saenger & Foster, 2017; Lewellyn & Muller-Kahle, 2019). Kakabadse et al. (2015) suggested that there are many talented women in economies who simply require the support of sound networks in order to obtain inspiration and guidance on how to climb the corporate ladder, as well as to seize board opportunities. Kakabadse et al. (2015) suggest that "good old-fashioned hard work" is another enabling attribute necessary for effective participation in boards.

Holst and Kirsch (2014) on the other hand pointed out that transparency in appointments and promotions enable women to work towards a particular growth trajectory. These authors also suggested that by introducing a flexible career model with work-life balance that encourages a women-tolerant or women-friendly culture, organisations would be able to build a pipeline of high performing women in corporate boards. Ruigrok, Peck and Tacheva (2007) highlighted the importance of membership in professional or industry specific bodies as a key attribute that prepares women for effective board participation. The McKinsey (2017) study showed that companies with three or more women in the executive committees scored higher on organisational performance indicators than companies with no women at the top. These organisational performance indicators are categorised into four dimensions: (1) equality in work; (2) enablers of economic opportunities; (3) legal protection and political voice; and (4) physical security and autonomy. Table 1 provides a summary that depicts the conceptual domain of board gender diversity attributes that enable women to participate in boards.

*Table no. 1 Summary of board readiness attributes that capacitate women to participate effectively in boards*

<b>Enabling attributes from literature</b>	<b>Source</b>
Effort and hard work	Kakabadse <i>et al.</i> (2015)
Independent thinking, and courage to challenge the status quo	Campbell & Minguez-Vera (2008), Galbreath (2011), Reguera-Alvarado <i>et al.</i> (2017)
Educational qualifications	Machold (2013), Reding (2013); Ruigrok <i>et al</i> (2007); McKinsey (2017; Ntim (2015)
Economic value and social capital	William (2003); Galbreath (2011); McKinsey (2017; Francoeur, Labelle & Sinclair-Desgagné (2008), Ntim (2015)
Strong occupational profile, and visibility	Guy, Niethammer & Moline (2011)
Prior board experience	Mattis (1993)

Industry experience	Machold et al. (2013), Kakabadse et al. (2015),
Assertiveness and confidence	Galbreath's (2011)
International exposure	Choudhury, B. (2014), Machold <i>et al.</i> (2013).
Leadership experience building leadership pipeline	Du Plessis, <i>et al.</i> (2017), Reguera-Alvarado, De Fuentes & Laffarga (2017)
Professional membership affiliation	Ruigrok, Peck & Tacheva (2007)
Work-life balance culture	Holst & Kirsch (2014)

*Source:* (Msweli and Kule, 2023)

### 3. Research methodology: Development of the measurement tool

In developing the measurement tool to capacitate women to participate effectively in boards, we followed standard procedures for developing measures as suggested by Nunnally (1978). Firstly, we specified the conceptual domain of board gender diversity by examining how the concept is defined. When reviewing the literature, the focus was placed on attributes or indicators that enable women to participate effectively in boards. We generated 12 attributes out of this process (see Table 1). We then captured the lived experiences from men and women currently serving in boards to tap into their insights to generate additional items that did not emerge from the literature. Thereafter, we constructed a survey instrument and collected data that we subjected to principal component analysis for refinement and validation.

#### *Sample and data collection*

In line with empirical board gender diversity studies, we adopted a multi-sectoral approach in designing the sample (see for example African Development Bank, 2015; McKinsey 2017; Holst & Kisch 2014). This sampling approach does not only enhance the validity of the findings, but it also facilitates sense-making and deeper understanding of board gender diversity issues. Accordingly, we interviewed a total of 19 participants, 5 who serve in the boards of the oil and gas sector; 6 in mining and 8 who serve in the pharmaceutical sector boards. Participants were asked to respond to this question: In your view, what does it take for women to be effective for board participation in corporate South Africa? The reason for selecting the three economic sectors is to tap into insights of diverse participants not only to capture industry specific issues related to board-readiness, but to safeguard the robustness of the framework coming out of the study. The size of oil and gas, mining, and pharmaceutical industries, generate a substantial amount of GDP and are employers of a large number of people in South Africa.

Content analysis was used to analyse the interview data acquired from the 19 participants. The 12 items captured in Table 1 also emerged from the responses provided by the participants. Four additional items that did not emerge from the literature are as follows: (1) strong technical expertise; (2) transdisciplinary knowledge of the sector from which the board is located; (3) unique personal capabilities; and (4) political awareness. The combination of items from the literature together with interview responses resulted in a 16-item survey instrument measured using a Likert scale of 1-5 (1= definitely disagree, and 5 = definitely agree). A sample of 193 respondents was purposively selected from a total population of 7 030 employees in executive management, senior management and middle management positions of three case study organisations in the oil and gas, mining and pharmaceutical sectors as depicted in Table 2. Permission to conduct the study was sought from the chairperson of each board in the three case study organisations, as well as from human resource departments of the selected case study firms. Ethical clearance was obtained in the first quarter of 2017, before the fieldwork was done. The survey instrument was framed on survey monkey where the respondents could access the questionnaire. To ensure confidentiality and anonymity of responses the questionnaire did not request personally identifiable information.

Table no. 2 Study population and sample design

Management Level	Oil and Gas	Mining	Pharmaceutical
Executive	41	3	27
Senior	1 052	94	178
Middle	4 494	693	448
Total	5 587	790	653
Total Population N = 7 030; n = 193			

Source: (Msweli and Kule, 2023)

Thirty two of these respondents had board experience. Thirty-two percent of the respondents were pharmacists and technical experts in different fields including engineering, project management and law. Ten percent were in executive management, and another ten percent were in senior and middle management in the support functions (human resources, marketing, finance and research and development). The largest proportion of the respondents were white men (37 percent), followed by white women (20 percent) and 14 percent were African women. The rest were Indian women (10 percent), African men (nine percent), seven percent Coloureds (six percent women and one percent men).

#### 4. Findings

The principal component analysis was used to identify the structure of the relationship among the 16 items that emerged from the literature and the interviews. To conduct the analysis, it was necessary to first check the extent to which items (indicators) correlate. The Kolmogorov-Smirnov Test was used to test for normality. The test is based on the maximum difference between the observed distribution and expected cumulative-normal distribution (Hair, Anderson, Tatham & Black, 1998). The outcome of this test showed normal distribution of each of the sixteen-items. To select the number of factors to be retained for further analysis, Kaiser's criteria were used to drop all components with eigenvalues under 1.0 (Hair et. al., 1998). Table 3 shows that the first component accounts for 12.44 percent of the total variance extracted from the board attribute factors. Factors one and two account for about 24 percent of the total variance extracted from the components depicted in Table 4. To verify the decision to retain the five factors the Scree Plot was used. There were no indicators loading high on more than one factor. This enhances discriminant validity of the five-factor solution. All items with a communality value of less than .3 were candidates for deletion because the items would not have sufficient common explanation in the factor solution. However, no item in the factor solution had a communality of less than .3.

Table no. 3 Total Variance explained

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,067	19,169	19,169	1,990	12,438	12,438
2	1,784	11,151	30,321	1,811	11,316	23,754
3	1,466	9,165	39,485	1,762	11,014	34,768
4	1,350	8,440	47,926	1,673	10,457	45,226
5	1,115	6,972	54,898	1,548	9,672	54,898
6	,982	6,135	61,033			
7	,953	5,957	66,990			
8	,836	5,225	72,214			
9	,746	4,664	76,878			
10	,709	4,429	81,307			
11	,668	4,178	85,485			
12	,563	3,518	89,003			
13	,527	3,291	92,293			



14	,490	3,064	95,358			
15	,422	2,637	97,994			
16	,321	2,006	100,000			

Source: (Msweli and Kule, 2023)

*Table no. 4 Structure of the measurement tool to capacitate women for effective board participation*

Dimensions	Indicators	Factor loadings	Cronbach alpha
<b>1. Valuability</b>	Economic value and social capital	0,465	0,5
	Effort and hard work	0,633	
	Transdisciplinary knowledge	0,738	
	Unique personal capabilities	0,49	
<b>2. Distinctiveness and confidence</b>	Visibility	0,576	0,45
	Independent thinker	0,619	
	Courage to challenge status quo	0,765	
<b>3. Technical expertise</b>	Postgraduate qualification	0,732	0,45
	Technical expertise	0,527	
	Membership in a professional body	0,603	
<b>4. Worldly wisdom</b>	International experience	0,469	0,46
	Political awareness	0,804	
	Work-life balance	0,633	
<b>5. Leadership and industry experience</b>	Industry experience	0,713	0,5
	Board experience	0,712	
	Leadership experience	0,493	

Source: (Msweli and Kule, 2023)

## 5. Discussion and conclusions

The key findings highlight that the newly developed tool to measure the capacity of women to participate effectively in boards is structured as a 16-item tool with five dimensions named as follows: (1) valuability; (2) distinctiveness and confidence; (3) technical expertise; (4) worldly wisdom; and (5) industry and leadership experience. The advantage of using principal component analysis is that it uses an extraction method that generates factors and lists them in accordance with the highest amount of variance accounted for by the eigenvalues as depicted in Table 4. The valuability dimension was accounted for by the highest amount of variance. This implies that valuability has the highest predictive potential to assess the capacity of women to participate effectively in boards. This means that, if a firm has a limited budget for preparing women for board positions, effort may be deployed to helping women in business build a profile that displays economic value, social capital, knowledge capital, transdisciplinary knowledge and unique personal capabilities.

The second dimension, distinctiveness and confidence, with the second largest eigenvalue correlated strongly with three indicators: visibility; independent thinking; and courage to challenge the status quo. The courage to challenge the status quo is an attribute that calls for further investigation because other extenuating contexts such as culture may have a bearing on the extent to which women may exhibit this attribute. The issue of independence from political influence came up strongly in the interviews; and featured as a strong indicator in the tool to prepare women for effective board participation. This highlights the importance of independence, and building a profile that is discernible to social, business and industry networks. The third dimension, technical expertise correlated strongly with postgraduate qualifications; strong technical expertise; and membership in a professional body. The last two dimensions were worldly wisdom and industry and leadership experience. The sixteen indicators in the final measure presented in Table 6 were identified in the qualitative analysis of the study. This enhances

the content validity and trustworthiness of the tool to capacitate women for effective board participation. It should be noted however, that the Cronbach alpha of each dimension is 0.5 which is below the 0.7 threshold specified by Hair, Anderson, Tatham and Black, 1998. Even though the reliability statistics of the measuring tool is low, the accumulated variance of 55 percent (see Table 14) is reasonable.

The fact thatvaluability is accounted for by the highest amount of variance (12,4%) resonates with Graham et al. (2008) as well as Kakabadse et al.'s (2015) view that effort and hard work are important ways women can prepare themselves for effective participation in boards. The study also confirms the argument put forward by a number of scholars (see for example, Galbreath 2011; McKinsey, 2017; Francoeur et al., 2008; Ntim, 2015) that the economic value, social capital and knowledge capital that women bring in the boardroom sets them apart in terms of board performance. The findings of this study show that there is a need to transform the appointment process of women in boards by putting in place mechanisms to train and to support them to participate competently and in ways that add value to the entities they serve. As literature has shown, women have been excluded for far too long. Their voices have been suppressed for far too long. Organisations need to be conscious of the value women's voices bring in complex decision-making processes.

## 6. Practical implications; limitations and avenues for further research

The tool introduced in this article will serve as a practical reference point to prepare women for effective board participation. Mentorship and training interventions can be designed by companies that seek to prepare women for board participation, to give women in business opportunities to cultivate their career profiles to enhance their valuability, distinctiveness, worldly wisdom and leadership experience. Furthermore, the tool can be used by human resource personnel to manage talent in organisations. Nomination committees may also use the tool not only to create support programmes for new entrants on boards, but also to identify eligible women board candidates. The value of this tool rests in its anticipated instrumentality and usefulness to go beyond the number of women on boards, but to ensure that their contributions are well informed by technical expertise, experience, knowledge and worldly wisdom.

The limitations of the study reported in this article are two-fold: first the sample size is quite small, as such the dimensionality of the tool needs to be interpreted with caution. The second limitation is that data was narrowly focused on JSE-listed companies in three industries. This might have introduced a biased view of how to prepare women for effective participation in boards. Further studies need to ensure a wider pool of participants in different economic sectors to enhance the external validity of the tool. Lastly, the dimensions generated through the factor analysis process scored low on Cronbach alpha. This again requires the measure to be interpreted with caution. Further studies may endeavour to improve the reliability of the measure by increasing the sample size; and by investigating more than the three economic sectors across Africa.

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## Exploring the Impact of Companies' Profiles on Environmental Activities

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### Abstract

*This study explores the nexus between companies' profiles and their engagement in environmental activities within the Romanian HoReCa sector. Specifically, it investigates the influence of gender, age, position within the company, and locality on individuals' perceptions of environmental protection. Using a survey administered to 87 entities in the HoReCa sector, the study employs SPSS for an exploratory analysis. The findings reveal the high importance accorded to environmental protection across different organizational roles, genders, and age groups, transcending geographical limitations. The study further underscores the significance of role-specific environmental strategies, providing valuable insights for promoting sustainable practices and contributing to broader sustainable development goals.*

**Key words:** companies' profiles, environmental activities, sustainable development, HoReCa sector, Romania

**J.E.L. classification:** F64, H00, Q50

### 1. Introduction

The interplay of companies' profiles with their environmental activities is increasingly becoming a subject of significance in the landscape of modern corporate strategy. This subject, while not entirely new, has undergone considerable transformation as the broader business community grapples with the escalating realities of environmental issues and sustainable development (Appannan *et al*, 2023, p. 1915). A pivotal question, therefore, is how the profile of a company influences its engagement in environmental activities, and how the position occupied by various stakeholders (e.g., owners, managers, employees) within these companies further impacts such engagement. In this vein, the current study aims to investigate these intersections within Romania's dynamic business environment.

Company profiles, comprising elements like size, industry type, and market orientation, significantly shape the company's environmental approach (Sardianou, Stauropoulou and Kostakis, 2017, p. 52). However, individual actors within these firms add complexity, with their attitudes and actions playing a pivotal role in determining the company's environmental impact. This influence is pronounced in the context of Corporate Social Responsibility (CSR), which embodies a company's commitment to balance economic growth with environmental protection and societal needs (Hübel (Anghel), Stan and Tasențe, 2023a, p. 1104). Additionally, this relationship becomes crucial when aligning corporate strategies with the United Nations' Sustainable Development Goals (SDGs) (Nylund *et al*, 2022, p. 6).

Measurement and reporting frameworks play an integral role in communicating a company's progress in environmental activities and sustainable development (Ramos *et al*, 2013, p. 318). This commitment to transparency fosters trust among stakeholders, equipping them with critical

information about a company's sustainability efforts.

By situating this exploration within the context of Romania, we introduce a distinctive element to the discourse. This country's diverse business ecosystem provides a rich backdrop against which the interplay between companies' profiles, positions within these companies, and environmental activities can be scrutinised. Understanding how these interactions shape the approach towards sustainability among Romanian companies can offer valuable insights into local sustainable development, and potentially impact the perception and quality of daily life in both public and private sectors.

In sum, the relationship between companies' profiles, the positions within these companies, and their environmental activities offers a complex but critical area of study for sustainable development. A nuanced understanding of this relationship, particularly in the context of Romania, holds potential not just for academia but also for practitioners and policymakers keen on promoting sustainable business practices. This study thus embarks on an exploration of these complex interactions, aiming to contribute to both theory and practice in the domain of sustainable development.

## 2. Literature review

Understanding the intricate relationships between company profiles and environmental activities is central to fostering sustainable development. However, these relationships are multifaceted and shaped by various factors, such as the role of different actors within companies, the implementation of environmental management systems, stakeholder engagement, and the overall corporate sustainability strategy.

Social and environmental reporting plays a crucial role in conveying a company's commitment to sustainable development. Alshbili, Elamer and Moustafa (2021, p. 882) emphasize the importance of transparent reporting practices in bridging institutional voids and promoting sustainable development. Similarly, Khuntia (2014, pp. 23-24) highlights the increasing significance of environmental reporting as a tool for companies to demonstrate their commitment to sustainable development. These findings suggest that companies' reporting practices can significantly influence their environmental activities, shaping their contribution to sustainable development. However, it is important to consider how these practices are perceived by different stakeholders, as emphasized by Haddock-Fraser (2012, p. 330), who proposes an alternative methodology to assess stakeholder engagement by considering media coverage and its impact on companies' environmental activities. In this regard, Guziana and Dobers (2013, p. 194) investigate how sustainability leaders communicate corporate activities related to sustainable development. The research emphasizes the significance of effective communication strategies in engaging stakeholders and promoting companies' environmental activities.

The role of different actors within companies also plays a key role in shaping their environmental activities. Valls Martinez, Martin Cervantes and Cruz Rambaud (2020, p. 2644) provide an insightful perspective on this by examining the representation of women on corporate boards and its relationship with sustainable development. They explore the potential impact of gender policies on sustainable practices, suggesting that companies' profiles and their environmental activities can be shaped by internal diversity and inclusion policies. Braşoveanu (2013, pp. 87-88) discusses the importance of strategic planning and policy frameworks in environmental protection and sustainable development. This highlights the significance of establishing a foundation for companies' environmental engagement. Moreover, the study by Stan *et al* (2021, p. 631) underscores the importance of stakeholder perception in shaping sustainable tourism practices, hinting at the possible broader application of this insight to other sectors as well.

Environmental management systems (EMS) provide a systematic approach to managing environmental impacts. The study by Bravi *et al* (2020, p. 2561) highlights the role of EMS implementation in enhancing environmental performance and contributing to sustainable development. Similarly, Chaudhry and Amir (2020, p. 3544) emphasize the significance of proactive environmental strategies and accounting practices in achieving sustainable outcomes. In this context, the use of tools such as Quality Function Deployment (QFD) can be of significance, as suggested by Condrea, Stanciu and Aivaz (2012, p. 71), who highlight its importance in aligning customer requirements with quality management processes.

Rus (2013, p. 944) examines the concept of the knowledge triangle within a knowledge-based society. The study highlights the importance of integrating education, research, and innovation in driving sustainable development. Also, Aivaz (2021a; 2021b) and Aivaz and Căpățână (2021, p.290) offer insights into the impact of various factors such as ICT advancements, infrastructure, human resources, and financial performance on companies' operations and, by extension, their environmental activities. They demonstrate the interconnectedness of economic, social, and environmental aspects of sustainability. Similarly, Gambetta *et al* (2021, p. 2) underscore the role of financial institutions in promoting sustainable practices and addressing environmental challenges.

The studies by Stan (2014; 2022; 2013) and Stan and Cortel (2022, p. 3) emphasize the significance of strategic planning, policy frameworks, legal regulations, and stakeholder participation in driving sustainable development. They highlight the crucial role of public-private partnerships, legal regulations, and citizen participation in shaping companies' profiles and their engagement in environmental activities.

Gómez-Bezares, Przychodzen and Przychodzen (2016, p.2) explore how sustainable development can help companies create shareholder value and improve financial performance, providing evidence on the potential benefits of engaging in environmental activities. However, Petrișor, Susa and Petrișor (2020, p. 170) caution against the risks associated with market-based approaches to environmental protection, suggesting the need for a balanced perspective that takes into account potential unintended consequences.

Malíková (2013, p. 696) identifies the environmental impact of companies by analyzing their financial accounts. The study demonstrates the use of financial information as an indicator of companies' environmental performance and their contribution to sustainable development. Finally, the research by Aivaz, Munteanu and Chiriac (2022, p. 338) demonstrates the role of regulatory bodies in ensuring transparency and compliance with fiscal regulations. They highlight the potential impact of regulatory actions on companies' profiles and their environmental activities.

In summary, the impact of companies' profiles on environmental activities is influenced by a multitude of factors that encompass various aspects of their operations. The literature review contributes to the knowledge base for both practitioners and researchers alike, offering a deeper understanding of the interplay between various factors and their influence on companies' environmental activities. These insights can inform strategic decision-making processes and guide the development of effective policies and practices that promote sustainable development in organizations. Additionally, by considering the diverse positions held by stakeholders, including proprietors, managers, employees, and others, this review underscores the importance of acknowledging and addressing the specific roles and responsibilities of different stakeholders in driving environmental engagement and sustainable development within companies.

### 3. Research methodology

This research was designed to delve into the significance of environmental protection in Romania's HoReCa sector, with a particular focus on how individuals' perspectives differ based on gender, age, division within the sector, role within the company, and locality type. The exploration aimed to clarify the relationship between corporate profiles, inclusive of stakeholder dynamics, and environmental activities.

A questionnaire was developed as the primary research tool and was distributed to 87 entities in the HoReCa sector. This survey comprised questions that sought to gauge respondents' attitudes towards environmental protection, and it also collected demographic data. Upon data collection, an exploratory analysis was conducted utilizing the SPSS software. This approach allowed for a comprehensive investigation into the intersections of the respondents' profiles and their views on environmental importance. The application of descriptive statistics provided a holistic overview of the profiles and environmental commitments, and further analysis revealed the underlying connections and dependencies between these factors.

The core intention of this research is not only to untangle the complex network of corporate characteristics and stakeholder interactions but also to discern how these can be utilized to amplify environmental initiatives. By doing so, the research offers valuable insights into promoting sustainable practices within the HoReCa sector in Romania, contributing to the broader sustainable

development goals. Through this comprehensive exploration, the study sheds light on the factors that influence environmental attitudes and practices within the HoReCa sector, thereby enhancing our understanding of sustainability within this specific industry context.

#### 4. Findings

In this section, we will present the results of our exploratory analysis, elucidating the intricate relationships between the characteristics of companies' profiles, their stakeholder dynamics, and their engagement in environmental activities, thereby offering new insights into how these aspects interrelate and influence each other in the broader context of sustainable development.

The presented data from a study examines respondents' perceptions of the importance of environmental protection, differentiated by gender. Respondents rated the importance on a scale from 1 (not important) to 5 (very important).

The data in Table no. 1 provides a breakdown of respondents' perception of the importance of environmental protection, stratified by gender. Upon inspection of the data, several potential explanations emerge to account for the observed patterns.

*Table no. 1 The importance of environmental protection based on respondents' gender*

Gender	2 - very little important	3 - little important	4 - important	5 - very important	Total
Masculine	3.7%	22.2%	22.2%	51.9%	100.0%
Feminine		6.7%	20.0%	73.3%	100.0%
Total	1.8%	14.0%	21.1%	63.1%	100.0%

*Source:* Authors' work

Firstly, a significant proportion of both genders regard environmental protection as very important, with a higher percentage observed among female respondents (73.3%) compared to male respondents (51.9%). This difference may be indicative of a broader trend recognized in environmental psychology literature, where women often report stronger pro-environmental attitudes than men. This gender difference can be attributed to various factors, such as gender socialization patterns that promote nurturing and caring attitudes in women, potentially extending to the environment (Zelezny, Chua and Aldrich, 2000, p. 444). Secondly, a small fraction of respondents from both genders perceived environmental protection as very little important or slightly important (2 and 3 on the scale, respectively). This might reflect a segment of the population that is less engaged with environmental issues, possibly due to lack of awareness, different priorities, or skepticism towards environmental concerns.

The Chi-square statistical analysis reveals a significant linear relationship between gender and perceptions of the importance of environmental protection (Table no. 2). This suggests a systematic difference in perceptions across genders, with a general trend of increased concern for environmental protection moving from male to female respondents. The Pearson Chi-square value of 4.633 with a p-value of 0.201 suggests that there is no significant difference in the overall distribution of responses between males and females at a conventional 0.05 significance level.

*Table no. 2 Pearson's Chi-Square test*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4,633 <sup>a</sup>	3	0.201
Likelihood Ratio	5.114	3	0.164
Linear-by-Linear Association	4.350	1	0.037
N of Valid Cases	57		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 0.47.

*Source:* Authors' work

However, the Linear-by-Linear Association value of 4.350 with a p-value of 0.037 indicates a statistically significant linear relationship between gender and perceptions of the importance of environmental protection. This suggests that there is a significant increase in the perception of the



importance of environmental protection when moving from male to female respondents. Of the 87 legal entities investigated, valid responses were recorded for 57 entities. In other words, 57 individuals confirmed their gender. It is important to note that 50% of the cells in this Chi-square analysis have expected counts less than 5. This violates an assumption of the Chi-square test and suggests caution in interpreting the results. Future studies may consider increasing the sample size for a more robust statistical analysis.

However, it's crucial to note the complexity of these perceptions, as they may be shaped by multiple intersecting factors beyond gender, including age, education, socio-economic status, and cultural context, among others. These factors, while beyond the scope of this specific analysis, could be explored in future research to provide a more comprehensive understanding of the determinants of environmental attitudes.

The data from Table no. 3 represents respondents' perception of the importance of environmental protection stratified by age groups.

*Table no. 3 The importance of environmental protection based on respondents' age*

Age	2 - very little important	3 - little important	4 - important	5 - very important	Total
16 - 24		20.0%	30.0%	50.0%	100.0%
25 - 34		18.2%	9.1%	72.7%	100.0%
35 - 44	4.5%	9.1%	22.7%	63.7%	100.0%
45 - 54		15.4%	23.1%	61.5%	100.0%
55 - 65				100.0%	100.0%
Total	1.8%	14.0%	21.1%	63.1%	100.0%

*Source:* Authors' work

A cursory glance at the data shows that the perception of environmental protection being 'very important' (5 on the scale) increases with age, with the 55-65 age group having 100% of its respondents in this category. It can be inferred that the older the respondents, the more importance they place on environmental protection. This could be due to several reasons, such as increased awareness with age, or a reflection of the societal changes they have witnessed over time, contributing to a heightened sense of environmental concern. Thus, the research of Hübel (Anghel), Stan and Tasește (2023b, p. 52) found that the age of respondents significantly influences their perceptions of socio-economic issues in the context of sustainable local development.

The Pearson Chi-square value of 4.567 with an asymptotic significance (p-value) of 0.971 suggests that there is no statistically significant difference in perceptions among different age groups at a conventional 0.05 significance level (Table no. 4). Similarly, the Linear-by-Linear Association value of 0.265 with a p-value of 0.606 also indicates no significant linear relationship between age and perceptions of the importance of environmental protection. This suggests that while there are observable differences in the distribution of responses across age groups, these differences do not statistically significantly deviate from what would be expected if age and environmental concern were independent.

*Table no. 4 Pearson's Chi-Square test*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.633 <sup>a</sup>	3	0.201
Likelihood Ratio	5.114	3	0.164
Linear-by-Linear Association	4.350	1	0.037
N of Valid Cases	57		

a. 16 cells (80.0%) have expected count less than 5. The minimum expected count is 0.02.

*Source:* Authors' work

Of the 87 legal entities investigated, valid responses were recorded for 57 entities. In other words, 57 individuals confirmed their age. Of the 87 legal entities investigated, valid responses were recorded for 57 entities. In other words, 57 individuals confirmed their age. However, a key point to

note here is that 80% of the cells in this Chi-square analysis have expected counts less than 5. This violates a key assumption of the Chi-square test and suggests caution in interpreting the results. This is particularly relevant in small sample sizes or when the number of categories is high, as is the case in this analysis.

Overall, while the data suggests some patterns in environmental concern across age groups, the statistical tests indicate these may not be significant. Therefore, while age might play a role in shaping environmental attitudes, other factors such as education, culture, socio-economic status, and personal values might also be influential and warrant further exploration.

The presented data outlines the perceptions of the importance of environmental protection among respondents from various divisions of the HoReCa (Hotel, Restaurant, Café) sector (Table no. 5).

*Table no. 5 The importance of environmental protection based on the HORECA division in which the respondents work*

In which division of the HoReCa sector do you work?	2 - very little important	3 - little important	4 - important	5 - very important	Total
Hotel		30.0%	20.0%	50.0%	100.0%
Restaurant	4.8%	19.0%	23.8%	52.4%	100.0%
Catering / Delivery				100.0%	100.0%
Cafés - Tea houses			75.0%	25.0%	100.0%
Fast-food				100.0%	100.0%
Other		5.9%	11.8%	82.3%	100.0%
Total	1.8%	14.0%	21.1%	63.1%	100.0%

*Source:* Authors' work

In the catering/delivery and fast-food divisions, all respondents indicated that environmental protection is 'very important', suggesting a high degree of environmental awareness. This could be linked to the direct environmental implications of these divisions' operations, such as the generation of substantial packaging waste, which might heighten the awareness and importance placed on environmental protection.

In contrast, perceptions among respondents from hotel, restaurant, and 'other' divisions are more varied, although the majority still rate environmental protection as 'very important'. Among café-tea house employees, there is a leaning towards the perception of environmental protection being 'important' (75%) rather than 'very important' (25%).

However, statistical tests suggest no significant difference in perceptions across the different HoReCa divisions (Table no. 6).

*Table no. 6 Pearson's Chi-Square test*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16,983 <sup>a</sup>	15	0.320
Likelihood Ratio	17.299	15	0.301
Linear-by-Linear Association	3.574	1	0.059
N of Valid Cases	57		

a. 21 cells (87.5%) have expected count less than 5. The minimum expected count is 0.02.

*Source:* Authors' work

The Pearson Chi-square test has a p-value of 0.320, and the Linear-by-Linear Association p-value is 0.059, both above the conventional 0.05 significance level, indicating no significant relationship. Out of the 87 economic operators investigated, valid responses were recorded for 57 entities that confirmed the HoReCa division in which they work. It's important to note that the chi-square test assumption has been violated, as 87.5% of the cells have expected counts less than 5. Therefore, the results should be interpreted with caution.

In the context of Vintilă, Stan and Ionițu's (2021, p. 119) study, which analyzed companies' predilection to invest in the HoReCa sector in the Romanian coastal area, it can be hypothesized that companies with a stronger investment focus might have more established environmental policies and awareness, which could explain the higher importance ratings. However, given the diverse perceptions across divisions, this hypothesis would benefit from further investigation, considering other factors such as company size, management practices, and regulatory influences.

The presented data illustrates the perceptions of the importance of environmental protection among respondents from various positions within the HoReCa sector (Table no. 7).

*Table no. 7 The importance of environmental protection based on the position held by respondents in the HORECA sector*

What position do you hold?	2 - very little important	3 - little important	4 - important	5 - very important	Total
Owner	5.9%	11.8%	35.2%	47.1%	100.0%
Manager		22.2%	22.2%	55.6%	100.0%
Employee, without a management position		8.3%	16.7%	75.0%	100.0%
Other		33.3%		66.7%	100.0%
Total	1.8%	14.3%	21.4%	62.5%	100.0%

*Source:* Authors' work

For owners, managers, and non-managerial employees, a significant majority rates environmental protection as 'important' or 'very important', suggesting a broad recognition of environmental issues across different organizational levels. Interestingly, the highest proportion of 'very important' ratings is found among non-managerial employees (75.0%), followed by owners (47.1%) and managers (55.6%). This pattern might reflect a greater sensitivity or concern for environmental issues among frontline employees who directly engage with the environmental implications of their work activities.

Respondents in the 'other' category, potentially including roles like contractors or consultants, showed a somewhat lower recognition of environmental importance, with 33.3% rating it as 'little important' and 66.7% as 'very important'. However, caution is warranted in interpreting this, given potential variability and small sample size in this category.

The Pearson Chi-square test and the Linear-by-Linear Association test both return p-values (0.411 and 0.716, respectively) above the traditional 0.05 significance level, indicating that the differences in perceptions across the different roles are not statistically significant (Table no. 8). Out of the 87 economic operators investigated, valid responses were recorded for 56 individuals who confirmed the position they occupy in the HoReCa sector. However, 75.0% of the cells in this analysis had expected counts less than 5, indicating a violation of the Chi-square test assumption, and suggesting that the results should be interpreted with caution due to potential lack of statistical power.

*Table no. 8 Pearson's Chi-Square test*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.288 <sup>a</sup>	9	0.411
Likelihood Ratio	10.093	9	0.343
Linear-by-Linear Association	0.132	1	0.716
N of Valid Cases	56		

a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is 0.11.

*Source:* Authors' work

Given the broader context, the perceived importance of environmental protection across different positions may be influenced by factors such as organizational culture, specific job responsibilities, and individual attitudes towards the environment. It would also be interesting to examine this considering previous research, which suggests that perceived environmental responsibility and commitment can vary according to job role and level within the organization.

The data portrays respondents' perceptions of the importance of environmental protection based on the type of locality they operate in (Table no. 9).

In all types of localities, a significant proportion of respondents rated environmental protection as 'very important', with 100% consensus in rural areas outside metropolitan zones, and strong majority agreement in urban areas and tourist resorts. Interestingly, in rural areas within the metropolitan zone, the responses were split evenly between 'important' and 'very important'.

*Table no. 9 The importance of environmental protection based on the type of locality in which the respondents operate*

In what type of locality do you operate?	2 - very little important	3 - little important	4 - important	5 - very important	Total
Rural, outside metropolitan area				100.0%	100.0%
Rural, within metropolitan area			50.0%	50.0%	100.0%
Small urban (under 100,000 inhabitants)		33.3%		66.7%	100.0%
Medium urban (100,001-200,000 inhabitants)			20.0%	80.0%	100.0%
Large urban (over 200,001 inhabitants)	3.6%	7.1%	25.0%	64.3%	100.0%
Tourist resort		26.7%	20.0%	53.3%	100.0%
Total	1.8%	12.7%	21.8%	63.7%	100.0%

Source: Authors' work

The data suggests that the type of locality does not substantially affect the perception of environmental importance among respondents, as indicated by the Pearson Chi-square and the Linear-by-Linear Association tests returning p-values of 0.877 and 0.242, respectively, which exceed the traditional 0.05 significance level (Table no. 10).

*Table no. 10 Pearson's Chi-Square test*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.007 <sup>a</sup>	15	0.877
Likelihood Ratio	10.633	15	0.778
Linear-by-Linear Association	1.367	1	0.242
N of Valid Cases	55		

a. 21 cells (87.5%) have expected count less than 5. The minimum expected count is 0.04.

Source: Authors' work

Out of the 87 economic operators investigated, valid responses were recorded for 55 entities who confirmed the type of locality in which they operate in the HoReCa sector. However, it should be noted that 87.5% of the cells have expected counts less than 5, indicating a violation of a key assumption of the Chi-square test. Hence, the results must be interpreted with caution, especially given the potential variability and small sample sizes within each locality category.

Potential explanations for the high importance placed on environmental protection across localities could be the increasing global recognition of environmental issues and their relevance to all sectors and regions, reinforced by environmental regulations, market demands, and social expectations. Further, the unique characteristics of the HoReCa sector, which interacts closely with the environment through food sourcing, waste production, energy use, and impact on local communities, might also contribute to heightened environmental awareness among its operators.

The findings align with the current sustainability trend in the HoReCa sector, where businesses increasingly acknowledge their environmental impact and strive towards more sustainable operations.

## 5. Conclusions

This study embarked on the exploration of the relationship between companies' profiles and their commitment towards environmental activities within the Romanian context, focusing particularly on the HoReCa sector. The findings revealed important aspects of how the position held within a company, respondent's gender, age, and the type of locality influence perceptions on the importance of environmental protection.

Across different positions within the HoReCa sector - from owners and managers to non-managerial employees - the commitment to environmental protection was rated as highly important. This indicates a pervasive understanding and acknowledgment of environmental issues across various organizational levels, irrespective of the role one occupies in a company.

Our findings also underscore the influence of gender and age on the perception of environmental importance. Both males and females showed a strong recognition of the significance of environmental protection, although females tended to rate it as 'very important' more frequently. Moreover, there was an evident correlation between age and perception, with older age groups showing a unanimous agreement on the high importance of environmental protection.

Furthermore, the perceived importance of environmental protection was high across respondents from various localities, whether they were urban or rural, large or small. This demonstrates that the recognition of environmental protection and sustainable development transcends geographic boundaries, signifying its universal importance.

We also found differences in perceptions among respondents from various divisions of the HoReCa sector. This underscores the role of specific job responsibilities in shaping environmental attitudes, highlighting the need for role-specific environmental strategies within companies.

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## A Brief Survey Concerning Environmental Action: The Need for Collective Engagement

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### Abstract

*This research delves into the role of collective engagement within the environmental action paradigm, focusing on Romania's hospitality sector. Drawing from 87 valid survey responses, the study scrutinizes the sector's attitudes, perceptions, and behaviours towards environmental sustainability. The analysis identifies a consensus on the importance of education in fostering environmental stewardship and promoting sustainable practices, with older demographic groups showing a heightened awareness. It also highlights the industry's potential to drive systemic changes through environmentally friendly practices and broader social responsibilities. However, variations across demographic groups underscore the need to consider such factors when promoting collective engagement. Overall, this study emphasizes the crucial role of collective engagement in the HoReCa sector for achieving sustainable development and environmental resilience.*

**Key words:** environmental action, collective engagement, sustainable development, gender and age, Romania

**J.E.L. classification:** F64, H00, Q50

### 1. Introduction

As global environmental challenges mount and become increasingly complex, the call for collective engagement and concerted efforts for sustainable development continues to grow. The problems of environmental such as climate change, habitat destruction, pollution, and biodiversity loss, underscore the necessity of transitioning from mere individual actions to a more collective approach. This shift is necessitated by the complex and interconnected nature of these environmental issues which extend beyond the capacity of individual actions. Within this framework, the present study aims to delve into the notion of collective engagement as it manifests within the environmental action paradigm. The exploration will specifically center on the role of the hospitality industry, scrutinizing its attitudes, perceptions, and behaviours vis-à-vis environmental sustainability.

Environmental action denotes the myriad initiatives undertaken by individuals or collective entities intending to safeguard the environment or mitigate the adverse effects of anthropogenic activities (Ardoin, Bowers and Gaillard, 2022, p.2). The authors noted show by environmental education plays a pivotal role in fostering collective environmental action, by equipping individuals with critical skills and motivation beyond the mere transfer of knowledge. Similarly, Sava (2020, p.2) underscores the significance of collective capacity building, which cultivates a collaborative, inclusive, and multidisciplinary environment aimed at sustainable development. Within this matrix, the role of education as a catalyst in the pursuit of sustainability cannot be understated (Gigauri, Vasilev and Mushkudiani, 2022, p.7). Education can effectively inoculate a deeper understanding and appreciation of the environment, and foster a sense of personal and collective responsibility towards environmental preservation.



In the domain of sustainable development, the hospitality industry holds a unique position. White and Harder (2013, p.132) argue that the industry's adoption of practices minimising environmental impact can drive wider societal sustainable development goals, fostering systemic changes beyond the industry's confines. A comprehensive understanding of social responsibility in the context of the hospitality industry is crucial to sustainable development. Hübel (Anghel), Stan, Taseñte (2023a, p.1105) extend the concept beyond the adoption of environmentally friendly practices to include support for local economies, promotion of cultural diversity, and assurance of the wellbeing of employees and customers. The fulfilment of these responsibilities enables businesses to contribute substantially to sustainable development while enhancing societal value and reputation. Elf, Isham and Gatersleben (2021, p.1038) argue that businesses should aim to foster lasting pro-environmental behavioural change beyond their social responsibilities. However, to fully harness the potential of collective engagement, the influence of demographic factors such as gender and age on environmental attitudes, values, and behaviors needs to be understood and addressed (Kelly, Tovey and Faughnan, 2007, p.6). They suggest that by exploring and addressing these factors, more effective interventions can be designed to align with individuals' beliefs and motivations.

As such, this examination will contribute to a deeper understanding of the potential leverage points for augmenting collective action towards environmental resilience and sustainable development.

## 2. Literature review

The need for collective engagement in environmental action has never been more crucial, as the contemporary world grapples with escalating environmental challenges. This literature review endeavors to illuminate the research that has been undertaken on collective engagement in environmental actions, the influence of age and gender on such actions, and the contribution of these actions towards sustainable development. This discussion encompasses a broad spectrum of perspectives, including sociocultural factors, the role of individuals, and the effect of environmental knowledge and risk perception on environmental actions.

Beginning with the foundational aspect of environmental action, Ardoin and Heimlich (2021, p.1681) emphasize the integral role of everyday life contexts in providing environmental learning opportunities, which act as catalysts for change. Further building on this foundation, Green, Medina-Jerez and Bryant (2016, p.117) argue that environmental education significantly contributes to this learning process. Schild (2016, p.19) corroborates this assertion, underlining the significant role political theory can play in environmental education. Together, these studies accentuate the potential of environmental education as a significant driver of environmental action. Advancing this educational perspective, Melo-Escribuela (2008, p.114) discusses the necessity of promoting ecological citizenship, which includes not just rights but also duties and political agency. Such concepts are crucial in fostering a sense of responsibility and ownership over environmental issues among individuals and communities.

Moving beyond the realm of education, collective engagement in environmental actions extends into the socio-cultural dynamics of community-based sustainability. Axon (2020, p.2) brings attention to this aspect in his study on community-based sustainability and its potential implications for transformative change. In conjunction with Axon's study, Hernández (2021, pp.71-73) details the precursors of ecocentrism in small businesses, advocating for the integration of ecocentric business models to augment collective responsibility towards the environment.

Aivaz's studies (2021a; 2021b; 2022) provide comprehensive analyses of different Romanian sectors, identifying both opportunities and challenges for sustainable development. Further, Stan's (2013; 2022) and Vintilă *et al*'s (2021, p.118) research offers in-depth analyses of environmental regulation, waste management, and dynamics in the HoReCa sector within the Romanian coastal context. Brasoveanu (2016, p.56) discusses the broader right to a healthy living environment, while Slave *et al* (2023, p.2) present public consultation to achieve sustainable development, with a focus on Romania. Together, these studies underscore the complex landscape of environmental action and the need for robust strategies that foster sustainability across various sectors. In line with this, Petrișor (2017, p.144) emphasizes the significance of balanced spatial development in socio-ecological systems as an impetus for collective environmental action. Complementing this perspective, Rus

(2013, p.944) suggests the importance of knowledge for sustainable socio-economic development, highlighting the importance of education.

As part of a sustainable development strategy, the collective engagement of HoReCa companies is crucial to reducing the environmental footprint and fostering eco-friendly practices within the industry. As such, there is a growing imperative for businesses in this sector to adopt sustainable practices, engage in responsible sourcing, manage waste effectively, and reduce energy consumption (Stan *et al.*, 2021, p.636). Aivaz and Căpățână (2021, p.290) also highlighted the economic implications of the HoReCa sector and its potential for sustainable development. Their research emphasizes the need to review and optimize business operations for sustainability, particularly in the aftermath of significant disruptions such as the Covid-19 pandemic. This crisis has served as a catalyst for the sector to reevaluate its practices and pivot towards more sustainable and resilient business models.

The role of demographic factors in shaping environmental action is well-established. Hübel, Stan, and Tasește (2023b; 2023c) delve into how age and gender affect perceptions of socio-economic issues in the context of sustainable local development. This is further expanded upon by Pearson *et al.* (2017, pp.3-5), who examine how intersections of race, class, gender, and climate change communication influence engagement with environmental actions.

Personal beliefs and norms considerably influence collective engagement in environmental actions. Perera, Kalantari and Johnson (2022, p.2) elaborate on this, highlighting the impact of climate change beliefs, personal environmental norms, and conscious environmental behavior on engagement levels. Tian and Liu (2022, p.1) further this argument, reviewing research progress in pro-environmental behaviors and discussing their implications for future environmental action.

Individual engagement, perceptions, and trust are also paramount in sustainable development initiatives. Wamsler, Mundaca and Osberg (2022, p.2) stress this, arguing for the reconceptualization of political agency, which includes a call for greater individual engagement in environmental actions. Moreover, Zeng, Zhong and Naz (2023, p.2) underline the critical role of environmental knowledge and risk perception in shaping sustainable consumption behaviors. Their research suggests that fostering environmental concern and pro-environmental behaviors, fortified by environmental knowledge and risk perception, can encourage sustainable consumption behaviors. Complementing these perspectives, Condrea, Stanciu and Aivaz (2012, p.72) discuss the use of quality management systems, underscoring the importance of efficient and sustainable practices in enhancing environmental actions.

Therefore, this literature analysis underscores the essential role of collective engagement in environmental action, which is significantly shaped by certain factors that influence perceptions and actions towards sustainable development initiatives.

### **3. Research methodology**

The central objective of this scientific investigation is to comprehend the potential role collective engagement could play in advancing sustainable development via environmental actions. This empirical enquiry was conducted by deploying a survey instrument, which was disseminated among economic agents from Romania's Horeca sector. A total of 87 valid responses were collected, providing a substantive dataset for subsequent analysis.

The survey instrument was crafted meticulously to gather data about the attitudes, perceptions, and behaviours of these economic agents with regard to environmental actions and sustainable development.

The data collection tool, a structured questionnaire, leveraged a five-point Likert scale that enabled respondents to express their degree of agreement or disagreement with a series of affirmations: 1 - Strongly Disagree; 2 - Disagree; 3 - Slightly agree; 4 - Agree; 5 - Strongly Agree. This methodological choice was made to elicit a nuanced range of responses that reflect the spectrum of attitudes and perspectives held by the economic agents on environmental issues and sustainable development.

Subsequent to the collection, the scores attributed to each statement were systematically compiled and subjected to rigorous statistical analysis. The aggregate scores provided a composite picture of the attitudes and behaviours towards various facets of environmental action and sustainable development.

Further, the data was disaggregated based on demographic factors such as gender and age. This stratification allowed for a nuanced analysis of how perceptions and attitudes towards environmental actions vary across different demographic groups, providing deeper insights into the psychographic landscape of the Horeca sector's economic agents.

Data processing, systematization of results, and obtaining indicators used for statistical analysis were performed using the Statistical Program for the Social Sciences (SPSS).

#### 4. Findings

This research focuses on understanding the potential role collective engagement can play in advancing sustainable development through environmental actions within Romania's Horeca sector. Data from Table no. 1 provides a valuable insight into the prevailing attitudes and beliefs of the respondents, economic agents within this sector, regarding various environmental issues.

*Table no. 1 Claims investigated by survey*

	To what extent do you agree with the following statements:
[REC] In Romania recycles well enough	1.95
[PRO] Surely future generations will find a solution to protect the environment, we don't need to worry about the subject at the moment	2.42
[PME] There are more important things to do in life than protecting the environment	2.49
[AME] Many of the alleged threats to the environment are exaggerated	2.51
[SME] It only makes sense to do something for the environment if others do the same	2.63
[VME] I would give part of my income if I was sure that this money would be used to prevent environmental pollution	3.41
[RGU] Romania is full of garbage	4.02
[EDU] Environmental education is lacking in Romania	4.19
[NME] We are not doing enough to protect the environment	4.32

*Source:* Authors' work

The first statement, "[REC] In Romania recycles well enough," received an average score of 1.95, indicating a predominant disagreement among respondents. This reflects a widely held belief that the current recycling practices in Romania are insufficient. This perception could act as a catalyst for collective action to improve recycling processes within the Horeca sector.

Similarly, the next three statements, which all have mean scores below 3, indicate a general disagreement with a passive attitude towards environmental responsibility. For "[PRO] Surely future generations will find a solution to protect the environment, we don't need to worry about the subject at the moment," "[PME] There are more important things to do in life than protecting the environment," and "[AME] Many of the alleged threats to the environment are exaggerated," the lower scores suggest respondents believe that environmental threats are real and pressing, and proactive action should be taken now, rather than leaving the responsibility to future generations.

The statement, "[SME] It only makes sense to do something for the environment if others do the same," with an average score of 2.63, points to a slight agreement. This implies that respondents perceive environmental action to be more effective or meaningful when it's a shared effort. Also, suggests respondents do not view collective action as the sole motivator for environmental engagement, indicating a sense of individual responsibility.

Conversely, the statement "[VME] I would give part of my income if I was sure that this money would be used to prevent environmental pollution," with an average score of 3.41, indicates a willingness among respondents to financially contribute to environmental protection initiatives. This readiness to engage economically can be seen as a proactive stance towards collective environmental

responsibility.

The last three statements with scores exceeding 4 suggest a strong consensus among respondents on the urgency of environmental issues in Romania. Respondents agreed strongly that "[RGU] Romania is full of garbage," "[EDU] Environmental education is lacking in Romania," and "[NME] We are not doing enough to protect the environment." These findings underscore the perceived need for more effective waste management, environmental education, and comprehensive measures to protect the environment.

In summary, the findings suggest a significant readiness among economic agents in Romania's Horeca sector for collective engagement in environmental action. The respondents perceive a high need for environmental education and action, underlining the importance of shared responsibility in fostering sustainable development. This points to a potential for implementing collective action strategies in this sector, particularly those focusing on recycling, environmental education, and broadening participation in environmental protection initiatives.

The results were further analysed based on the respondents' gender and age, providing a comprehensive understanding of their perceptions and behaviours towards environmental actions and sustainable development.

The data from the Table no. 2 presents an interesting exploration of gender differences in attitudes towards various aspects of environmental protection and perception in Romania's Horeca sector.

*Table no. 2 Distribution by gender*

<b>Gender</b>	<b>EDU</b>	<b>NME</b>	<b>VME</b>	<b>PME</b>	<b>SME</b>	<b>RGU</b>	<b>REC</b>	<b>AME</b>	<b>PRO</b>
M	4.07	4.41	3.22	2.56	2.70	3.78	1.74	2.37	2.59
F	4.28	4.25	3.56	2.44	2.56	4.22	2.13	2.63	2.28
Total	4.19	4.32	3.41	2.49	2.63	4.02	1.95	2.51	2.42

*Source:* Authors' work

The statement "[EDU] Environmental education is lacking in Romania" saw both genders generally agreeing, but females (4.28) agreed more strongly than males (4.07). This could suggest that females might be more cognizant of, or concerned with, the state of environmental education in the country. The higher level of agreement amongst females might suggest an increased recognition or sensitivity towards the gap in environmental education within the country. This could be influenced by the types of roles females often occupy within the Horeca sector that could be more intimately associated with the application of environmental knowledge.

"[NME] We are not doing enough to protect the environment" scored 4.41 with males and 4.25 with females, reflecting a consensus that more efforts are needed for environmental protection. The slightly stronger agreement from males could be indicative of a greater perceived urgency for environmental action. This could be attributed to the decision-making roles males frequently occupy, often carrying higher responsibilities towards environmental impacts of their business operations.

"[VME] I would give part of my income if I was sure that this money would be used to prevent environmental pollution" recorded scores of 3.22 for males and 3.56 for females. The more significant agreement among females may suggest a heightened level of personal commitment towards environmental preservation, possibly stemming from an increased awareness of the sector's environmental footprint, particularly in roles that interact directly with the provision of goods and services.

For the statement "[PME] There are more important things to do in life than protecting the environment", both genders lean towards disagreement, with males slightly more (2.56) than females (2.44). The slightly stronger disagreement amongst females could imply a greater awareness of the interconnectedness of environmental well-being and business sustainability, possibly emanating from roles requiring them to balance multiple priorities including customer expectations for environmentally-friendly services.

"[SME] It only makes sense to do something for the environment if others do the same" had a similar trend, with males (2.70) showing slightly more agreement than females (2.56). The slightly stronger agreement among males could indicate a greater valuation of collective over individual action. This might be an outcome of working within parts of the sector where business decisions are often influenced by industry norms or regulatory pressures.

"[RGU] Romania is full of garbage" received a score of 3.78 from males and 4.22 from females, indicating agreement from both genders, but with stronger concerns from females about waste management. The stronger agreement from females could be reflective of the roles they hold within the sector that involve direct handling of waste or customer feedback, making them more cognizant of the issues related to waste management.

"[REC] In Romania recycles well enough" had males (1.74) showing stronger disagreement than females (2.13). The stronger disagreement amongst males might emanate from roles in decision-making or purchasing, potentially making them more aware of the inefficiencies in the current recycling practices.

"[AME] Many of the alleged threats to the environment are exaggerated" scored 2.37 for males and 2.63 for females, leaning towards disagreement in both cases. The marginally higher level of disagreement among females might suggest their increased acknowledgement of the severity of environmental threats, possibly due to roles directly affected by environmental conditions such as food safety and quality.

"[PRO] Surely future generations will find a solution to protect the environment, we don't need to worry about the subject at the moment" had scores of 2.59 for males and 2.28 for females. Both genders disagree with this future-oriented, passive approach to environmental protection, with females showing stronger disagreement. The stronger disagreement from females could denote a heightened sense of immediacy and responsibility towards addressing environmental issues, potentially stemming from customer-facing roles that deal directly with the public's growing environmental consciousness.

Thus, gender-based analysis indicates significant consensus between males and females regarding environmental concerns, but with subtle differences. Females show stronger support for environmental education and a higher readiness to financially back environmental initiatives. Males exhibit a stronger inclination towards immediate environmental action and more skepticism regarding Romania's recycling efficiency.

Overall, both genders show considerable concern for environmental issues and the need for action. Yet, some nuanced differences can be observed, potentially due to societal, educational, or psychological factors influencing gender perceptions and attitudes towards environmental matters.

In analyzing these results, we find notable variations in attitudes towards environmental issues across different age groups in Romania's Horeca sector (Table no. 3).

*Table no. 3 Distribution by age*

Vârsta	EDU	NME	VME	PME	SME	RGU	REC	AME	PRO
16 - 24	4.10	4.20	3.40	2.80	2.70	3.60	2.10	2.50	2.60
25 - 34	4.91	4.91	3.64	2.73	2.82	4.64	2.00	2.18	2.55
35 - 44	4.14	4.23	3.82	2.18	2.27	3.86	1.91	2.36	2.09
45 - 54	3.64	4.00	2.64	2.50	2.86	3.93	2.00	2.93	2.43
55 - 65	5.00	5.00	3.00	3.00	3.50	5.00	1.00	3.00	4.50
Total	4.19	4.32	3.41	2.49	2.63	4.02	1.95	2.51	2.42

*Source: Authors' work*

The data provided offers a rich spectrum of perspectives based on the age demographic within the Romanian Horeca sector so:

"[EDU] Environmental education is lacking in Romania" - The elevated mean scores (4.91 and 5.00) reported by the 25-34 and 55-65 age groups respectively imply a pronounced perception of a deficiency in environmental education. Given their professional contexts, this might reflect an understanding of the criticality of environmental education within the Horeca sector and its potential impact on operational practices and sustainable development.

"[NME] We are not doing enough to protect the environment" - The high scores (4.91 and 5.00) in the 25-34 and 55-65 age groups represent a shared sentiment concerning the need for heightened environmental protection efforts. This indicates an acute environmental consciousness, likely influenced by industry experience and personal convictions.

"[VME] I would give part of my income if I was sure that this money would be used to prevent environmental pollution" - The highest mean score (3.82) amongst the 35-44 age group suggests a greater propensity within this demographic to support environmental initiatives financially. This could be attributed to their economic stability and an understanding of the symbiotic relationship between environmental conservation and economic viability.

"[PME] There are more important things to do in life than protecting the environment" - The low average score (2.18) amongst the 35-44 age group reflects a stronger disagreement with the statement, underscoring a prioritization of environmental protection in their schema of personal and professional responsibilities.

"[SME] It only makes sense to do something for the environment if others do the same" - The 55-65 age group showed the highest mean score (3.50), suggesting a belief in the collective approach to environmental protection. This may be attributed to their experiences in the Horeca sector, where shared standards and practices significantly shape the industry's environmental impact.

"[RGU] Romania is full of garbage" - The high mean scores (4.64 and 5.00) amongst the 25-34 and 55-65 age groups indicate a shared perception of a substantial waste management problem, possibly reflective of their professional exposure to waste issues within the Horeca sector.

"[REC] In Romania recycles well enough" - The low score (1.00) amongst the 55-65 age group implies a strong skepticism about the adequacy of Romania's recycling efforts. This could be a byproduct of their longitudinal observations of recycling practices within the industry, providing them a comprehensive perspective on this issue.

"[AME] Many of the alleged threats to the environment are exaggerated" - The 45-54 age group, with the highest mean score (2.93), showed a stronger disagreement with this statement, revealing an acknowledgment of the gravity of environmental threats, possibly reflective of their professional experiences during a period of escalating environmental crises.

"[PRO] Surely future generations will find a solution to protect the environment, we don't need to worry about the subject at the moment" - The strong disagreement by the 55-65 age group, evidenced by the high score (4.50), indicates a rejection of this complacent, future-oriented view. It suggests an acute sense of urgency and responsibility towards contemporary environmental issues, possibly informed by their professional experiences and personal values.

Thus, age-based analysis reveals distinct patterns across age groups. Both the 25-34 and 55-65 demographics underscore the importance of environmental education and the need for urgent environmental protection. The 35-44 age group expresses a higher financial commitment to environmental initiatives and a stronger belief in the primacy of environmental protection. The 55-65 age group is notably skeptical about current recycling efforts and most strongly rejects a complacent approach to environmental protection.

The data interpretation presents a detailed understanding of age-differentiated attitudes towards environmental issues within Romania's Horeca sector. It's worth noting, however, that this analysis is based on aggregate data, and individual perspectives could vary considerably due to the heterogeneity of personal experiences, roles, and beliefs within these age groups.

## 5. Conclusions

Drawing on the analysis of the given data, it is possible to infer several conclusions about collective engagement in environmental action within the Romanian hospitality sector, particularly with regard to age and gender factors.

The data suggests a strong consensus on the perceived deficiency in environmental education across all age and gender groups in the sector. The recognition of such a gap indicates an acute awareness of the importance of education in fostering environmental stewardship and promoting sustainable practices. This awareness is particularly noticeable in the older age groups (25-34 and 55-65), possibly indicating a more seasoned understanding of the importance of such education in the context of their professional roles.

Moreover, the respondents' shared sentiment about the urgency of environmental issues, particularly the state of waste management and the need for more robust recycling efforts, underscores the consensus on the need for collective engagement in environmental protection. This resonates with the understanding that environmental challenges are often complex and

interconnected, extending beyond the capacity of individual actions to resolve.

Within the hospitality sector, the acknowledgement of the role of industry-specific practices in influencing wider societal sustainability goals is evident. The sector's potential to drive systemic changes by adopting environmentally friendly practices is a central theme in the respondents' responses. Moreover, the recognition of social responsibilities that go beyond environmental considerations, including support for local economies and promotion of cultural diversity, further emphasizes the industry's potential to contribute to broader sustainable development goals.

However, the analysis also reveals a significant factor that needs consideration: the influence of demographic factors on environmental attitudes, values, and behaviors. Variations in responses across age and gender groups suggest that these demographic factors significantly influence perceptions and attitudes towards environmental issues. Therefore, it is crucial to develop strategies and interventions that take these factors into account to effectively promote collective engagement in environmental action.

In summary, the data analysis underscores the critical need for collective engagement in environmental action within the Romanian hospitality sector. Through reinforced environmental education, adoption of sustainable practices within the industry, and an understanding and consideration of demographic influences, the sector can make significant strides towards sustainable development and environmental resilience.

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## Hate Crimes in Globalization Era Good Practices in Analysing them in European Union Countries

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### Abstract

*Hate crimes are all those crimes based on a discriminatory motivation. The aim of this paper is to analyze the jurisprudence of the ECtHR and of other decisions adopted within international bodies classified as facts that seriously affect the democracy of the states. The OSCE named them as those crimes committed because of intolerance towards certain social groups, based on certain prejudices related to ethnicity, race, gender or sexual orientation. The main objectives are a systematic analyse of hate crimes typology, identifying good practices in fighting them, and revealing the social inequities and the differences based on ethnicity or religion that are often a cause for the creation of xenophobia, as evidenced by the events that took place in Transylvania between Protestants and Northern Irish Catholics, in Algeria during French rule, between African Americans in America, whites and Hispanics, during the apartheid period in South Africa, and last but not least, in Europe between Christians and Jews or between Roma and the rest of the population.*

**Key words:** criminal offence, globalization, hate, decisions, governance

**J.E.L. clasification:** K40

### 1. Introduction

Hate crimes are addressed in international criminal laws either as stand-alone crimes or as aggravating circumstances that are taken into account when increasing penalties. However, it is difficult to collect statistical data on this type of crime for which the penalties have been increased on the basis of discriminatory motivation.

Hate speech - is approached differently in the countries of the European Union, not being defined in a unitary way, but through Recommendation (97)20, the Council of Europe defined it as summing up forms of expression that propagate, incite, promote or justify racial hatred, xenophobia, anti-Semitism or other forms of hatred based on intolerance, including intolerance that expresses itself in the form of aggressive nationalism and ethnocentrism, discrimination and hostility towards minorities, immigrants and people of immigration origin ([https://norwegian.politiaromana.ro/images/docs/Guide\\_Good\\_practice\\_antidiscrimination\\_RO\\_v2.pdf](https://norwegian.politiaromana.ro/images/docs/Guide_Good_practice_antidiscrimination_RO_v2.pdf)).

Thus, compared to hate crimes, hate speech is not a crime, but it can serve as evidence and as a means of committing a crime. For example, the offense of incitement to hatred or discrimination, provided for by the Criminal Code of Romania, is most often committed through hate speech, transmitted either verbally, online, through printed publications or through drawn symbols, all multiplying worryingly, especially those transmitted on the Internet.

## 2. Literature review

This research proposes a review of the specialized literature on racism and xenophobia, which are qualified in different sources of the specialized literature (especially strategies, guidelines and reports) as serious threats to the principles of the European Union, as it is also shown in EU law.

The specialized literature and specialists in the field of hate crimes, use the terminology related to this notion to describe the norms and principles related to how the most frequent types of crimes motivated by hate and discrimination recorded, were those against the exercise of fundamental rights and civil liberties, aggression, threats and degrading treatment (Cree, 2014). This concept provides a framework for comparing the efforts made at the European level in the fight against xenophobia, homophobia, racism, sexism and other forms of discrimination (Weber, 2009). In 1998, the Charter of European political parties for a society free of racism was adopted, and 10 years later, Council Framework Decision 2008/913/JHA of 28 November 2008 on combating certain forms and expressions of racism and xenophobia was adopted through criminal law. In June 2016, a high-level group on fighting against racism, xenophobia and other forms of intolerance was created at the level of the European Commission, with a particular focus on the responsibility of governments and governing bodies to meet the needs of the population. Anthropologists such as the French Paul Pierre Broca, (1871, *Mémoires d'anthropologie*) George Vacher de Lapouge (1909-Race et Milieu Social: *Essais d'Anthroposociologie*) and the German Otto Ammon (*Zur Anthropologie der Badener*, 2020) tried to substantiate with the help of anthropometry, that the social differentiation of classes was based on racial differences, and therefore rooted in the nature of things. The economic and social roots of race prejudice appear very clearly if we take into account the fact that the first great doctrinaire of racism, Comte de Gobineau, (*The inequality of human races*, 1915) himself declares that he wrote his famous Essay to fight against liberalism. We can observe that the development of racism ran parallel to that of the democratic ideal, and racial prejudice is not innate, as Ashley Montagu (*Man's most Dangerous Myth, the Fallacy of Race*, 1942) shows.

### 2.1. Hate Crime approach in Europe

Political factors have a decisive role in causing xenophobia, in certain situations, a significant example being the African students in Romania during the communist regime, who had a privileged situation, a fact that led to abuses and tensions on the part of Romanian students (Vacher, 2014). The attitude of Arabs towards Jews and Western travelers has changed after centuries of tolerance, against the background of colonialism and the Israeli-Palestinian conflict, which has led in the Arab-Muslim world to deep intolerance and xenophobia towards the American, European and Israeli population ([www. liberties.eu](http://www.liberties.eu)).

Among the concrete actions undertaken by the authorities in the United Kingdom to fulfill the objectives of the strategy we have workshops organized by civil society to prevent discriminatory practices, efficient and accessible reporting systems for victims of these crimes, professional training programs for police officers to make them aware of the particularities, prevention and intervention in hate crimes (Gergely and Małgorzata, 2016).

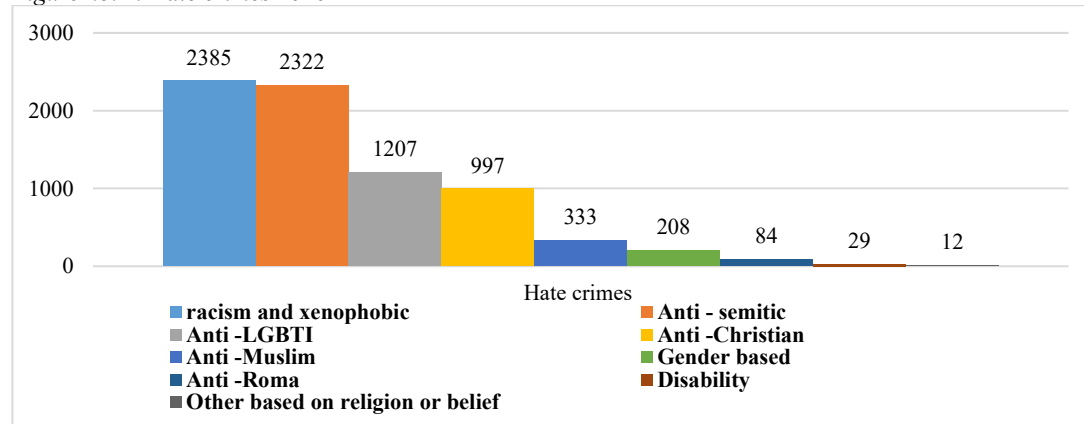
In the first two years after the implementation of the strategy, the evaluation report drawn up at the Government level mentioned as positive initiatives the adoption of a Code of Practice for Victims of Crime (Code of Practice for Victims of Crime), the awareness raising program regarding motivated hate crimes, designed for primary school pupils in Lancashire and embedding the strategy in Manchester's local strategy.

The United Kingdom National Hate Crime Police Strategy and Hate Crime Operational Guidance examines the phenomenon of hate crime, defines the different forms of hate crime, sets out the applicable legislation, and how to report and investigate it, through community involvement. Specifically, the police collaborate with various advisory groups in affected/vulnerable communities, documenting the particular challenges faced by ethnic groups, the LGBTI community and people with disabilities, providing them with guidance on the services they should receive at the time of notification of these crimes (<https://www.gov.uk/government/uploads/system/uploads>).

In England, Northern Ireland and Wales, the police have operationalized an online hate crime reporting mechanism called 'True Vision', available in English and Welsh. Both injured persons and witnesses or third parties have the opportunity to notify the police of the locality where they come from, through this platform, cases that contain elements of hate crimes, the notification being recorded and investigated even if it is done anonymously. The service is easily accessible, being created even mobile phone applications.

Moreover, for 2020, it was noticed that the most crimes were linked with racism and xenophobia, being followed by anti – semitism and anti-LGBTI (Figure no. 1).

Figure no. 1. Hate crimes 2020



Source: OSCE, ODIHR, HATE CRIME REPORTING, 2021

According to ODIHR's Key Observations, 14 states reported hate crimes to ODIHR, 16 states have started to improve their legislation, and 7 states provided complete police, prosecutorial and judicial data.

7203 – total number of incidents report to ODIHR

3173 – statistical incidents caused by state, bias motivation and type of crime.

4030 – descriptive incidents.

137 – civil society contributors.

On the other hand, another report, to which APADOR CH and 32 other international organizations contributed, evaluates and includes information regarding the respect for civil rights, the state of the justice systems, the media, the functioning of anti-corruption systems and the supervision of powers in 17 countries within Europe, including Romania, Spain, Germany, Holland, Sweden, Poland.

According to the report, published in Berlin, during the two years of the COVID-19 pandemic, the authorities in Europe have not succeeded and did not want to reduce the restrictive measures instituted, these aspects leading in the long term to the reduction of civil society's control over the parliaments and the executive.

Based on the monitoring carried out by the European Commission, through its own mechanisms, it was found that during the pandemic there were pressures regarding freedom of expression, freedom of the press, citizens facing phenomena of incitement to hatred, harassment, abuse or violence (Montagu, 1942).

The same monitoring emphasized the fact that in many European countries the evolution of the rule of law was a slow one, the phenomenon of corruption being on the rise compared to the period before the pandemic, there being suspicions and signals of corruption cases in many countries related to the use of funds that the European Union allocated for the recovery and for the management of the COVID-19 pandemic.

The commission also showed that freedom of expression is still limited in many states, racism and discrimination still persist, and non-governmental organizations and those defending fundamental human rights, especially defenders of the rights of religious and ethnic minorities and LGBTIQ+ people, are the victims of harassment, verbal and physical aggression or defamation campaigns.

Figure no. 2 - 2022 Report – The evolution of the rule of law



Source: Civil Society in 2022 Under Pressure (Eleonor Brooks)

At the level of the Spanish police, there is a platform made up of representatives of local police departments and minority groups, called the Platform for the Management of Police Diversity (Plataforma por la Gestión Policial de la Diversidad), which meets periodically and discusses issues related to the interaction of the authorities with minority groups, trying to find solutions to build trust between the police and vulnerable groups (Decizia-cadru 2008/913/JAI a Consiliului <https://legislatie.just.ro/Public/>).

The platform is designed for police training, awareness and sensitization campaigns, implementation of diversity management strategies, police accountability programs to act impartially in relation to minorities ([http://www.report-it.org.uk/your\\_police\\_force](http://www.report-it.org.uk/your_police_force)).

At the beginning of March 2022, the Spanish police in the Region of Catalonia published a report on police activity to combat crimes motivated by hate and discrimination and the regional evolution of this phenomenon.

The main conclusion drawn from this balance sheet is that in 2021 the phenomenon increased compared to the previous year, by 26 percent, only in Catalonia being registered almost 500 complaints for crimes motivated by hate and discrimination, 30% of the cases being committed on the ground of phobia by people from the LGTBI area, followed by areas related to "national/racial origin (22.4%) and political orientation (9%).

330 people were accused of such crimes, 17% were minors, out of whom 104 were also arrested. Among the victims, 11.5% are minors.

As an example, in 2021, the Mossos d'Esquadra processed 3 cases for hatred of the homeless, 9 for discrimination based on religious beliefs, 7 for anti-Semitism, and 5 for discrimination against people with physical and/or mental disabilities. All were recorded in the province of Barcelona, except for two cases against religious beliefs that were reported in Tarragona (Saez, 2012).

Among the measures identified by the authorities to manage, signal and reduce the phenomenon are campaigns to inform the public about their rights, about the identification and prevention of situations and at the same time aimed at encouraging citizens to report these cases in order to punish the perpetrators and cultivate respect for plurality and diversity (Gobineau, 2015).

## 2.2. Vulnerable prisoners belonging to ethnic, religious and racial, sexual minorities in the penitentiaries of Romania and other European states

Inside the penitentiaries, all those in a state of deprivation of liberty can become more or less vulnerable, due to the social, psychological, administrative, mental problems that most of them face. There are certain groups of prisoners who can become the target of exclusion and physical aggression from others on the basis of belonging to a minority group, the fact that they have a different sexual

orientation, because they suffer from mental insufficiency, belong to a different religion or have a different color of skin (Gombert 2007).

All these factors favor the appearance of prejudice, discrimination and often lead to direct violence, abuse, ill-treatment and even more serious crimes.

These prisoners who come from ethnic, religious, racial, sexual minorities, prisoners with disabilities, those who are ill, those who suffer from mental retardation, foreign national prisoners, women prisoners and minors are vulnerable and may be victims both of abuse from other prisoners, but also from abuses committed by prison employees.

National human rights standards require the treatment of vulnerable prisoners, regarded as prisoners with special needs, in the same manner and with the provision of the same rights as all prisoners, with those belonging to vulnerable groups requiring additional protection by including them in special social reintegration programmes.

The percentage of vulnerable groups in national penitentiaries is constantly increasing, in the European Union states foreign prisoners representing over 20 percent of the total population in penitentiaries, those with certain mental disabilities being almost 4 times more numerous, and those belonging to ethnic groups and racial groups exceeding half of the number of people incarcerated in certain countries (<http://discursfaradiscriminare.ro/wp-content/uploads/2014/10/Studiu-comparativ-hate-speech.pdf>).

In many situations inmates may have multiple special needs. Considering their special status and the fact that the state of deprivation of liberty potentiates and aggravates the risks they are exposed to and the needs they face, these vulnerable prisoners are no less dangerous, the degree of vulnerability not being associated with the degree of dangerousness and the risk of recidivism (Cree, 2014).

Within the strategies and policies for managing the activity in the penitentiary system, plans must be identified and applied to assess and reduce risks, to integrate prisoners with special needs and to create a fair and safe space for the entire prison population, where the protection of human rights should be the main priority of the system.

### **3. Research methodology**

This article based on a detailed interpretative and jurisprudential analysis underlines the main strategies, reports, domestic and European provisions used in different appeals regarding hate crimes. The aims of this research is to underline the good practices used to fight against hate crimes in all European Union countries.

Since 2011, the British Government has included the objectives for preventing and combating hate crimes in the government program, creating a strategy to reduce the phenomenon, based on the Crime and Disorder Act 1998 (Crime and Disorder Act 1998) and Criminal Justice Act (Criminal Justice Act 2003), which criminalized motivations based on hatred as aggravating circumstances.

The strategy called "Challenge it, Report it, Stop it - The Government's Plan to Tackle Hate Crime" was designed in three main directions: that of preventing hate crimes, through early intervention and by addressing the behaviors that precede this type of crimes, access to support services for injured persons, as well as the identification and prompt resolution of hate crimes (Weber, 2009).

### **4. Findings**

Based on the analyze of the Decisions of the European Court of Human Rights we may say that in the penitentiary system the overrepresented groups are the ones that are most often subject to disciplinary punishments, those against whom additional security measures are taken being subject to additional shake down, without necessarily having evidence or justifiable reasons for such measures. Moreover during disciplinary hearings and rehabilitation programs these groups do not always have translation and interpretation services available.

The most frequent way of reflecting prejudices and social exclusion is represented by their concretization in the form of physical (assaults, rapes) and verbal (harassment, humiliation, hate speech) abuse, which is carried out systematically, becomes generalized and becomes a practice in some penitentiaries.

#### **4.1. Prisoners belonging to ethnic, racial and religious minorities**

The prisoners belonging to these groups are different from the general prison population on the basis of race, ethnicity, religion, language, cultural, social or educational differences. However, from a numerical point of view, these prisoners, called a minority group, may be the majority in relation to the general population, in some penitentiaries being overrepresented. Thus, it is absolutely necessary to have fair treatment and concrete and effective measures to meet the special needs of these people (<http://library.college.police.uk/docs/college-of-policing/Hate-Crime-Operational-Guidance.pdf>.)

Members of minority groups may be discriminated by prison staff in terms of the rights and services they should benefit from in a non-discriminatory manner, namely adequate accommodation, access to healthcare and treatment, education and work programmes, activities additions, parole decisions and home visits.

#### **4.2. Foreign detainees**

There are those prisoners who do not have the citizenship of the country in which they are incarcerated, those who do not hold a passport of the country in which they are incarcerated and those who have not been naturalized even though they have lived in the country of incarceration for a long time. Asylum seekers and illegal immigrants, who are accommodated in asylum centers and other state institutions, and not in penitentiaries, are not part of the category of foreign detainees.

The number of prisoners in European prisons has increased in recent years, and the number of foreign prisoners incarcerated in countries other than their countries of origin is significant and varies from country to country. According to the statistics of the Council of Europe, in 2015 there were 115,000 foreign prisoners incarcerated in European countries, with an average rate of over 20 percent, most in Switzerland and Luxembourg, where their percentage was over 70 percent of the number of incarcerated people. The states with the fewest foreign prisoners were, at the level of 2015, Romania and Poland - under 1 percent. In other countries such as Greece, Austria and Liechtenstein, more than half of the inmates were foreigners. The phenomenon of migration and the recent events related to the refugee crisis are elements likely to change such statistics in the coming years, when increases will most likely be recorded in this segment.

In the legislation report of each country, after incarceration in a penitentiary, foreign detainees without a legal residence permit in the country of detention follow certain transfer procedures to the country of origin, which are relatively arduous, causing this person to remain in detention in the country in which he is illegally for a long time, waiting for the decisions of the authorities.

The prisoner becomes all the more vulnerable the more factors favoring discrimination exist, namely belonging to a racial or ethnic group associated with the existence of post-traumatic stress disorders generated by intense experiences that these people go through, some immigrants from war zones, of conflicts or natural disasters, people who have been victims of torture, rape or who have lost family members.

Considering the social and psychological dimension of the events that these detainees go through, some belonging to minority groups, the harmful effects of detention in another country must be reduced by addressing their special needs and establishing practical and effective strategies.

The discrimination to which prisoners from minority groups are subjected to are not based on physical or verbal abuse, it often manifests itself in a slightly hidden, and subtle form, in terms of living conditions, security, access to certain services and information, for example they are allocated an accommodation space inferior to other detainees, they are disciplined and searched more often, they do not have access to information regarding the right to legal assistance, or the right to get in contact with the consular representatives of his/her country according to the rules of European penitentiaries.



Recommendation CM/Rec(2012)12 of the Committee of Ministers to the member states regarding foreign prisoners promoted several measures for social reintegration and reduction of marginalization, such as the fact that the rules in the penitentiary must be clearly established and transmitted, foreign prisoners must have access to language acquisition courses, to translators and interpreters, to be able to communicate with other people of the same nationality, with consular services, to be provided with support and assistance through probation services, after release from prison, access to work and to vocational training programs, as well as the right to visit and maintain contact with the world outside the prison.

#### 4.3. Sexual minorities

The term sexual minority mainly defines people who have different sexual orientation from the majority, homosexuals, lesbians, transsexuals, and gender minorities.

This category of people is particularly vulnerable within the penitentiary system to the danger of abuse, sexual violence, physical violence, humiliation, being more prone to become victims of sexual assaults and rapes than those who commit such crimes.

In the Manual on prisoners with special needs of the United Nations Organization, this criminal phenomenon, of rapes committed between prisoners in penitentiaries, is analyzed, establishing as a repeated "practice" rape between persons of the same sex and, although those who commit such rapes are considered homosexual, in reality most declare themselves heterosexual, and the male victim is seen and used as a temporary substitute for the female. A typical practice is for the perpetrators to be protected, in exchange for sexual services, by another inmate known in the hierarchy for his power and influence within, an inmate who keeps other inmates at bay. Another common practice is that the victim is "placed" with other inmates, which intensifies the drama and the suffering.

#### 5. Conclusions

The European Union authorities tasked with combating discrimination and hate speech, established in all member countries, differ from each other in some aspects related to the area of the fields they cover and by the level of specialization of these authorities or public institutions.

Considering the size of the phenomenon, measures such as the development of strategies and practices to increase the protection of prisoners from the category of sexual minorities are absolutely necessary, provided they are implemented effectively and with immediate results in reducing cases of ill-treatment and discrimination based on sexual and transsexualism orientation.

The Council of Europe recommends that prison staff be trained in such a way that they are made aware of the special protection needs of these prisoners, who should be allocated to separate cell accommodation, not together with those who pose a risk to their safety. They must be subjected to a complete medical examination to determine their accommodation, taking into account the fact that they are transsexual persons, some of whom are in the process of changing their sex.

Discrimination based on sexual orientation is fought in Romania and in 12 other European countries, such as: France, Spain, Germany, Belgium, Portugal, Denmark, Sweden, Estonia, Lithuania, Holland, Ireland and Malta. Discrimination on the basis of disability is provided for in Romanian legislation and in that of Hungary, Italy, Cyprus, Greece, Slovenia, Finland, Bulgaria, France, the Netherlands, Estonia and Luxembourg.

Romania relies on well-updated legislation regarding the fight against discrimination and hate speech, being one of the European states with one of the best legislations in this regard.

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## Digitalization in Project Management

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### Abstract

*Digitalization is a phenomenon that is gaining more and more scope, especially with the COVID-19 pandemic, which blocked all activities and required a reinvention and restructuring of everything we know. But, although it was a difficult job, man, by his nature, found a solution: digital tools, which allowed the resumption of many activities, including online meetings (working sessions, conferences, courses or simply connecting with close ones). Digital tools also provided real support for ongoing projects, enabling activities such as business meetings, as well as the creation and transmission of documents. Therefore, in our research we propose to find out how digital tools have been used and what impact they have had on projects.*

**Key words:** digitalization, digital tools, project, project management, project team

**J.E.L. classification:** C83, D81, I23, H12, M15, O22

### 1. Introduction

Digitalization is a phenomenon that has always been present, but has gained momentum in recent years, especially since the COVID-19 pandemic, which has affected both society and the economy. Although the pandemic has turned many activities upside down, digitalization has provided answers to existing problems and allowed the resumption of most activities in a more unusual or less used form until then: online.

Digitalization is a stage of technological development that gives technology the ability to generate changes at the behavioral level, at the level of mentality and the fundamental processes of society's functioning. Digitalization can be seen as a "technological revolution" leading to the transformation of humanity. (Tănase, Parachiv, 2018, p. 85)

Digitalization, through its tools, supports the development of interaction-type activities (work meetings, conferences, workshops, social meetings, etc.), but also lucrative activities (making documents, signing them and transmitting them online).

Both categories of activities, interaction and lucrative, within the projects were carried out through digital tools, where we will see in what form they were carried out (favorable or unfavorable), as well as the impact they had on project management, overall.

### 2. Literature review

The notion of *digitalization* appears since 1971, being seen as the digitalization of society, which represented both a potential and a limitation of the development of society and research with the support of digital tools.

Subsequently, digitalization is seen as the use of digital tools and data to achieve results, improve various activities, replace or transform certain processes, and create a specific environment for digital activities with an emphasis on information. (Schallmo, Williams, 2018, p. 6)

Digitalization allows the exploitation of new possibilities by integrating its tools into all types of processes, offering the possibility of their reconstruction and improvement. Although digitalization seems to only provide solutions and support to technologies and strategies, it can have certain repercussions on communication, individual and organizational skills, possibly even on innovation. (Kozarkiewicz, 2020, p. 238)

Project management plays an important role both in properly managing a project in terms of scope, time and budget, and in identifying, managing and engaging stakeholders. All these elements can influence the results of the project and have a major impact on defining the project as successful.

New technological trends, such as virtual ones, augmented reality and specific tools in the field of digitalization, represent means of facilitating the involvement of all stakeholders, enabling the creation of value.

Creating project deliverables with the help of digital tools supports more effective engagement of team members and provides the opportunity to discuss various ideas and expectations from everyone. (Kier, Huemann, 2022, p. 3)

Digitalization can lead to the expansion of the scope of a project, changes in project management methodologies, easier approaches, different implementation of certain processes (such as communication between project team members). Digital tools can radically transform the role of a project and its results. (Kozarkiewicz, 2020, p. 239)

Within a project, managers play an important role as they are responsible for managing all activities and situations encountered, with the aim of delivering good quality results, and for this they need:

- data management and analysis skills;
- innovative thinking;
- security and privacy knowledge;
- knowledge of legal and regulatory compliance;
- the ability to make decisions based on data;
- collaborative leadership skills. (Langley, 2018, p. 5)

Digital post tools simplify project management from the point of view of managing them, starting from the project idea to the total completion of the project, within the defined budget and using a certain amount of resources. The main project management activities include planning, tracking, reviewing, delegating and measuring results. (Kukhnavets, 2019)

Digital tools used in project management have enabled easier collaboration between team members. With the right tool, project managers can assign tasks to team members, who, in return, can add comments, set alerts and organize various tasks, etc. This level of collaboration leads to better results and helps foster a cooperative, synergistic environment. (Ripton, 2021)

### **3. Research methodology**

#### **Research objectives**

The present research involves identifying the degree of knowledge of the notions of digitalization and digital tools, evaluating the use of digital tools and their impact on projects, both from the perspective of project managers and project team members.

#### **The sample and its characteristics**

The sample targeted participants in the projects, both project managers and members of the project teams, without discrimination of gender, age or level of studies. A certain type of project was not targeted for carrying out the research, as digitalization is generally valid for all types of projects.

#### **Questionnaire design**

The data collection technique was based on an online questionnaire, through which the respondents were asked to answer, individually and voluntarily, predetermined questions related to digital tools, such as YES, NO, I DON'T KNOW, as well as selection options from given lists.

The questionnaire was formed into distinct parts. In the first part of the questionnaire, there was a demographic question about the respondent's position (project manager, team member, both positions) and introductory questions, intended for both positions in the project, questions such as:

- how the respondents are or are not familiar with the notions of digitization and digital tools;
- whether or not digital tools are useful within a project;
- whether digital initiatives must have certain objectives;
- the types of digital tools used within the project/projects, where applicable;
- types of documents that should be digitized.

The second part of the questionnaire contained questions specific to project managers, such as:

- whether it is important for new technologies to be understood by project managers;
- if the development of a need for digital skills or other skills to achieve project management is prioritized;

- whether the project manager must have well-defined digital skills;
- whether the project manager must be capable, prepared and willing to deal with digitization.

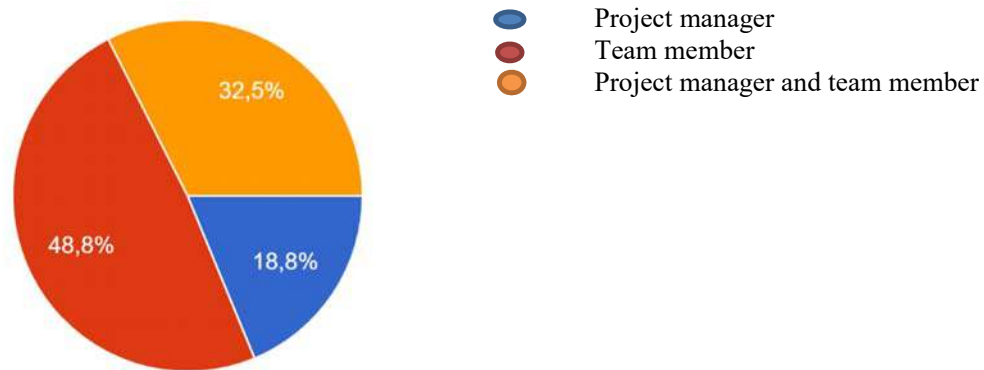
The third part of the questionnaire included specific questions to project team members, such as:

- whether digital skills were an important element in the selection of the project team;
- if the project team had well-developed digital skills;
- if digital tools have favored the way of reporting;
- if there were difficulties in using a digital tool;
- if he benefited from training to improve digital skills.

#### 4. Findings

The response to the questionnaires sent, were received with a balanced demographic positioning: project managers 32.5%, project team members 48.8%, both positions 18.8%.

Figure no. 1. Positioning of respondents



Source: developed by the author

For the YES, NO, I DON'T KNOW questions, the respondents' answers were:

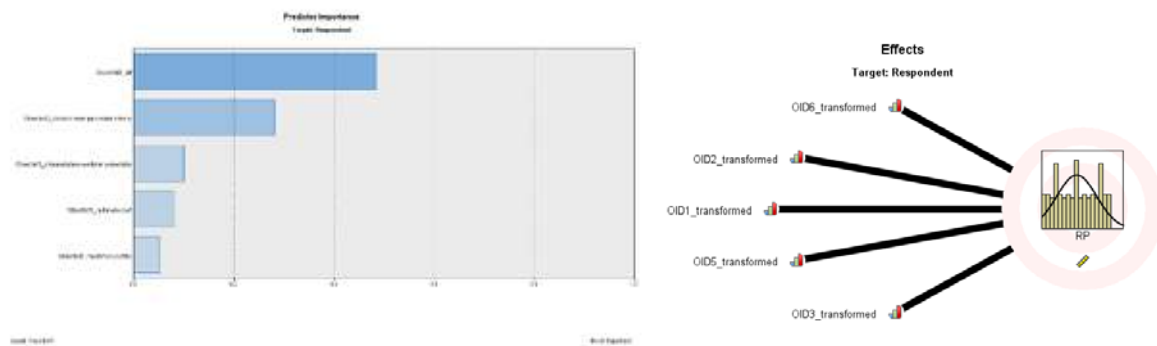
Table no. 1 Questionnaire answers

Question	Yes	No	I don't know
Familiarization with the notions of digitization and digital tools	70%	20%	10%
Digital tools are useful in a project	66,3%	11,3%	22,5%
It is important that new technologies are understood by project managers	63,4%	14,6%	22%
Priority is given to the development of a need for digital skills or other skills to achieve project management	53,7%	29,3%	17,1%
The project manager must have well-defined digital skills	53,7%	19,5%	26,8%
The project manager must be able, ready and willing to deal with digitization	61%	14,6%	24,4%
Digital skills were an important element in the selection of the project team	41,3%	33,8%	25%
The project team had well-developed digital skills	51,2%	35%	13,7%
Digital tools have favored the way of reporting	65%	15%	20%
There were difficulties in using a digital tool	60%	22,5%	17,5%
Received training to improve digital skills	38,8%	33,8%	27,5%

Source: developed by the author

Evaluating the importance of the variables included in the evaluation class Objectives of digital initiatives, the regression test was applied through automatic linear modeling. From the data analysis, it was observed that the degree of importance of the variables in the construction of the model (figure 2) had the values ObjectiveID\_alt = 0.48, ObjectiveID\_transformation of internal procedures = 0.28, ObjectiveID\_improving the evolution of the project = 0.10, ObjectiveID\_cost reduction = 0.08 and ObjectiveID\_hold position = 0.05.

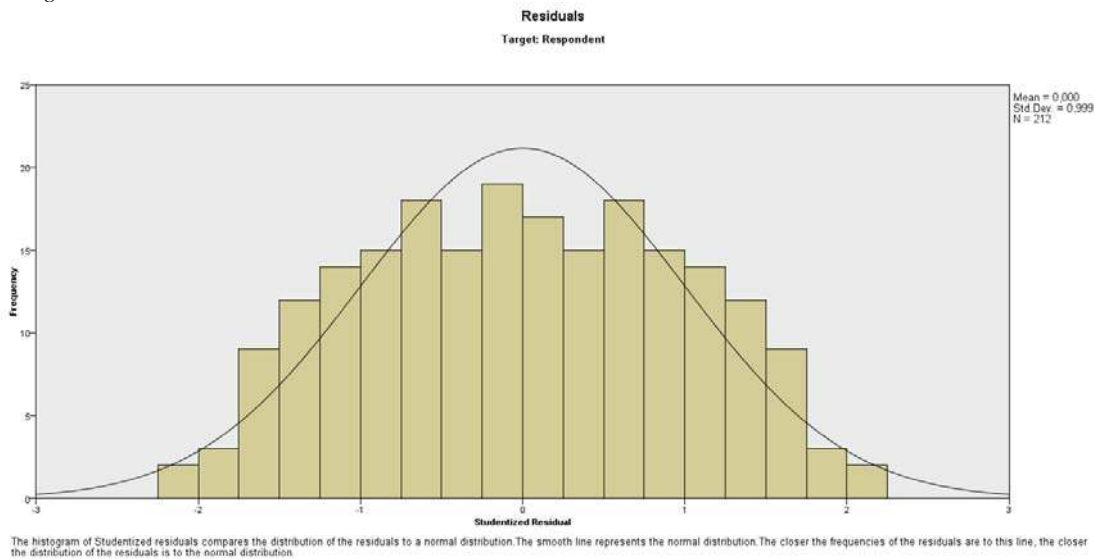
Figure no. 2. Predictor importance and effects



Source: developed by the author

Regarding the scatter diagram, figure 3, the distribution is normal, without asymmetry, without flattening index, linear, which indicates a strong suitability of the evaluation and analysis model of the Digital Initiatives Objectives to the data of the dimensions that compose it.

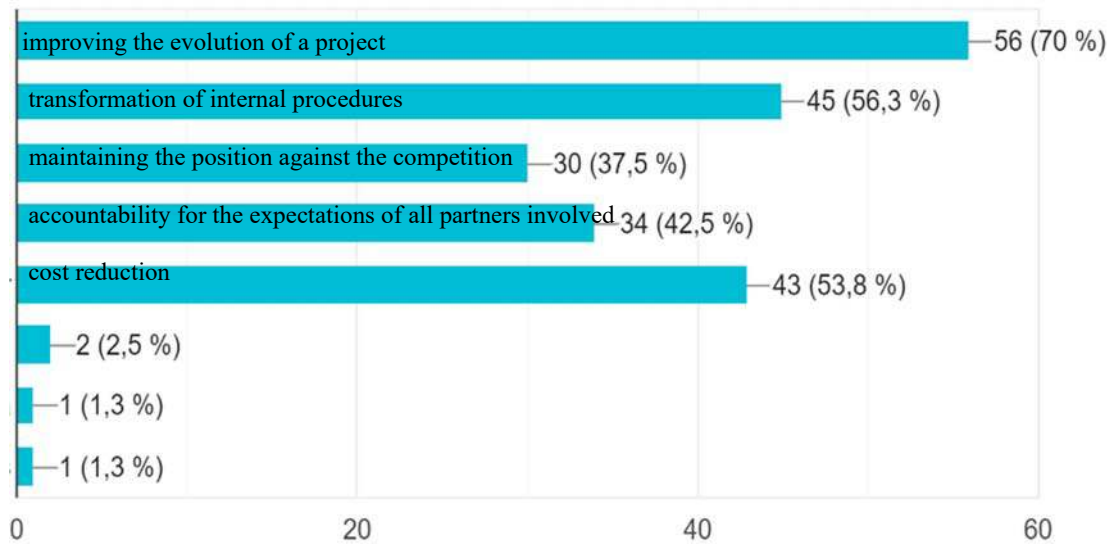
Figure no. 3. Residuals



Source: developed by the author

For the selection from a preset list of choice questions, the respondents' answers were:

Figure no. 4. Objectives of digital initiatives

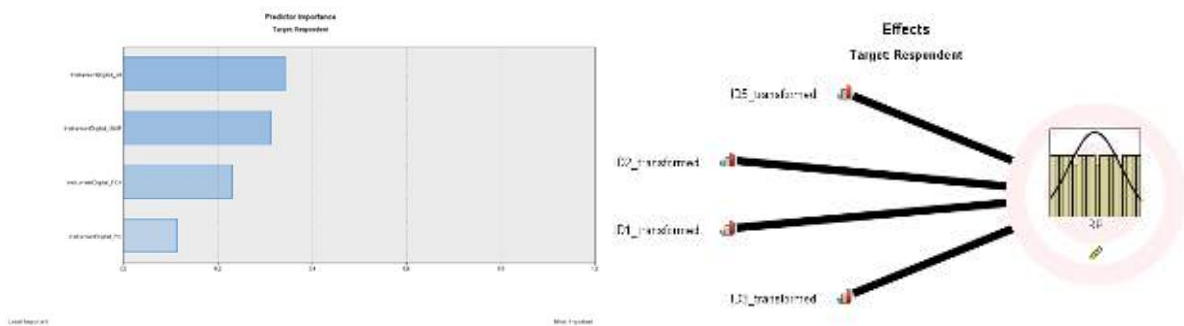


Source: developed by the author

As can be seen, 70% of respondents believe that the main objective of digital initiatives is to improve the evolution of a project, followed by the transformation of internal procedures with 56.3%, closely followed by cost reduction with 53.8%, accountability for the expectations of all partners involved with 42.5% and maintaining the position against the competition with 37.5%.

Evaluating the importance of the variables included in the evaluation class Digital tools used in the project, the regression test was applied through automatic linear modeling. From the data analysis, it was observed that the degree of importance of the variables in the constitution of the model (figure 5) had the values InstrumentDigital\_alt = 0.34, InstrumentDigital\_ISMP = 0.31, InstrumentDigital\_FCX = 0.23 and InstrumentDigital\_PC = 0.11.

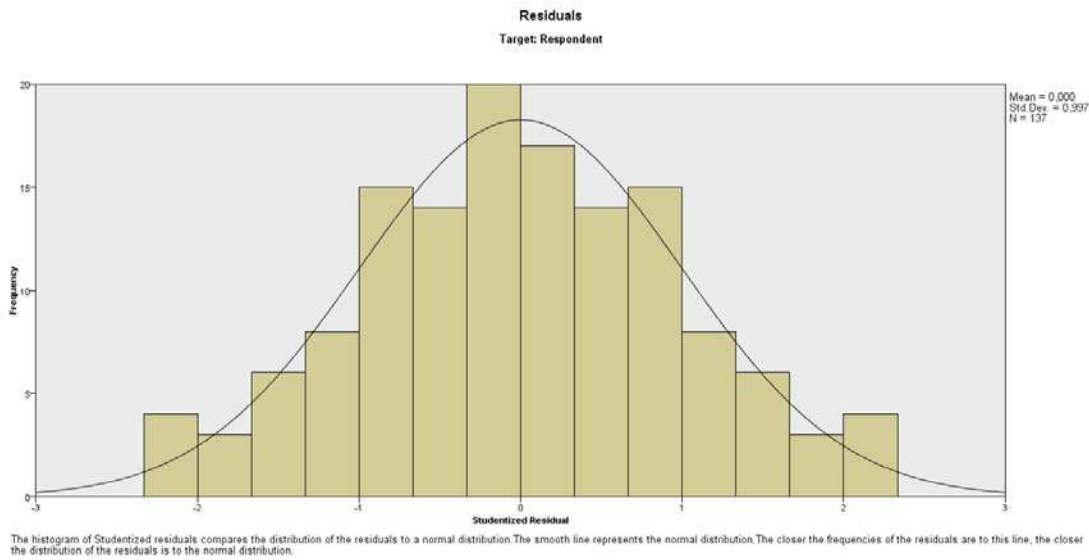
Figure no. 5. Predictor importance and effects



Source: developed by the author

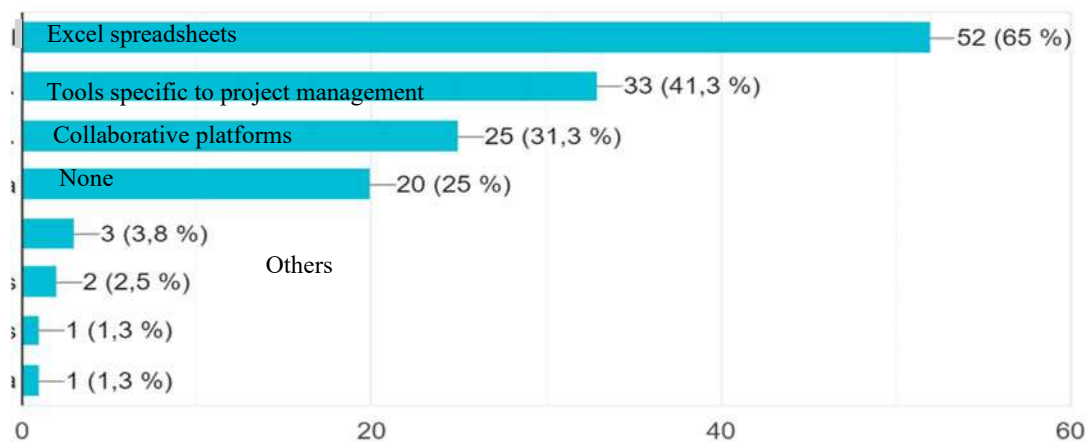
Regarding the scatter diagram, figure 6, the distribution is normal, without asymmetry, without flattening index, linear, which indicates a strong suitability of the evaluation and analysis model of the Digital Tools used in the project to the data of the dimensions that compose it.

Figure no. 6. Residuals



Source: developed by the author

Figure no. 7. The digital tools used in the project

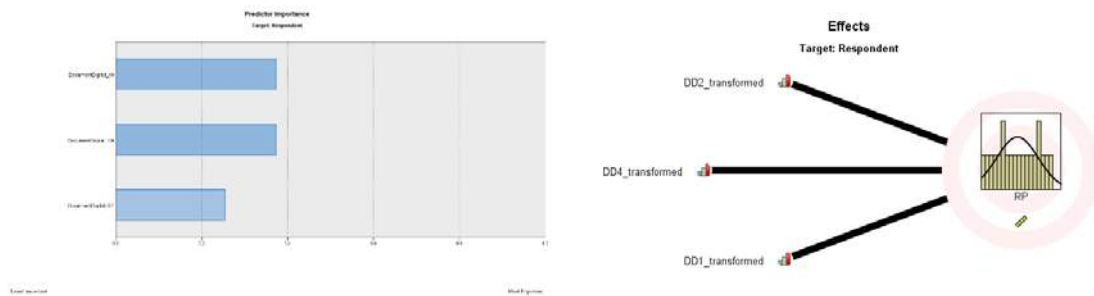


Source: developed by the author

Regarding the digital tools used, the most used were Excel Spreadsheets with 65%, followed by specific project management tools with 41.3%, collaborative platforms with 31.3%.

Evaluating the importance of the variables included in the Digitized documents evaluation class, the regression test was applied through automatic linear modeling. From the data analysis, it was observed that the degree of importance of the variables in the constitution of the model (figure 8) had the values DocumentDigital\_alt = 0.37, DocumentDigital\_RA = 0.37 and DocumentDigital\_FP = 0.25.

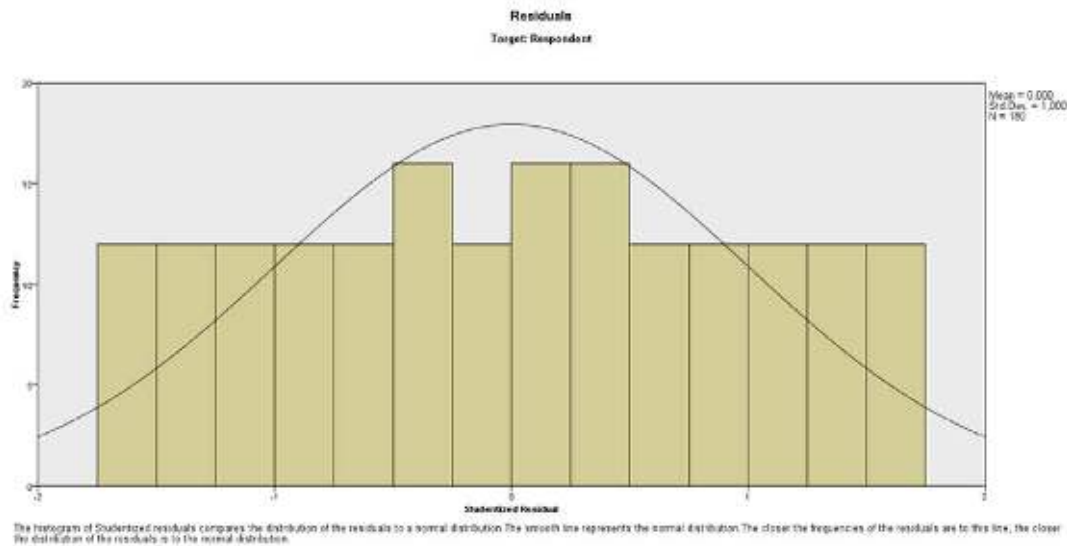
Figure no. 8. Predictor importance and effects



Source: developed by the author

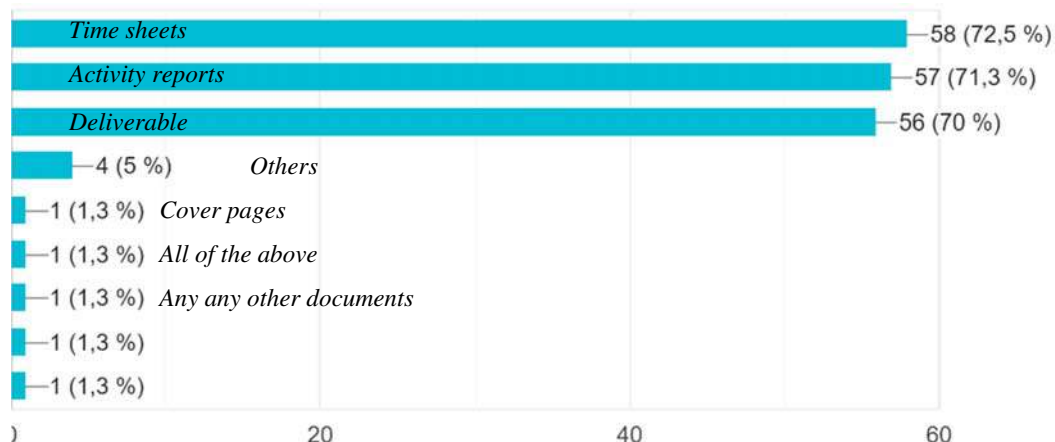
Regarding the scatter diagram, figure 9, the distribution is normal, without asymmetry, without flattening index, linear, which indicates a strong suitability of the evaluation and analysis model of Digital Documents to the data of the dimensions that compose it.

Figure no. 9. Residuals



Source: developed by the author

Figure no. 10. Types of documents that should be digitized



Source: developed by the author



Regarding the documents that should be digitized, the respondents consider that the priority would be time sheets with 72.5%, activity reports with 71.3%, deliverables with 70%, as well as any other types of documents.

## 5. Conclusions

Digitalization, although it has been around since 1971, has been gaining momentum in recent years, integrating itself into almost all aspects of society, from everyday life to the way we work, individually and in teams.

Digitalization is also very present in projects and project management, especially with the emergence and "disappearance" of the COVID-19 pandemic, when all project work procedures and methodologies had to be transformed and reinvented.

Within projects, the project manager is the central pillar as he is responsible for managing all project activities and his team, in order to successfully complete a project and achieve the desired results. As it emerges from the present research, the project manager must understand the new technologies, have the digital skills necessary to achieve project management, must be able, prepared and willing to face the impact of digitization.

Also, the project team should not be inferior either, as digital skills are a plus in the process of selecting the project team, and if they encounter difficulties in using them, they are encouraged to ask for support and can be given training to improve these skills, where applicable.

Project members, based on the research results, are familiar with the notions of digitization and digital tools used in project management, consider them useful in a project and favor the reporting method.

Evaluating the importance of the variables included in Objectives of digital initiatives, in Digital tools used in the project and in the Digitized documents evaluation class, the regression test was applied through automatic linear modeling.

The scatter diagram has the distribution normal, without asymmetry, without flattening index, linear, which indicates a strong suitability of the evaluation and analysis model of the Digital Initiatives Objectives, the Digital Tools and Digital Documents to the data of the dimensions that compose it, also for the Digital Tools used in the project

So digitization and its tools offer many advantages when used according to the requirements of each project, but it is up to each person to continuously improve their digital skills in order to improve the quality of work.

## 6. Acknowledgment

This work was supported by the grant POCU/993/6/13 -153178, co-financed by the European Social Fund within the Sectorial Operational Program Human Capital 2014 – 2020.

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## Comparative Study Between the Development of the Call Center Industry in Romania's Macroregions

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### *Abstract*

*The purpose of this article is, through a comparative analysis between the development of the call-center industry in the four macroregions of Romania, to identify ways of attracting investors to areas with low attractiveness for this field of activity.*

*Knowledge of the activity sector is a condition for identifying ways to develop call-center services in areas not yet exploited. In chapter 4.1, an overview of the call-center industry in Romania was made.*

*The comparative study between the development of the call-center industry in Romania's macroregions was carried out by comparing the business environment of call-center companies and the evolution of these companies. The study is presented in chapter 4.2.*

*The conclusions of the study include the causes of the gap between macroregions, detected within the analyzes carried out and ways to increase the investment attractiveness of disadvantaged areas.*

**Key words:** comparative study, diagnostic analysis, call-center, investments

**J.E.L. classification:** H 23, M14, M21, O11, P51

### **1. Introduction**

At the center of the management strategy are the clients and an effective communication with them is essential for the success of the companies. All companies are interested in providing information and assistance to existing or potential customers. The fact that, in recent decades, the costs of telecommunications and information technology have decreased, they have made it more economical to consolidate the management functions of organizations to promote products, provide product information, and stabilize and perpetuate customer relationships (Verboncu, 2020). These considerations led to the emergence of groups specialized in managing telephone calls with customers, practically to the emergence of the call-center industry. These groups, which form the structure of the call center industry, serve as the primary channel of communication between companies and customers. Today, this new field of activity is an increasingly important part of the business world, employing a workforce of millions worldwide.

The increasing number of business areas in Romania, which outsource their customer relations service, transferring this activity to call center companies, proves that the call center industry has expanded its activity in an ever wider area of domains and constitutes an explanation of the growth of this industry in Romania. Through a summary analysis, it was found that territorially, the call center industry is unevenly distributed, there are areas where this economic activity is very poorly or not at all represented.

The purpose of this article is, through a comparative analysis between the development of the call center industry in the four macroregions of Romania, to identify ways of attracting investors (Nicolescu, 2021), to areas with low attractiveness for this field of activity.

## 2. Literature review

The origins of call-center activities date back to the mid-1960s,. The call center or contact center is a central point from which all customer contacts are managed, this being part of the company's customer relationship management (Gans, 2003).

Regional and local development is an economic concept that aims to increase economic activities, their diversification, by boosting local or zonal private investments (Florea-Saghin, 2021).

The analysis of regional development is realized in scientific works by researching the elements that form the economic-social environment, (Manciu, 2021). Also, in the specialized literature, the managerial strategies for zonal development by stimulating investments (De Felice, 2015) are based on the analysis of social, economic, demographic, local infrastructure, and administrative factors.

A particularly important factor in the analysis of regional development (Cârstea, 2003) is the research of the market in the respective region, with its main variables demand and supply. An equal measure, Cârstea (2003) considers the analysis of the competitive environment to be an element that must be taken into account in the zonal economic diagnosis.

The most important factor (Barry, 2021) that must be analyzed in the regional diagnosis regarding the development of the call center industry is the labor force (Chiripuci, 2020) the availability in the region, the level of education, communication skills.

Comparative regional development research methodologies (Poesche, 2019) were used for the call center industry in the Romanian macroregions.

## 3. Research methodology

**The methods used for data collection. Data sources.** The investigation of indirect and statistical information is the starting point in the documentation process:

- specialized literature: books, articles, studies, magazines, websites specific to the call center industry;
- the publications of national organization: National Institute of Statistics, Chamber of Commerce and Industry of Romania, the Ministry of Finance.

**Analysis of statistical information** - the following analyzes were carried out:

- Analysis of the economic situation of the call center industry;
- Comparative study between the conjunctural environments of the call center industry in Romania's macro-regions and counties.

Starting from the hypothesis that without knowledge of the activity sector, it is not possible to identify ways to develop call center services in areas not yet exploited, in chapter 4.1 an overview of the call center industry in Romania was made.

Call center companies in Romania were identified through CAEN code: 8220 "Activities of telephone intermediation centers (call centers)", which they were registered at the National Trade Registry Office, as well as from the Top Firme company website.

The comparative analysis between the development of the call center industry in Romania's macroregions (chapter 4.2) used the scheme of the territorial structure of Romania, established in accordance with the Law on establishing the nomenclature of statistical territorial units in Romania. The territorial scheme of Romania consists of four macroregions that each include two development regions made up of a different number of counties.

## 4. Findings

### 4.1. Shaping the overall image of the Romanian call center industry. Analysis of the economic situation

Ever since its appearance in the early 2000s, the call center industry in Romania has seen a permanent growth. After the economic boom, which it achieved in the second half of the first decade, followed the economic crisis that did not affect, on the contrary, it stimulated the growth of the local call center industry due to the expansion of the outsourcing actions of the public relations activities

of the companies partners of the call center industry, as well as a result of the expansion of the geographical area in which Romanian call centers operate with services intended for clients from foreign markets.

In the second half of the second decade, the pace of development was slower, with the local call center industry registering lower growth compared to previous years, a trend that continued even in the pandemic year 2020, as can be seen in the table 1.

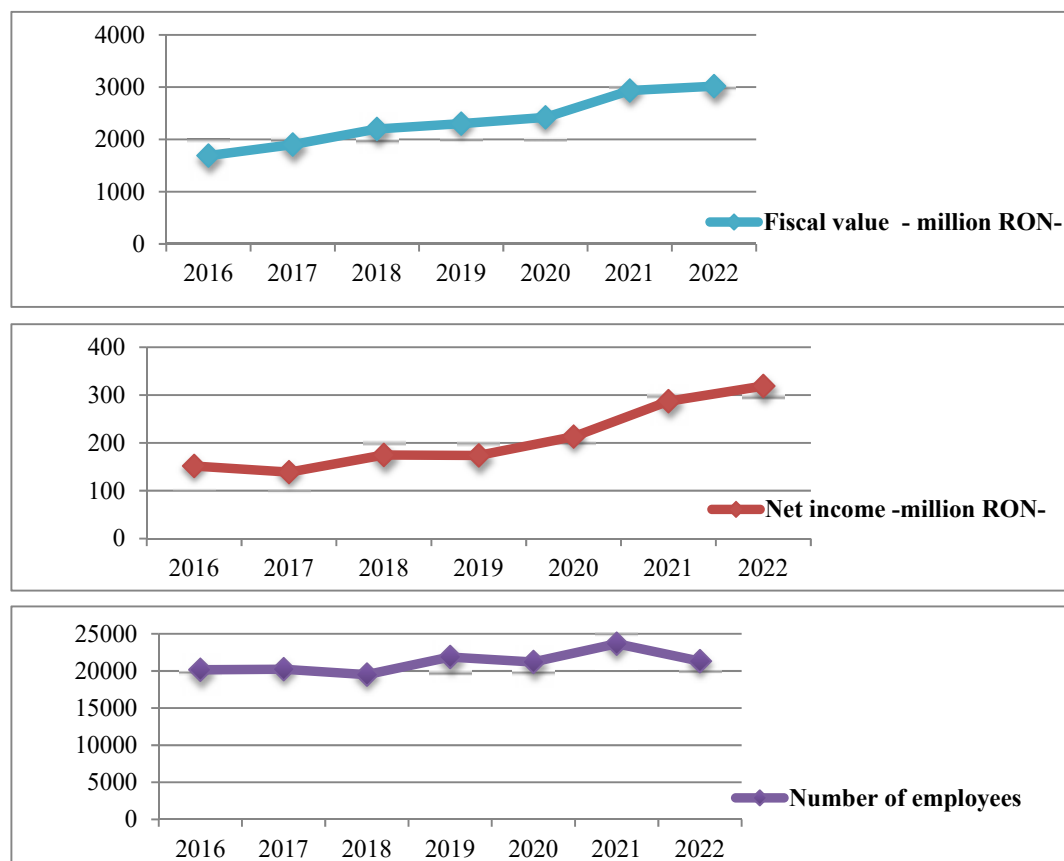
Table no. 1 Evolution of the call center industry

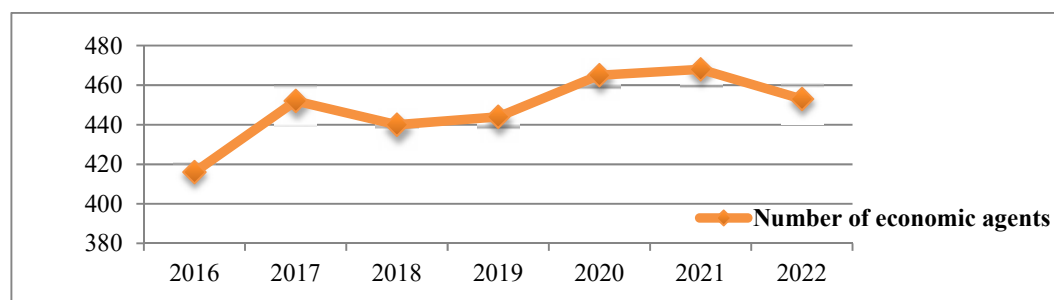
Indicator	2016	2017	2018	2019	2020	2021	2022
<b>Fiscal value -million RON-</b>	1690	1900	2200	2300	2422	2935	3018
<b>Net income -million RON-</b>	151,8	138,8	174,7	173,9	213,1	287,1	319
<b>Number of economic agents</b>	416	452	440	444	465	468	453
<b>Number of employees</b>	20.165	20.232	19.512	21.886	21.208	23.676	21.320

Source: Data from the annual balance sheets published on the website of the Ministry of Finance [www.mfinante.ro](http://www.mfinante.ro)

Graph no. 1 show the evolution in the analyzed years of the main economic indicators of the call center industry. The graphic representation of these indicators shows a linear upward evolution for the turnover, but a sinuous one for the net profit, the number of employees and the number of economic agents.

Graph no. 1 Evolution of call center industry indicators





Source: graphs based on data from table 1

The graphic image of the turnover and profit evolution curves are usually similar, but in the case of the call center industry in the analyzed period 2016-2022, it is found that the turnover has a slight but constant growth curve. Profit, on the other hand, shows a decrease of 8.6% in 2017, a year in which there is also an increase in the number of economic agents by 8.7%. These disruptions indicate a micro-crisis in profitability. As a result of this micro-crisis, in the following year 2018, the number of economic agents decreases by 1.7%, which also causes a 3.6% decrease in the number of employees. Profit is back on an upward slope, increasing compared to the previous year by 25.9%. For a more suggestive analysis of these developments, dynamic indexes of the economic indicators in the call center industry were calculated both with the fixed base and with the chain base, presented in table 2

Table no. 2 Evolution of dynamic indices of economic indicators in the call center industry (on a fixed basis and in the chain)

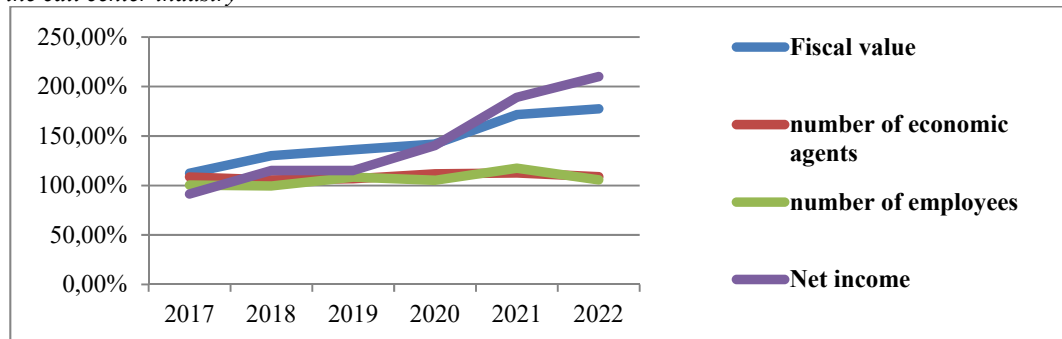
Indicator	Dynamic indices with a fixed base, using 2016 as the base year					
	2017	2018	2019	2020	2021	2022
Fiscal value	112,4	130,2	136,1	142	171,6	177,5
Net income	91,4	115,1	115,1	140,4	189,1	210,1
Number of companies	108,7	105,8	106,7	111,8	112,5	108,9
Number of employees	100,3	99,4	108,5	105,2	117,4	105,7
	Dynamic indices with a chain base					
	2017/16	2018/17	2019/18	2020/19	2021/20	2022/21
Fiscal value	112,4	115,8	104,5	104,3	120,8	103,5
Net income	91,4	125,9	100,5	122,5	134,7	111,1
Number of companies	108,7	98,3	100,9	104,7	100,6	96,8
Number of employees	100,3	96,4	112,2	96,9	111,6	90,1

Source: table made on the basis of data from table 1

The evolution of the turnover does not register any index of decreasing dynamics, even if the increase in 2020 compared to 2019 is lower, of only 104.5%. The dynamism index calculated with a fixed base indicates an increase over the entire analyzed period of 177.5%, which shows a permanent, slightly fluctuating growth.

On graph 2, the evolution curve of the dynamics indices calculated with a fixed base for the number of economic agents and for the number of employees are almost overlapping. The only exception is the year 2018 when the number of employees decreases in a greater proportion than the number of companies, reaching below the level of 2016 taken as a basis in this analysis. This fact shows that the decrease in the number of employees at the level of the entire activity sector is not only due to the dissolution of some companies, but also to the reduction of personnel in the remaining active companies.

Graph no. 2 The evolution of the dynamic indices with a fixed base in 2016, of the economic indicators in the call center industry



Source: graph made based on data from table 2

An immediate effect of the workforce reduction was the increase in profit in 2018 based on the reduction of salary expenses. But the lack of personnel was felt in 2018 at the operational management level of the companies, a fact that determined the increase in the number of employees in 2019, by 112,2% compared to 2018. Given that the number of economic agents remained almost constant 100,9%, means that the increase in the number of personnel was achieved within already existing companies.

The outbreak of the pandemic, led call center companies to widely adopt cloud communication systems in order to be able to continue their work from the homes of employees, so succeeding to maintain the same slight increase in turnover, with net profit increasing even by 22.5%, compared to 2019.

In the post-pandemic period, when the restrictions imposed during the pandemic were relaxed, the call center industry registered a much higher growth rate than in previous years. So, the turnover increases in 2021 by 120.8%, and the net profit by a third compared to the year of the health crisis, 134.7%, being the highest rates in the analyzed period.

Macroeconomic instability and political uncertainty influence the evolution of the field in 2022, which is going through a period of stagnation with more weighted increases in turnover 103.5%, the lowest increase in the analyzed period, and respectively 111.1% for profit. There are also decreases in the number of economic agents and employees.

#### 4.2. Comparative analysis between the development of the call center industry in Romania's macroregions

Territorially, the 453 call-center companies registered in 2022 in Romania at the Trade Registry, CAEN code 8220 are dispersed in 36 counties. In 6 counties there are no companies with call-center activity, these are: Botoșani, Călărași, Giurgiu, Ialomița, Olt and Tulcea. The economic indicators for the year 2022 at the macroregion level are presented in table 3.

Table no. 3 The economic situation in 2022 of the call-center industry by macroregions

Macroregion/ development regions	Number of companies	Fiscal value million RON	Average number of employees	Labor productivity - thousands RON/employee
Macroregion I / north-west and cente	142	909	5914	153,7
Macroregion II / north-east and south-east	63	205,1	1865	109,9
Macroregion III / south-Muntenia and Bucharest-Ilfov	180	1620,9	10.967	147,8

<b>Macroregion IV / south-west Oltenia and west</b>	68	283,4	2574	110,1
<b>National level</b>	453	3018,4	21.320	141,6

*Source:* data calculated based on the financial indicators from the annual balance sheets published on the website of the Ministry of Finance [www.mfinante.ro](http://www.mfinante.ro)

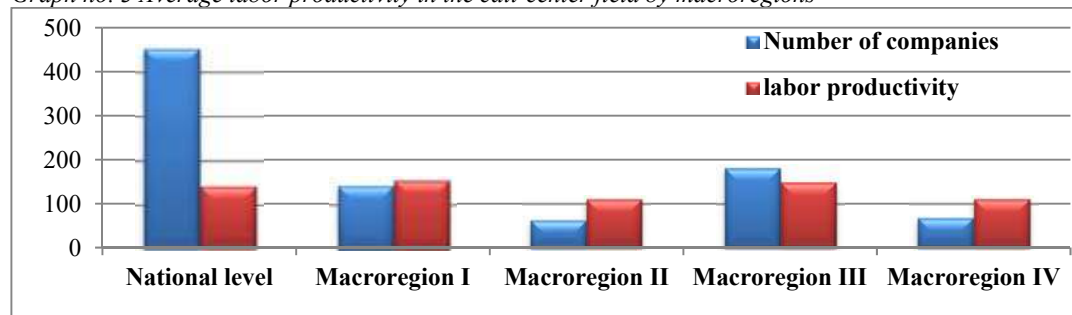
The highest density of call center companies is in macroregion III, which naturally also has the most employees and the highest turnover. The fact that macroregion III is in first place is due to the presence of the Municipality of Bucharest in this macroregion. Bucharest has the largest number of call-center companies, 143.

In second place is Macroregion I with 142 call-center companies. On the third and fourth places, there is Macroregion IV, followed at a short distance by Macroregion II. This ranking is also maintained in terms of turnover and average number of employees and net profit.

Table 3 highlights large differences between macroregions not only in the number of economic agents, but also in the number of employees, turnover and profit.

The differences appear in the average annual labor productivity in the call-center field in each macroregion. This indicator is the ratio between the sum of the turnover of all companies with activity in this field in the respective macroregion and the average annual number of employees of these companies, reported in 2022. Graph 3 was made to represent these differences.

*Graph no. 3 Average labor productivity in the call-center field by macroregions*



*Source:* graph made based on data from table 3

Macroregion I, in second place in the ranking according to the number of companies, records an average labor productivity above the national level (141.6 thousand RON/employee), but also above the labor productivity of macroregion III, reversing the positions in the previous ranking.

Macroregion III, although it has the largest number of economic agents, a turnover and a much higher number of employees than macroregion I, is outclassed by it in average labor productivity per sector. The average number of employees per company, presented in table 4, explains this reversal of the ranking.

*Table no. 4 Average number of employees per macroregion*

<b>Macroregion / development region</b>	<b>Number of companies</b>	<b>Average annual number of employees</b>	<b>Average number of employees per company</b>
<b>Macroregion I / north-west and center</b>	142	5914	41,65
<b>Macroregion II / north-east and south-east</b>	63	1865	29,6
<b>Macroregion III / south-Muntenia and Bucharest-Ilfov</b>	180	10.967	60,9
<b>Macroregion IV / south-west Oltenia and west</b>	68	2574	37,85



<b>National level</b>	453	21.320	47,06
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*Source:* data calculated based on the financial indicators from the annual balance sheets published on the website of the Ministry of Finance [www.mfinante.ro](http://www.mfinante.ro)

Macroregion III has the highest average number of employees per company, at the national level, far exceeding macroregion I, but which it is outranked in terms of labor productivity. It follows that companies with a small number of employees manage to better coordinate the activity of human resources, obtaining a higher labor productivity.

The reasons for the development of the call center industry, especially in macroregions I and III, are obvious: four of the first five counties in the rankings based on the analyzed indicators are part of these macroregions: Bucharest, Cluj, Braşov and Sibiu. It also draws attention to the fact that counties with large cities are the most attractive for investors, especially university centers, because students and recent graduates represent a significant supply of labor for call centers (Roşca, 2018), being the most sought-after human resource by these companies. Table 5 shows the top five counties with the largest number of call center companies, turnover and number of employees.

*Table no. 5 Top counties by number of call-center companies, turnover, number of employees*

Nr. crt.	County	Number of companies	County	Turnover - million RON-	Number of employees
1.	<b>Buckarest</b>	143	<b>Buckarest</b>	1603	10867
2.	<b>Cluj</b>	67	<b>Cluj</b>	394,5	2942
3.	<b>Timiş</b>	42	<b>Braşov</b>	391,4	2216
4.	<b>Iaşi</b>	30	<b>Iaşi</b>	158,2	1246
5.	<b>Sibiu</b>	20	<b>Dolj</b>	125,3	1417
	<b>Total</b>	302	<b>Total</b>	2672,4	18688

*Source:* data calculated based on the financial indicators from the annual balance sheets published on the website of the Ministry of Finance [www.mfinante.ro](http://www.mfinante.ro)

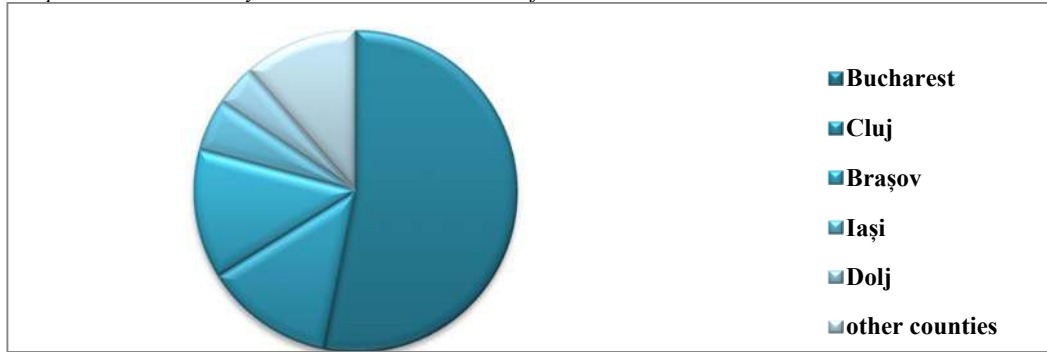
The attraction exerted by the Municipality of Bucharest, apart from the fact that it is a strong university center with a huge pool of labor force, is also given by the intense economic activity, which, in itself, represents a market for call center, with a large number of potential partners or customers, the infrastructure much better developed and more access routes.

In terms of attractiveness, Transylvania follows with Cluj, Braşov and Sibiu, all of which are part of macroregion I, also with important university centers and, in addition, in these areas there are many native speakers of different languages, Hungarian, German, Serbian, Croatian, etc. In particular, German companies have invested in the area in search of native German speakers.

Timiş, Iaşi and Dolj counties successively appear at the top of the analyzed hierarchies. Timiş ranks third, according to the number of companies. Dolj County ranks fifth in terms of turnover and number of employees. The common characteristic with the other counties in the top five, being that they have large university centers in the county seat.

Iasi, from macroregion II, ranks fourth in the county hierarchy, is attractive for call-center investors, being an important university center, targeted in recent years by specialized companies. Graph 4 represents the share with which the counties participate in the turnover of the field and the place they occupy in the hierarchy of the sector from the point of view of this indicator.

Graph no. 4 Turnover by counties in the call-center field



Source: graph made based on data from table 5

This analysis also highlights the fact that the first five counties in the ranking by turnover Buckarest, Cluj, Braşov, Iaşi and Dolj together hold 88.5% of the turnover of the entire sector at the national level. There is a great polarity, the monopoly of attractiveness being held by a small number of counties and companies.

Another factor that influences the geographical distribution of call center services is the coverage of Romania's territory with public fixed internet networks. Although Romania is a world leader in terms of high Internet speed, the Communications Regulatory Authority (ANCOM) published a statement on March 15, 2023, taken over by HotNews.ro, according to which there are 1476 localities in Romania where end users do not have access to any network fixed public broadband electronic communications. Increasing the degree of connectivity of localities not served by fixed networks, but in which there is latent demand, is one among the objectives assumed by Romania in the National Recovery and Resilience Plan (PNRR).

## 5. Conclusions

The conclusions that emerge from the analysis of the economic evolution of the call center industry between 2016 and 2022 are the following:

- The call center industry in 2017 recorded the appearance of a micro-crisis of reduced profitability in terms of size, level of financial losses, and duration of the manifestation;
- The pandemic year 2020 brings, contrary to expectations, the stabilization of the situation, the profit remaining at the level of the previous year, the turnover has a small increase, the number of economic agents is stable;
- In 2021, when the restrictions imposed during the pandemic were relaxed, the call center industry recorded, in the conditions of the decrease in the number of economic agents, important increases in turnover 120.8% and profit 134.7%;
- Macroeconomic instability and political uncertainty, driven by the war in Ukraine, the energy crisis and high inflation in European countries, led to a stagnation of the call center industry in 2022 with more weighted increases in turnover 103.5%, the lowest growth from the analyzed period, and respectively 111.1% for profit. There are also decreases in the number of economic agents and employees.

The comparative analysis carried out between the call center industry in Romania's macroregions highlights large differences between macroregions in terms of the number of economic agents, average number of employees, turnover, net profit, especially differences between the average annual average labor productivity in the call-center field from each macroregion.

- The highest density of call center companies is in Macroregion III, which naturally also has the most employees, the highest turnover and the highest net profit.
- In second place is Macroregion I. In third and fourth places, Macroregion IV, followed by Macroregion II. The ranking is also maintained in terms of turnover, average number of employees and net profit.

- Regarding the average annual labor productivity in the call-center field, the ranking changes, Macroregion I, moving to first place. This ranking change is justified because Macroregion III has an average number of employees per company, one third higher than that recorded in Macroregion I. It is found that companies with a small number of employees manage to better coordinate human resources activity, obtaining higher labor productivity.

The comparative study was also continued on the counties of the macroregions. Combining the two analyses, the following aspects were concluded that define the characteristics for which some counties have a more developed call center industry and a higher degree of attractiveness for investments:

- The counties with the most developed call center activity are the Municipality of Bucharest, Cluj, Braşov, Iaşi, Dolj and Timiş;
- Counties with large cities are the most attractive for investors;
- Large university centers provide a significant supply of labor for call centers. Students and recent graduates being the human resource (Kinnie, 2012) most sought after by these companies;
- The intense economic activity which, in itself, represents a market for call centers, with a large number of potential partners or customers;
- Macroregion I and West Development Region have an extra degree of attractiveness for investors, due to the fact that in these areas there are many native speakers of different languages, Hungarian, German, Serbian, Croatian, etc. In particular, German companies have invested in the area, looking for native German speakers;
- Counties with the most developed call center services benefit from access to fixed ultrafast broadband internet networks;
- The infrastructure and access roads are strong points of the attractiveness of counties that have a developed call center industry.

The expansion of the call center industry in areas with low investment attractiveness for this field, requires the creation, in these areas, of a conjunctural environment as close as possible to the characteristics highlighted in this paper of the existing external environment in the counties where a developed call center industry operates. Among the identified characteristics of the external environment in the top counties, not all can be implemented in areas with poor development of call center services. For example, the existence in the area of ethnic groups natively speaking different languages, of a university center, or a large city as a county seat.

However, there are ways to increase the degree of attractiveness of these counties, the responsibility of carrying out the necessary remedies is in the duty of the government and local authorities:

- Improving the infrastructure and diversifying the access routes;
- Increasing the degree of connectivity of localities covered by Internet access networks that allow download speeds lower than 100 Mbps;
- Coverage with high-speed internet access services of localities not served by fixed networks;
- Fiscal incentives granted by the state in the form of a profit tax exemption, for a period or a partial profit tax reduction;
- Subsidies for job creation, training and retraining of personnel in disadvantaged areas;
- Development of policies and strategies to promote foreign investments in Romania and programs to attract foreign capital into the economy;
- Management of an online database of companies suggested as business partners for the call center industry.

It is also possible to highlight the positive aspects of the areas/counties where the call center industry is poorly or not at all represented:

- Lower labor force turnover;
- Lower salaries;
- The low level of real estate costs for offices and utilities;

In conclusion, due to the demographic, administrative, territorial conditions, which cannot be changed, the gaps between macroregions, counties cannot be totally eliminated, but there are ways to mitigate the distances between the top performances of the call center industry and the counties where it has a poor development.

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## The Comparative Study of the Attractiveness of Eastern European Business Environments

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### Abstract

*The aim of the article was to identify ways to increase the attractiveness of the business environment in Romania. In order to achieve the goal, it was resorted to comparing the attractiveness of the business environment in other countries with the one in Romania.*

*The comparative study was carried out by analyzing the factors that influence the business environment and determine its degree of attractiveness.*

*The legislative, fiscal and institutional factors, which represent the levers through which the state acts on the business environment, influencing its attractiveness, were analyzed in chapter 4.1. of the paper. The economic-social factors, which represent the effects of the implementation of government strategies, are the object of study of the chapter 4.2.*

**Key words:** attractiveness, business environment, investments, comparative management

**J.E.L. classification:** O 11, O 24, O 38, O 57, P51

### 1. Introduction

The situation of the Romanian economy was affected in 2020, by the economic recession caused by the COVID-19 pandemic, followed by the onset of the energy crisis and the invasion of the Russian Federation in Ukraine. The negative effects of these circumstances are already felt, having a significant impact on the business environment in Romania.

The recovery of the economy requires capital investments in all branches of the economy. Attracting local and foreign investments requires transforming the Romanian business environment into a more attractive space for investors.

Identifying ways to increase the attractiveness of the business environment in Romania is the purpose of this article. In order to achieve the goal, it was resorted to comparing the attractiveness of the business environment in other countries with the one in Romania.

The comparative study was carried out by analyzing the factors that influence the business environment and determine its degree of attractiveness.

By analyzing the managerial strategies, the effects produced by their implementation and comparing them with the achievements of other economies, the vulnerable points of the managerial strategies used can be identified. The correction of these deficiencies creates the conditions for increasing the attractiveness of the business environment.

### 2. Literature review

In the scientific literature, the business environment has been analyzed by many authors. Among those who contributed to the conceptual foundation of the business environment are Peter Duncker, considered the creator of modern management, Henry Mintzberg, Robert L. Mathis, Michael H. Mescon (Sîrbu, 2011).

Romanian specialized literature also records numerous approaches to the concept of the business environment, which have developed definitions, analyzes and research methodologies, both at the theoretical and applied level.

The research methodologies of the business environment in the scientific works have as their starting point the analysis of the factors that influence and define the socio-economic environment. (Nedelea, 2008). The analysis of the set of managerial, technical and technological, social, cultural, demographic, political and governmental factors constitutes the informational foundation of the diagnostic analysis of the business environment (Badea, 2005).

A feature of the business environment is its dynamic nature (Radu, 2005), in order to maintain a sustainable environment, it is necessary for the governmental and local authorities, but also the economic organizations (Stoica, 2021) to adapt permanently to the challenges and threats in the economic environment.

The attractiveness of the business environment depends on the factors listed, but also on the economic organizations that make up the economic environment, on the way business is conducted, on the correctness and promptness of economic agents (Sitnikov, 2023)

The evolution of the business environment in moments of economic contraction (Măiță, 2021), such as the one the economy is currently going through, is characterized by increased caution, low liquidity, smaller flows of foreign capital (Nicolescu, 2003). Under these conditions, relaunching the economy requires increasing the attractiveness of the business environment (Nicolescu, 2006).

In the scientific studies dedicated to international comparative management (Burduș, 2006) research methodologies are presented that allow the comparative analysis of business environments from different countries, geographical areas, etc. Research carried out in this way can approach analyzes on different sectors of business environments, on certain fields of activity (Nastacă, 2021). The results of these researches represent the way of highlighting the differences between the attractiveness of business environments in the analyzed areas.

### 3. Research methodology

As a working method, international comparative management research methodologies were used (Burduș, 2006). So, by analyzing the achievements of strategic management aimed at increasing the attractiveness of business environments practiced by other states and comparing with the management and strategies adopted in Romania, the differences between the approaches are identified. In this way, the pluses and minuses of managerial practice in Romania can be found. The correction of deficiencies through the transfer of managerial practices creates the conditions for increasing the attractiveness of the business environment.

The analysis of the achievements of strategic management (Emelian, 2023) aimed at increasing the attractiveness of business environments, was carried out by studying the factors that influence the business environment.

The factors that influence the business environment through the analysis of which the paper sought to characterize the attractiveness of the analyzed economies are classified as follows:

- Legislative, fiscal and institutional factors;
- Economic and social factors.

These factors are embodied in:

- The legislative, institutional and fiscal framework includes:
  - Legislation regarding the support of investments and economic agents;
  - Taxation - the level of taxation, the clarity and stability of fiscal regulations;
  - The degree of openness of the economy - concretized in the legislation on foreign investments and commercial openness.
  - The efficiency of institutions, the correctness and promptness of the application of legislation;
- Economic and social factors:
  - The macroeconomic environment of the country;
  - The degree of development of the economy - measured by the level and evolution of GDP/inhabitant, the level of industrialization and tertiaryization, technological endowment;
  - Labor market;
  - Infrastructure: transport, communications;
  - Market size.

To compare the business environment in the analyzed countries, the main macroeconomic indicators that characterize the state of an economy were used. Information on these indicators was obtained from Eurostat's online publications

Legislative, institutional and fiscal factors, which represent the levers through which the state acts on the business environment influencing its attractiveness, were analyzed in chapter 4.1. The economic-social factors that represent the effects of implementing strategies, being the results of strategic management, are the subject of study in chapter 4.2.

The comparative study of the attractiveness of business environments was carried out between Romania, Poland, Hungary, the Czech Republic and Bulgaria. Reporting to these states is appropriate, because they belong to the same geographical space, they have a similar history in the last 70 years, both until 1989, when they had the same political and economic regime, and after 1990 in the process of economic liberalization and accession to European union. They are also part of the 7 EU member states that have not adopted the euro currency and do not belong to the euro zone.

## 4. Findings

### 4.1. Parallel between the government strategies regarding the business environment adopted by the Central and Eastern European countries

The integration into the European Union, of the states that will be the subject of this study, requires the adoption of similar strategic development programs. Therefore, the strategies of the analyzed countries, strategies through which the state acts on the business environment, are similar. The differences stem from the promptness and extent to which the strategic programs were legislated and the manner of implementation. By presenting the legislative, fiscal and institutional framework intended to support the business environment of the compared countries, the similarities and differences between managerial practices will be highlighted. In this way, the minuses and vulnerabilities in the Romanian business environment and the ways to correct them will be highlighted.

**Romania** has legislation that provides for fiscal facilities:

- supporting investments that promote regional development by creating jobs (HG 332/2014);
- simulating investments with significant influence on the economy (HG 807/2014).

Several investment attraction agencies operate in Romania: National Investment Company "C.N.I." - S.A., under the authority of the Ministry of Development, Public Works and Administration; Agencies for SME (Small and Medium Enterprises), Investment Attraction and Export Promotion; The National Agency for Land Improvements, which do not have a government representative position, which represented an impediment in negotiations with foreign investors. That is why these agencies have low efficiency in attracting investment.

In October 2022, the Romanian Agency for Investments and Foreign Trade was established. This new structure was subordinated to the Government and coordinated by the Prime Minister. The agency has the following main attributions:

- coordinates the development of policies and strategies to promote foreign investments in Romania and programs to attract foreign capital into the economy;
- ensures the control of foreign investment promotion activities in Romania;
- coordinates operations to stimulate domestic and foreign direct investments in industry, services, scientific research, technological development;
- promotes and supports foreign trade activities;
- promotes and supports the investment interests of the Romanian business environment;
- ensures the follow-up of Romanian investments abroad.

**Bulgaria** The Bulgarian investment agency is InvestBulgaria (IBA). The agency is a government organization, established to attract investments in Bulgaria, to support the establishment and development of projects that create new jobs, exports and transfer of know-how to the Bulgarian economy. It supports investors to explore the business environment and develop investment opportunities in Bulgaria.



It also provides detailed information about Bulgaria, such as: business location, analysis, macroeconomic information about the business climate in the country, real estate, incentive measures, availability of skilled labor and the level of education by region in the country, administrative procedures etc. .

The mission of the IBA is to promote all incentives for increasing the flow of investment in Bulgaria, acting as a mediator between investors, state and local institutions in the implementation of investment projects.

**Poland**, unlike Romania, has a medium-term vision for attracting investments, developed through the program to support investments of significant importance for the Polish economy for the period 2011-2030, which is the main basis for granting subsidies. The Ministry of Development and Technology of Poland has established 7 priority sectors for state aid: the automotive sector, the electrical and electronic appliances sector, aviation, biotechnology, food processing, modern services and research and development.

In this national strategy, the Polish government has also foreseen the possibility of being able to ensure that the flow of economic exports is greater than that of imports, so avoiding gaps in the trade balance.

In addition to this strategy, the Polish government also has other strategic directions for granting loans to companies in other sectors, which make significant investments with a productive purpose.

The criteria for granting state aid are clear: support is provided for new jobs and investments. In the first case, the level of the subsidy depends on the number of new jobs created, the share of people with higher education employed, the location of the investment, the attractiveness of the products made for international markets or the complexity of the processes offered by the company (in the case of services). In the second case, the subsidy is granted depending on the number of newly created jobs and the location of the investment. In addition, incentives are provided for investment in special economic zones in the form of exemption from corporate tax. Poland currently has 14 special economic zones and 76 industrial parks.

The Polish Investment and Trade Agency (PAIIZ) facilitates the contact of investors with the authorities, deals with the identification of suppliers and contractors. The agency provides information on the legal and economic environment and takes care of the document flow for obtaining financial support from the state.

In **Hungary**, the Hungarian Investment Promotion Agency (HIPA) was established in 2011. It is a national investment promotion organization governed by the Ministry of Foreign Affairs and Trade. HIPA's most important task is to provide professional assistance to foreign and Hungarian companies wishing to invest in Hungary.

#### **4.2. Comparison of the results of strategic management on the business environment in Central and Eastern Europe**

The economic factors that influence the attractiveness of the business environment represent the effects, the results of the implementation of government strategies applied by strategic management (Nicolescu, 1999) at the national and local level. By measuring these effects and comparing them with the achievements of other economies, it is possible to identify the vulnerable points of the applied strategies or of the management methodologies used. By correcting these deficiencies, the conditions for increasing the degree of attractiveness of the business environment are created.

For an adequate assessment of the potential for revitalizing the attractiveness of the Romanian business environment, a brief presentation of an overview of the Romanian economy in the pre-pandemic period is useful.

The economic situation of Romania according to the report "State of the economic environment 2022", Chamber of Commerce and Industry of Romania, was defined until 2019 by financial stability, of prices, of the currency exchange rate in relation to the European currency and a low level of inflation. In 2019, the Romanian economy reached its eighth consecutive year of growth.

Romania generally has a pronounced trade deficit, which also existed before the pandemic, but has increased significantly in the post-pandemic period. According the Statistical Yearbook of Romania 2022, in 2019, the current account deficit of the balance of payments was 17.3 billion EUR, in 2021 it was 17.5 billion EUR, reaching 26.6 billion EUR in 2022.



To compare the business environment in the analyzed countries, the main macroeconomic indicators that characterize the state of an economy were used. Information on these indicators was obtained from Eurostat's online publications.

**Gross domestic product (GDP).** The main indicator that shows the economic position of a country is the GDP. With a GDP volume in 2022 of 286 billion EUR, the Romanian economy ranks 12th out of the 27 states, according to data published by Eurostat - Statistics explained. At the level of Central and Eastern Europe, after Poland, Romania is, as of 2020, the second largest economy in terms of GDP (table 1). In 2018, Romania surpassed Portugal in terms of nominal GDP, and in 2019 it also surpassed the Czech Republic for the same indicator. Among the countries compared, Romania had the highest GDP growth rate in 2018, 109%.

*Table no. 1 The nominal value of the GDP of the analyzed countries from Central and Eastern Europe – EUR billion-*

Nr.crt.	Country	2017	2018	2019	2020	2021	2022
1.	<b>Poland</b>	467	498	533	526	576	657
2.	<b>Romania</b>	188	205	224	220	241	286
3.	<b>Czech Republic</b>	194	211	226	216	238	277
4.	<b>Hungary</b>	127	136	147	138	154	170
5.	<b>Bulgaria</b>	53	56	62	62	71	85

Source: Eurostat, *Statistics explained*. [online] Available at:

[https://ec.europa.eu/eurostat/databrowser/view/NAMA\\_10\\_GDP/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/NAMA_10_GDP/default/table?lang=en)

In 2020, the year of the outbreak of the coronavirus pandemic, all analyzed economies experienced decreases in nominal GDP values, the largest decrease being recorded by Hungary which declared a GDP value 6.2% lower than the previous year .

The reduction of restrictions imposed on economic activities by governments in 2021 led to an increase in the nominal value of GDP in all analyzed countries, even surpassing the level recorded in the pre-pandemic period, an increase that continued in 2022. The highest increase was recorded by Bulgaria with 119.7%, followed by Romania with 118.7%, the lowest increase Hungary 110.4%.

**GDP per capita.** The analysis of GDP per capita excludes the influence of population size, making comparisons between countries easier, while at the same time it is an economic indicator of the standard of living. The ranking among the countries in the analyzed group, according to data published by Eurostat - Statistics explained, based on GDP/capita, shows a different picture of the Romanian economy, which is in the penultimate position, ahead of Bulgaria. The Czech Republic holds the first position among the countries compared. In the pandemic year 2020, all compared countries experienced declines in GDP/capita, the only economy in the region reporting a small increase in GDP/capita that year is Bulgaria.

The situation of Romania in the penultimate position among the states of the European Union, in this indicator that characterizes the economic situation represents a weak point for Romania in highlighting the differences between the potential for increasing the attractiveness of the business environment.

**Work productivity.** The analyzed economies have a labor productivity index per employed person below the European Union average, but have an upward evolution throughout the 2017-2022 reference period, according to data published by Eurostat - Statistics explained. Even in 2020, when the pandemic affected economic development the most, the trend of this indicator remained upward. The exception is the Czech Republic, which, although it has the first position in the analyzed group, reported a decrease in this indicator in 2021 and 2022.

Romania ranks third, overtaking Hungary in 2019, it kept this position until 2022, even in the pandemic year 2020, when the difference between the two states widened in favor of Romania. Also, compared to Poland, ranked second, Romania decreases its gap every year.

**The employed population** consists of people aged over 15, who worked for pay during the reference period, according to the methodology used by the European Union.

**The employment rate** has a positive, approximately constant evolution until 2019, with a decrease in 2020, in all the countries analyzed, except for Poland, which also recorded an increase in 2020. Among the countries with a negative evolution in 2020, Romania recorded the most small loss in terms of the occupancy rate of 0.3%, according to data published by Eurostat - Statistics explained.

In 2022, Romania is the only country in the analyzed group that ranks below the average level of the European Union.

**Unemployment rate.** The analyzed countries maintained their unemployment rate below the average level in the European Union, according to data published by Eurostat - Statistics explained. The best positioned is the Czech Republic, the country with the lowest unemployment in the European Union starting from 2018. Poland is the only country where unemployment decreased in 2020. Romania is in the penultimate position in the ranking of the five countries, followed by Bulgaria.

The sharp increase in the unemployment rate in 2020 is further diminishing from 2021. The only country where the unemployment rate is decreasing in 2021 is Hungary. The other states in the analyzed group record a decrease in the growth rate of the unemployment rate below the average growth rate in the European Union.

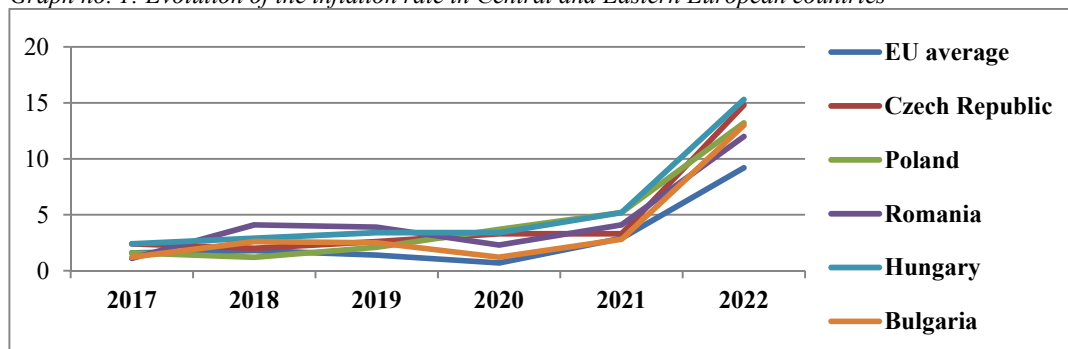
**Labor costs.** Average labor costs per economy place all countries in the analyzed group below the level of average labor costs in the European Union, according to data published by Eurostat - Statistics explained. Among the five countries, the Czech Republic has the highest labor costs, followed by Poland and Hungary. Romania is in the penultimate position in the ranking of the compared countries (Marinaş, 2023) , not far behind, Bulgaria is in the last place. In the compared countries and at the level of the European Union, labor costs have increased continuously throughout the analyzed period.

**Population structure by age groups.** Regarding the share of age groups in the total population, Eurostat statistics record the aging of the population, especially in Western countries (Population structure and aging. Eurostat).

Regarding the analyzed countries, it can be seen that Bulgaria and the Czech Republic have the lowest share of the working population group, 15-64 years old, which forms the labor force. lower and average in the European Union. Hungary, Poland, and Romania have a share of the working-age population above the European Union average, according to data published by Eurostat - Statistics explained. Also, the percentage of the population aged over 65 in Romania and Poland is lower than the European average and the lowest among the analyzed countries. Romania and Poland also have a young population higher in percentage than the European one. Hungary, however, has a young population below the European average and compared to the analyzed countries.

**The inflation rate** has a similar evolution in the period 2017-2022, for the countries in the analyzed group, being similar to the average evolution in the European Union (Eurostat - Statistics explained), as can be seen in graph no. 1. The trend of these developments was almost linear until 2021, the year in which, as a consequence of the pandemic crisis and the start of the energy crisis, the inflation rate increased for all the states in the group, except for the Czech Republic where it stagnated.

Graph no. 1: Evolution of the inflation rate in Central and Eastern European countries



Source: Eurostat, Statistics explained. [online] Available at:

<https://ec.europa.eu/eurostat/databrowser/view/tec00118/default/table?lang=en>

The war in Ukraine and the energy crisis were factors that influenced the significant increase in the inflation rate in 2022 in all the analyzed states. In 2022, the inflation rate values increased three times compared to the values of 2021. According to Eurostat data, in 2022, Romania has the lowest inflation rate among the countries of the analyzed group.

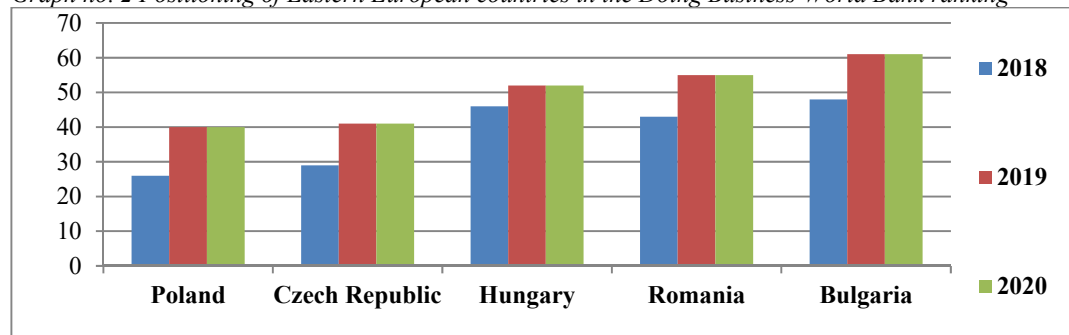
#### 4.3. Ranking of the degree of attractiveness of business environments in Central and Eastern European states

The Doing Business ranking by the World Bank measures and ranks the attractiveness of the business environment in 190 countries. Economies are ranked according to the ease of setting up and operating a business in that country. The classification of business environments is achieved by aggregating 10 separate criteria or categories that are created on 10 different topics. Each category contains several indicators that characterize one aspect of the business environment. By aggregating these categories, the aggregate called "score" in the Doing Business methodology is obtained. Based on these scores obtained by each national economy, the ranking of the attractiveness of business environments is made.

Among the Central and Eastern European countries analyzed in this study, in the Doing Business ranking for 2020, Poland ranks first, position 40 (out of 190 countries), followed by the Czech Republic at position 41. Among the five countries, Romania ranks penultimate, position 55 globally, just ahead of Bulgaria positioned at 61st. A regional average, calculated at the level of the European Union, indicates 39th place. It follows that the economies compared in this study are all positioned below the regional average of the EU.

The evolution of the attractiveness of the business environment, according to the Doing Business ranking, shows that Poland had the best performance among the analyzed countries, advancing by 14 positions compared to 2018. Bulgaria had a very good evolution, which climbed 13 positions in the ranking. Romania advanced by 12 positions, tied with the Czech Republic. Hungary in 2018-2020, advancing by only 6 positions.

Graph no. 2 Positioning of Eastern European countries in the Doing Business-World Bank ranking



Source: The World Bank, *Doing Business archive*. [online] Available at: <https://archive.doingbusiness.org/en/rankings>

It should be noted that the positioning of these countries, in the Doing Business ranking, did not change between 2019 and 2020. In this interval, only the scores obtained by each country changed by very small percentages. The biggest positive growth was Romania 1.1%, Bulgaria and Hungary 0.3%, the Czech Republic obtained the same score in 2020 as in 2019, and Poland recorded a decrease in the score by 0.65%. Significant changes in ranking positions and scores occurred between 2018 and 2019. The inertia of the attractiveness degree in 2020 is due to the severe measures adopted by governments to mitigate the consequences of the health crisis. The restrictions with the greatest impact on economies and the attractiveness of business environments are the cessation of non-essential economic activities, the limitation of free movement and the closing of the borders of certain states.

#### 5. Conclusions

Analyzing the main macroeconomic indicators of the compared countries, it was found that Romania has economic performances comparable to those of these states. The accession of the Czech Republic, Poland and Hungary to the European Union in 2004, and of Romania and Bulgaria in 2007, is still felt in the economic development of these two states. Romania still has deficiencies in some

of the analyzed indicators, but also favorable developments. For a conclusion of the analyzes carried out, the obtained results will be structured and ranked, so as to highlight the deficiencies and positive aspects of the economy.

The negative aspects, the weak points of the business environment in Romania:

- pronounced trade balance deficit;
- a low level of GDP/capita;
- the lowest employment rate among the analyzed countries;
- the highest unemployment rate in the analyzed countries;
- the low efficiency of the Romanian investment attraction agencies that did not have the status of government representatives;
- lack of a medium- and long-term strategic vision for attracting investments;
- the absence of a sectorial selective policy regarding the allocation of subsidies, tax exemptions, by prioritizing certain economic sectors;
- the lack of viable solutions to reduce the effects of the energy crisis and reduce cost pressure.

These are the aspects that require adjustments to improve the deficiencies that determine a low level of attractiveness of the business environment.

The positive aspects, strengths of the business environment:

Precedence criteria:

- the peripandemic evolution of Romania was defined by financial stability, of prices, of the currency exchange rate in relation to the European currency, a low level of inflation and interest rates, and foreign direct investments were increasing;

Economic conditions:

- Romania's economy recorded in 2022 the second consecutive year of economic growth in post-pandemic conditions, war in Ukraine, energy crisis and high level of inflation in European states;
- In 2022, Romania has the lowest inflation rate among the analyzed countries;
- labor productivity has an upward growth rate;
- Romania ranks penultimate in the analyzed group in terms of labor costs. It is a favorable criterion for attracting investors;

Education:

- highly qualified workforce in the IT field (Dima, 2021);
- Romania has a large number of speakers of foreign languages. In 2022, Romania ranked third in the European Union in terms of studying foreign languages in pre-university education (Facts and figures about life in the European Union. European Union);
- the Romanian education system has satisfactory average results and prepares a good quality, competent workforce;

Technological infrastructure:

- a very good internet infrastructure, high speed internet, being on the first places in the world. It is a less visible but decisive technological requirement;

Demographic conditions:

- the size of the population (6th place in the EU in terms of number of inhabitants) determines a large market, but also a large active population with low labor costs;
- the proportion of the working-age population is higher than the average in the European Union and among the highest among the countries analysed;
- the low dependency ratio of non-productive populations compared to the working age population indicates for Romania, a lower pressure on the economy;

Legislative, institutional, fiscal conditions:

- state aid for companies that have a high level of employability;
- supporting investments that promote regional development by creating jobs in disadvantaged regions;
- simplifying the legal, financial, legislative, tax procedures and the operations that must be completed for the establishment of a company/branch;
- simplifying the method of paying taxes;
- the establishment in 2022 of the Romanian Agency for Investments and Foreign Trade, subordinated to the Government and under the direct coordination of the Prime Minister.

Positive aspects identified show that Romania has a high potential for increasing the degree of attractiveness of the business environment. Achieving this desired requires the continuous consolidation and development of these aspects.

It can be concluded that the development of a legislative framework and an institutional infrastructure favorable to the conduct of business have started to represent decisive factors for attracting investments, despite the traditional determinants of investors. Traditional determinants such as the availability, cost and quality of natural resources, the existence of a cheap labor force, are no longer the main criteria pursued by investors.

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## Machine Learning Diagnosis of Dengue Fever: A Cost-Effective Approach for Early Detection and Treatment

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### Abstract

*This research aims to explore the potential of machine learning algorithms for diagnosing of dengue fever and assess their cost-effectiveness compared to conventional methods. Four machine learning classifiers (K-Nearest Neighbor, Naïve Bayes, Support Vector Machine, and Random Forest) were utilized. Feature selection and data balancing techniques were employed to enhance algorithm performance. The classifiers achieved high accuracy rates, with Naïve Bayes, Support Vector Machine, and Random Forest achieving 100% accuracy and K-Nearest Neighbor achieving 97.3% accuracy. Additionally, the cost-effectiveness analysis demonstrated that machine learning models for disease classification are the most cost-effective approach due to early detection and diagnosis, resulting in reduced healthcare costs. Therefore, it is recommended to promote the use of machine learning techniques in disease treatment for early detection and improved cost-effectiveness.*

**Key words:** machine learning classifiers, dengue fever, cost-effectiveness

**J.E.F. classification:** I10, I18, I19

### 1. Introduction

Dengue fever is a viral disease that is transmitted through mosquito bites and has become a significant public health concern globally, particularly in tropical and subtropical regions. According to the World Health Organization (2021), dengue fever is prevalent in over 100 countries, and an estimated 390 million people contract the disease each year, with 96 million cases manifesting clinical symptoms. With a 30-fold increase in reported cases over the previous 50 years, the prevalence of dengue fever has been rising recently (Bhatt et al., 2013). The disease has a significant impact on global health, with an estimated 20,000 deaths occurring annually (World Health Organization, 2021).

Dengue fever has also been reported in several African countries, including Senegal, Nigeria, and Tanzania (Haddow et al., 2012; Mahmoud et al., 2018; Onyango et al., 2016; Vairo et al., 2014). However, the disease's prevalence in Africa may be underreported due to limitations in current diagnostic methods. Current diagnostic methods rely on serological tests, which detect the presence of dengue virus-specific antibodies in the blood. However, misdiagnosis is often recorded in countries where the disease is prevalent due to poor or unavailability of testing facilities (Okoror et al., 2021). These tests have limitations, including low sensitivity and specificity, particularly in the early stages of the disease (Hunsperger et al., 2016). Additionally, the cost of these tests can be prohibitively high for individuals in developing countries, where the disease burden is highest.

The use of machine learning algorithms in the diagnosis of dengue fever has the potential to improve the accuracy and speed of diagnosis and reduce costs. Machine learning algorithms can analyze large datasets of clinical and laboratory data to identify patterns and predict disease outcomes. Several studies have demonstrated the potential of machine learning in the early detection and diagnosis of dengue fever (Mayrose, et al., 2023; Mishra, 2020; Saturi, 2020; Dharshini et al., 2019; Chen et al., 2017).

Therefore, the objective of this research paper is to investigate the cost-effectiveness of machine learning in the diagnosis of dengue fever and its potential impact on the healthcare system. The study will compare the cost and effectiveness of machine learning diagnosis of dengue fever to conventional diagnostic methods, such as serology test, polymerase chain reaction (PCR) test and nonstructural protein 1 test (NS1 antigen test). The research aims to provide valuable insights into the potential of machine learning algorithms in improving the diagnosis and management of dengue fever, particularly in developing countries.

## 2. Literature review

The economic theoretical framework of this study is based on cost-effectiveness analysis (CEA), a well-established technique that compares the costs and health outcomes of different interventions. CEA is considered superior to the cost-benefit approach as it evaluates both material and immaterial health benefits and costs associated with new healthcare technologies, including machine learning in disease diagnosis and treatment (Drummond et al., 2015). The CEA framework encompasses problem definition, identification of alternative interventions, definition of effectiveness and cost measures, data collection, data analysis, interpretation of findings, and drawing sound conclusions.

Dengue fever, a viral disease transmitted by mosquitoes, is a significant public health concern in tropical and subtropical regions. Early diagnosis is crucial for effective disease management and reducing the risk of severe complications. However, current diagnostic methods are limited in accuracy and are costly, which poses challenges, particularly in resource-limited settings (Mayrose, et al., 2023; Li et al., 2013). Therefore, there is a need to develop new and cost-effective diagnostic tools, such as machine learning models, for early detection of dengue fever.

Research has shown that machine learning algorithms hold promise in improving diagnostic accuracy and reducing costs associated with dengue fever diagnosis. Mayrose, et al., (2023) developed automated detection of vital dengue features in platelets and thrombocytopenia clinical Peripheral Blood Smear (PBS) image. The features extracted were subjected to popular machine learning classifiers such as Support Vector Machine (SVM) and Decision Tree (DT) with SVM giving the best performing accuracy of 95.74% after parameter tuning of each algorithms. The obtained results was a breakthrough in diagnosing of dengue from the digital microscopic images of PBS.

Thakur et al. (2020) developed a machine learning model that utilized clinical and laboratory data to predict severe dengue with high accuracy, demonstrating its potential as a reliable tool for early detection and effective management of the disease. Similarly, Kotwani et al. (2020) employed machine learning algorithms to predict dengue outbreaks with high accuracy, highlighting the potential of machine learning in predicting outbreaks and developing effective control measures.

Studies have also explored the use of machine learning approaches for dengue diagnosis based on gene expression analysis of peripheral blood mononuclear cells. Luo et al. (2020) developed a machine learning model using gene expression data to diagnose dengue fever with high accuracy, suggesting that machine learning algorithms can be applied to gene expression data to develop accurate and cost-effective diagnostic tools. Additionally, Devi et al. (2020) developed a machine learning-based framework for early diagnosis of dengue fever using clinical data, demonstrating its ability to provide accurate and timely diagnosis, which is essential for effective disease management.

A systematic literature review (SLR) was used by Hoyos, Aguilar and Toro, (2021) to analyze three modeling approaches of dengue which are diagnostic, epidemic, intervention and discovered that logistic regression was the most used modeling approach for the diagnosis of dengue (59.1%), analysis of the epidemic approach showed that linear regression (17.4%) is the most used technique within the spatial analysis and concluded that the most used intervention modeling is general linear model with 70%.



The use of machine learning algorithms in healthcare is gaining momentum as a promising solution to the challenges faced by current diagnostic methods. Ahmad et al. (2020) reviewed the current state of machine learning in healthcare and its applications, emphasizing its potential to improve diagnostic accuracy, reduce costs, and provide personalized treatment plans for patients.

In conclusion, the reviewed studies suggest that machine learning algorithms can be utilized to develop accurate and cost-effective diagnostic tools for dengue fever. These algorithms can be applied to various types of data, including clinical and laboratory data, gene expression data, and other relevant sources. The potential of machine learning in healthcare is significant, therefore necessitated the study for effective and efficient diagnostic of dengue fever in the prevailing countries of the world.

### 3. Research methodology

#### 3.1. Description of proposed techniques

Machine learning is a tool not a dogma, no classifiers is inherently better than any others, it is logical to explore all the available machine learning algorithms starting from simple classifier to a complex ones making assumptions to generalization to attain the best performing machine learning model (Olatunji, 2023). In this study, K-Nearest Neighbor (KNN), Naive Bayes, Support Vector Machine (SVM), and Random Forest (RF) are the few machine learning classifiers that were investigated. The following listed machine learning algorithms are explained below:

*K-nearest neighbor.* The common narration of, tell me your friends and I will tell you who you are explains the fundamental principle of K-NN classifier procedure. KNN is a non-parametric classification algorithm that works by finding the k-nearest neighbors of a given data point and classifying it based on the majority class of those neighbors (Alpaydin, 2010). Fix and Hodges were the minds behind the machine learning algorithms in 1950. It is referred to as a lazy classifier because it does not require training models for model building; rather, it makes each query, finds the nearest neighbor from the trained database without considering their class label, and then lets the majority vote predict the class label of the target (Alassaf et al., 2018). This algorithm is commonly used in pattern recognition and image processing applications and it's could work better in classification and regression problem depending on the dataset and demographic mapping.

*Simple bayes.* A probabilistic algorithm that can handle huge datasets with several attributes is naive Bayes. The method works best when the predictors are not reliant on one another. Naive Bayes classifies the target class according to the law of probability, regardless of the existence or absence of other features in the vector space of general features. The probability rule is written as:

$$P(X/Y) = \frac{P(Y/X).P(X)}{P(Y)} \dots\dots\dots (1)$$

This probability rule is expressed by the equation (1), where X is the target class and Y the features vector describing an instance. P (X|Y) represents the likelihood that instance Y belongs to the specified class X. P (X) is the training set's prior probability for the target class. The likelihood that the features vector will match the target class in the training set is denoted by the symbol P (Y) (Alassaf et al., 2018; Krishnaveni & Radhamani, 2016).

In the context of diagnosing dengue, Naive Bayes could be used to identify the most important symptoms and risk factors associated with the disease, and provide a more accurate diagnosis. This means that the algorithm could be trained on a dataset containing instances of patients with dengue, along with the associated symptoms and risk factors. The trained model could then be used to predict whether a new patient has dengue based on their symptoms and risk factors.

*Support vector machine.* Support Vector Machine is a powerful algorithm that can handle both linear and non-linear classification problems. SVM can be particularly effective when there are many potential predictors and the relationship between the predictors and the outcome is complex. In the context of diagnosing dengue, SVM could be used to identify the most important symptoms and risk factors associated with the diseases, and provide a more accurate diagnosis (Cortes, 1995).

*Random forest.* An ensemble learning technique called random forest mixes various decision trees to increase accuracy and decrease over fitting. Large datasets with several attributes can be handled by random forest, and it can be useful for classification jobs where there are a lot of potential predictors. Random forest could be applied to the diagnosis of dengue and typhoid to pinpoint the most significant signs and risk factors and offer a more precise diagnosis (Breiman, 2001).

### **3.2. Data description**

Despite the high prevalent of dengue fever in most African countries, the disease is underreported due to the limitations of current diagnostic methods and that made its difficulty to get sufficient data across the region. The data set for this study was source from kaggle dataset repository on dengue fever. The dataset contained clinical and laboratory tests of patients around Indian states hospitals. Indian is among the countries with highest prevalence of dengue and the country has recorded a lot of studies on dengue and other related diseases. However, these studies failed to consider the cost effectiveness of their machine learning models for dengue fever diagnosis which this study covers for the benefit of countries with low clinical and laboratory facilities to diagnosis dengue fever and related diseases. The 108 records in the resulting dataset each had a binary target class variable. The remaining 35 entries were categorized as non-Dengue Fever Patients, leaving 73 records as Dengue Fever Patients. The dataset initially had 17 features. Data such as patient identity (Patient I.D.) and those features with missing values greater than 50%, like white blood cell count (WB), hemoglobin, and hematocrit, were all removed after undergoing several data cleaning processes to reduce the dataset's dimensionality. The target class was added to the 13 remaining features. The dataset comprises 5 numerical attributes and 8 nominal features.

### **3.3. Description of data for training and validation procedure**

Waikato environment for knowledge analysis (Weka), a package of codeless machine learning analytical tools, was used to conduct the experiment. By analyzing the correlation between each feature and the class label, Weka was used to preprocess the data and rank the features. Additionally, it was utilized for feature selection, parameter tuning, and the training and testing phases of the four classifiers, K-NN, Nave bayes, SVN, and RF. As a result of data imbalance of target class which could cause over fitting or under fitting of model accuracy, stratify data balancing method was used to increase minority target class by 100%. In order to ensure data spread of the increase in minority class, random subset from unsupervised was used to achieve the mixture of the negative increase among instances that are positive. For the purpose of achieving unbiased accuracy, the balanced dataset was manually partition in Microsoft excel to 70% for training and 30% for testing. The 5-fold cross validation was used for feature selection, parameter adjustment, and the actual classification procedure. The optimum values of the classifiers' parameters that came from the optimization technique were used to train each of the four classification algorithms.

## **4. Findings**

### **4.1. Correlation analysis**

The first result of analysis for this study is correlation coefficient of the target class component's attributes. This is of great significance because it shows quantitative impact of each attributes on target class for features selection purpose for optimal performance. The correlation coefficient of the study is presented in Table 1.

Table no. 1. Correlation-coefficient of the study on target variable

Attribute	Correlation Value
Pain behind the eyes	0.602
Abdominal pain	0.49
Metallic taste in the mouth	0.49
Appetite loss	0.4
Date of fever	0.312
Platelet	0.305
Patient residence	0.283
Severe headache	0.237
Nausea vomiting	0.224
Diarrhoea	0.209
Current temperature	0.195
Dengue days	0.165
Joint muscle aches	0.124

Source: Authors' own construction from kaggle dataset on dengue fever, 2023.

#### 4.2. Optimization strategy

To achieve an optimal performance of machine learning algorithms, there is need for hyper parameter optimization of the classifier till the desire results or accuracy are achieved. There are two common hyper parameter tuning types such as grid search and random search selections. Grid search hyper parameter optimization was utilized in this study. The K-NN classifier was tuned to the optimal level of (k=3) with chebyshev distance measure. Support vector machine algorithms gave optimal value at hyper parameter of C=1 and kernel type of linear while random forest optimal hyper parameter values was numexecution slot (2) with seed value of (1). Table 2 presents various classifiers with their optimal hyper parameters values.

Table no. 2. Classifiers optimal hyper-parameters

Classifier	Hyper parameter	Value
K-NN	K	3
	Distance measure	Chebyshev distance
NVB	Null	Null
SVM	C	1
	Kernel	Linear kernel
RF	Numexecution	2
	Seed	1

Source: Authors' own construction from kaggle dataset on dengue fever, 2023.

#### 4.3. Features selection

For this study's feature selection, correlation coefficient and recursive features elimination were applied. As shown in table 3, the qualities are ranked with the target variable in descending order using the correlation coefficient. The bottom half of the rated features are logically reduced to a single characteristic by the recursive feature reduction approach, producing subsets. Each subset runs all four classifiers through five rounds of cross validation to determine which subset is most effective. Table 3 demonstrates that the top 5 features—pain behind the patient's eyes, abdominal pain, and a metallic aftertaste in the mouth, appetite loss, and date of fever—got the best average accuracy.

Table no. 3. Subsets results of difference attributes

Number of Attributes	K-NN	NVB	RF	SVM	Average Accuracy (%)
13 (All)	79	100	100	100	95
5	86	100	100	100	97
4	88	86	88	90	88
3	87	86	90	90	88.2
2	81	81	81	81	81
1	81	81	81	81	81

Source: Authors' own construction from kaggle dataset on dengue fever, 2023.

#### 4.4. Classification

NVB, SVM and RF algorithms performed absolutely better over K-NN on the optimal attributes selected with 5-fold cross validation partitioning method. The accuracy were rechecked to confirm the excellent performance of the classifiers with hyper parameters tuning of the various algorithms. SVM, RF and NVB maintained their 100% accuracy at optimal features. K-NN was enhanced to 95.35% which is better than the initial performance value of 86% at the higher features performing subset. Table 4 shows the accuracy performance of the various classifiers with their precision, recall and f-measure values.

Table no. 4. Optimal features classification performance

Classifier	Accuracy (%)	Precision	Recall	f-Measure
K-NN	95.35	0.923	0.953	0.953
NVB	100	1	1	1
RF	100	1	1	1
SVM	100	1	1	1

Source: Authors' own construction from kaggle dataset on dengue fever, 2023.

The accuracy, precision, recall and f-measure values of NVB, SVM and RF in Table 4 shows the highest performance measures. The confirmation of this is shown in the confusion matrices. The confusion matrices show the actual and predicted class target by K-NN, NVB, SVM and RF. Among the confusion matrices indicators of true Positive (TP), True Negative (TN), False Positive (FP) and False Negative (FN), False Negative is worrisome because a patient who is wrongly predicted negative may be working freely until the disease became complicated with high financial burden or death (Roche & Wang, 2014). This research is unique because the only wrong classification as shown by the study confusion matrices is from K-NN algorithm while other classifiers such as NVB, SVM and RF gave 100% accuracy with zero wrong classification. The following are the study confusion matrices:

Table no. 5. K-NN Confusion matrix

		Predicted	
Actual		DFP	Non DFP
	DFP	24 (TP)	0 (FN)
	Non DFP	2 (FP)	17 (TN)

Source: Authors' own construction from kaggle dataset on dengue fever, 2023.

Table no 6. NVB Confusion matrix

		Predicted	
		DFP	Non DFP
Actual	DFP	24 (TP)	0 (FN)
	Non DFP	0 (FP)	19 (TN)

Source: Authors' own construction from kaggle dataset on dengue fever, 2023.

Table no. 7. SVM Confusion matrix

		Predicted	
		DFP	Non DFP
Actual	DFP	24 (TP)	0 (FN)
	Non DFP	0 (FP)	19 (TN)

Source: Authors' own construction from kaggle dataset on dengue fever, 2023.

Table no. 8. RF Confusion matrix

		Predicted	
		DFP	Non DFP
Actual	DFP	24 (TP)	0 (FN)
	Non DFP	0 (FP)	19 (TN)

Source: Authors' own construction from kaggle dataset on dengue fever, 2023.

#### 4.5. Cost-Effective analysis

Table 9 represents the different tests for dengue fever and their estimated costs in India, Nigeria and Thailand, which are countries with high prevalence of the disease. The cost of the various tests were measured in USA dollar (USD). The table shows that the serology test in India costs between USD 13.5 and USD 40, depending on location and hospital type. In Thailand, the same test costs between USD 15 and USD 40, while in Nigeria, it costs between USD 50 and USD 53.66. The NS1 antigen test costs USD 6.7 to USD 20 in India, USD 7.4 to USD 22.7 in Thailand, and USD 58 to USD 60.17 in Nigeria, depending on foreign exchange rates. The Polymerase Chain Reaction (PCR) test is the most expensive among the dengue fever tests, as it is a molecular diagnostic test that detects the presence of dengue virus RNA in blood samples. In India, the estimated cost of the PCR test is USD 67 to USD 135, while in Thailand, it costs USD 90 to USD 180. In Nigeria, the estimated cost of PCR is USD 98.30 to USD 100. On average, the estimated costs of the serology test, NS1 antigen test, and PCR test in India, Nigeria, and Thailand are USD 35.36, USD 29.16, and USD 111.72, respectively. It is important to note that the costs provided are current estimates and are subject to change due to fluctuations in foreign exchange rates in the exchange rate markets of the respective countries.

Machine learning classifiers, such as K-NN, NVB, SVM, and RF, have optimally identified five attributes that can accurately predict or classify a patient's dengue fever status based on their responses to questions posed by medical personnel. According to Olatunji (2023), the inductive basis principle of machine learning is that if it works on enough data, it can work on a small amount of data. This means that a machine learning model developed and deployed using trained and tested data from various algorithms with high accuracy, precision, and recall values can accurately predict or classify a patient's dengue fever status if provided with new data within the same dataset attributes. Therefore, patients in India, Nigeria, or Thailand exhibiting similar attributes can be diagnosed early and affordable cost at their respective health centers using the deployed machine learning model. The table 9 represents the estimated costs of the tests in the respective countries.

Table no. 9. Cost-effective analysis of ML model and other dengue fever diagnosis tests

The conventional diagnosis tests for dengue fever and their cost in India	
Type	Estimated cost range
Serology test	USD 13.5 to USD 40
NS1 antigen test	USD 6.7 to USD 20
Polymerase chain reaction (PCR)	USD 67 to USD 135
The conventional diagnosis tests for dengue fever and their cost in Nigeria	
Type	Estimated cost range
Serology test	USD 50 to USD 53.66
NS1 antigen test	USD 58 to USD 60.17
Polymerase chain reaction (PCR)	USD 98.30 to USD 100
The conventional diagnosis tests for dengue fever and their cost in Thailand	
Type	Estimated range
Serology test	USD 15 to USD 45
NS1 antigen test	USD 7.4 to USD 22.5
Polymerase chain reaction (PCR)	USD 90 to USD 180
Diagnosis of dengue fever using ML model	
The optimal features selected from trained and tested classifiers, provided some clinical basic attributes that can be used to diagnose dengue fever at affordable cost. Patient showing early symptoms such as: pain behind the eyes, abdominal pain, metallic taste in the mouth, appetite loss, few days of fever are all indicators to health personal of early signs of dengue fever. This diagnosis is more affordable and accessible presuming the patient is a register member of the health facilities.	

Source: (National Health Authority Indian, 2021; Pongsump & Pongsumpun, 2017; Syn Lab. Nigeria, 2023).

## 5. Conclusions

This study utilized a dataset from kaggle on dengue fever and applied machine learning techniques to classify patients based on clinical and laboratory tests. Feature selection was done using correlation coefficient and recursive feature elimination, and four classification algorithms were explored. The results showed high accuracy for all four classifiers, with NVB, SVM, and Random Forest achieving 100% accuracy and K-NN achieving 97.3% accuracy. Cost-effective analysis revealed that ML model classification is the most cost-effective technique as it enables early disease prediction and reducing diagnosis costs. Further research can explore the cost benefits of using Machine Learning Techniques in disease treatment.

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## Social Responsibility in Retail Trade

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### Abstract

*Social responsibility is at the same time a mode of action, an attitude or a state of mind that a company adopts in its relationship with consumers or users but also with its business environment. Considering the responsibility that retailers bear in their relationship directly with customers and the fact that this is the interface where the goods leave the sphere of circulation and enter the sphere of consumption, they have an extremely important role in assuming the principles of social responsibility. Therefore, the present work aims to highlight this role as well as the concerns currently existing in this direction.*

**Key words:** social responsibility, retail, sustainability, environment

**J.E.L. classification:** F18, F64, M14, O20, O24, Q02, Q37

### 1. Introduction

Social responsibility (SR) is a concept that can no longer be considered recent and is based on the coherence between the social programs carried out by a company, the attitude approached in business and within the company, as well as towards the environment. The final goal is to ensure the sustainable development of both the company and the economic and social environment in which the company operates, thereby committing that any activity it carries out is conducted in an ethical manner, based on best practices. SR is a way of expressing any type of company, regardless of size or object of activity, and is subject to the ISO26000 international standard. As the large retail trade is generally practiced by corporations, we can discuss the importance of the concept of Corporate Social Responsibility (CSR).

Corporate social responsibility and sustainability are hot topics in contemporary discourse, especially in the retail sector. The role and importance of corporations in preserving the environment and promoting sustainable development can no longer be ignored, especially in the current context of growth and diversification of the retail sector (Aivaz, 2021). Therefore, it is necessary to analyze in depth the implications and role of corporate social responsibility (CSR) in this context. It appears that better financial performance of companies is associated with a more responsible approach to social and environmental aspects. In this sense, investments in CSR not only improve a company's public image, but can also contribute to improving its financial performance.

The application of the principles of social responsibility involves companies in actions to balance profit-making activities with activities that benefit society in general and implies the development of businesses under the conditions of a positive relationship with the environment in which they carry out their activity.

## 2. Theoretical background

In general, in specialized literature, the social responsibility of retailers is discussed in relation to topics such as fairness, ethics or equity in trade. In fact, this concept has several dimensions if we analyze variables such as: quality, fair price, honesty or ethical relations with customers. (Țigu et.al, 2014)

Fair trade is already a worldwide movement in which goods are obtained and distributed in a sustainable and ecological way. For retailers purchasing products from less developed countries, sustainability in supply is ensured by a satisfactory standard of living for the workers and farmers involved. (Țigu et.al, 2014)

Nguyen and Klaus (2013) define fairness in retail through three dimensions: product (quality, price-quality ratio, notoriety); interactions (honesty, transparency, ethics); the service offered (fair behavior, promptness, quality). From this point of view, the products offered must be safe, be obtained on ecological principles, respect the nutritional label and the assumed guarantees.

Aivaz (2021) emphasizes the link between financial performance and corporate responsibility incentives in the support services group in Constanța County, Romania.

Lately, the issue of SR and CSR has been an important study issue for almost all fields of activity, and with regard to retail trade, comparisons have been made between social (corporate) responsibility actions and the company's capabilities (assortments, products, prices, store layout, commercial services, etc.). These analyzes have shown that both have a positive influence on consumer loyalty, but when the ability is reduced with the increase of social responsibility efforts, consumers appreciate that the redirection of resources is against their satisfaction. (Țigu et.al, 2014)

Companies considered green like image enjoy enhanced reputations and receive positive support from customers that usually have like final result in increased revenues. (<https://courses.lumenlearning.com/wm-retailmanagement/chapter/ethical-and-social-responsibilities-involved-in-buying-decisions/>)

Social responsibility is at the same time a mode of action, an attitude or a state of mind that a company adopts in its relationship with consumers or users but also with its business environment.

If two decades ago purchasing decisions were influenced mainly by price, availability and ease of use, nowadays consumer needs have evolved significantly, becoming dependent on care for quality of life and the environment. (<https://www.sml.com/implementing-an-effective-csr-strategy-for-retail/>)

Therefore, it is necessary to analyze in depth the implications and role of corporate social responsibility (CSR) in this context. Aivaz (2021) emphasizes the link between financial performance and corporate responsibility incentives in the support services group in Constanța County, Romania. It appears that better financial performance of companies is associated with a more responsible approach to social and environmental aspects. In this sense, investments in CSR not only improve a company's public image, but can also contribute to improving its financial performance.

## 3. Research methodology

The current research is of a qualitative type and aims to highlight some aspects regarding the adoption of the concept of SR and respectively CSR by retailers.

The theme of the study was generated by the finding that the business environment as well as consumers are faced with an acute lack of information about the commitment of the retail industry and the analysis of socially responsible attitudes in this field. The aim of the study was to discover and highlight the context in which social responsibility is approached by retail traders. The aspects followed concern the principles, processes and results of SR. From the field research and documentation it emerged that the most frequent approaches are circumscribed in the sphere of social and environmental programs. The conclusions suggest that most of the retailers who approached the concept should be more involved in communicating their social responsibility efforts and not just for promotional purposes.

#### 4. Findings

Retail, being a major economic field, plays a crucial role in the economy and also has a significant impact on the environment and society.

In addition, consumer culture is changing and they are becoming increasingly aware of the importance of environmental protection and sustainability. Mirea and Aivaz (2016) analyzed consumer culture at a territorial level and found that more and more consumers prefer to buy from retailers that demonstrate a clear commitment to environmental protection and the promotion of sustainable business practices.

The success of retailers can be ensured if their customers know what they are buying and statistics show that the majority believe that companies should help with social and environmental issues. The application of social responsibility principles include ensuring sustainability, fair working conditions, corporate activism in the case of large retailers and donations charitable. These aspects and the generated interactions can be seen in the following figure:

*Figure no.1 Social responsibility in retail business*



Source: (Mahler, 2020)

Among the aspects that consumers appreciate and retailers have to be aware regarding the care shown towards them, are to be highlighted: fair treatment, without discrimination; satisfying the requirements in the best conditions; assistance in making the purchase decision; after-sales services. A number of large retailers are developing special programs for people with disabilities, as it results from the reports on the corporate social responsibility activity (wide spaces for travel, reserved parking, shopping scooters, etc.). (Tigu et.al, 2014)

With regard to the products offered, the elements to be considered from the point of view of ensuring social responsibility must refer to ecological principles, informative label, validity and guarantee, appropriate packaging in terms of size and information provided.

Recent studies talk about the social quality brand, which refers to respect for customers and staff throughout the technical and economic circuit of the goods and which would have the ability to increase the perceived quality level, a sign communicated through a label. (Tigu et.al, 2014)

The correctness of the price and the way in which it is evaluated is also part of the responsibility of organizations towards consumers.

On the other hand, interaction with customers must also be taken into account when building social responsibility strategies, and we refer here to: respect for personal data; communication of taxes or commissions; permanent verification of product validity; practice of fair return policies; avoidance of delays in supply; registration and monitoring of complaints; support in adopting the purchase decision, etc.

Speaking about employees, there are three kind of ethical issues that could be discussed: interactions with clients; relationships with work colleagues; situations at the workplace. Of course, the most common ethical issues are those related to the preferential treatment given to some clients, but also those related to prices, offering bonuses or samples or those related to behavior or hygiene.

As we mentioned, in the issue of SR and/or CSR, the concept of fair trade with multiple connotations and benefits for retailers is circumscribed. Today's consumers have become more and more informed and demanding regarding ethical production and marketing practices and thus a growing contingent pays more attention to goods that respect such practices. The application of fair

trade marks can bring substantial advantages in terms of the price charged, the increase in sales and can stimulate brand loyalty.

The concept of fairness in retail trade is based on the crucial link between increasing honesty, ethical and moral behavior and understanding retail equity, with multiple theoretical and managerial implications. (Nguyen et al., 2013)

Given the particularly high responsibility of food stores regarding consumer safety, the concerns of these retailers regardless of size regarding social responsibility become imperative and according to the studies carried out should aim at: supporting the community, ensuring product diversity and safety, protecting the environment, supporting employees.

Concerns related to the analyzed theme in retail business are inextricably linked to the larger approach to sustainability, as shown in the figure below:

Figure no.2 Retail sustainability



Source: (Rahdari et al,2020)

SR policies must be based on the coherence and compatibility between the attitude in business, in relation to shareholders, with the staff and obviously towards the environment to ensure sustainability in the company and in society in general.

As for the attitude in business, it must be supported by fair investment programs and compliance with the rules of ethical conduct by both the management and the staff. The company's attitude towards employees involves ensuring a working climate and correct communication, stimulating professional and individual development. In the context of the analyzed concept, all aspects of the relationship with the environment must be taken into account in compliance with the standards and requirements in the field.

Taking into account the community and the economic and social environment in which the activity is carried out, retailers can get involved in areas such as: education, health and social assistance, sports, culture, environment and humanitarian actions. (Dabija,2013)

Analyzing whether social (corporate) responsibility represents an influencing factor for performance or real ethical concerns and whether it can generate advantages, it can be stated that compared to other management factors, the proven high performance qualifies it as a basic resource for any retailer.(Hu et al.,2009)

A study carried out on the example of one of the main European clothing retailers highlights the importance of correct communication and explanation of CSR efforts to increase awareness and involvement for both employees and customers, having a positive impact on the retailer in increasing performance and results sustainability at the same time.(Dal Mas et al.,2021)

A representative analysis of consumer behavior in the context of retail trade in Romania highlights the impact of concrete measures in the analysis of behavioral vectors that act as stimuli, including social responsibility alongside the marketing mix; the feed-back from the consumers is thus

materialized in the generation of the desire to buy, preferences, loyalty, trust, or satisfaction. (Dabija,2013)

More and more organizations, including retail ones, are appreciated and even end up being included in the charts according to the performance of social responsibility activities. Michael Porter, world authority in the field of competitive strategy, said that social responsibility has become an impossible priority for business leaders in every country and every field. (Porter, 2007)

The analysis of "labor cost" and "net nominal income" in the main economic activities, carried out by Mirea and Aivaz (2016), shows that the costs associated with the labor force can be optimized by implementing social responsibility practices. An effective strategy can help reduce costs, increase productivity and improve working conditions.

Because the majority of retail industry managers consider the application of SR or CSR represent one of the best way to increse sales, we can evidence some tips concerning activities to be carried out in order to get advantages: create specific products for charity; run charity events; sponsor for community activities; to give money or merchandise for donation; the improvement the social responsibility inside the company. (Marendra, 2022)

The quality of logistics services also has a significant impact on the level of customer satisfaction and retention of an e-commerce retailer (Micu et al., 2013). In this context, the adoption of a sustainability strategy can lead to an improvement in the quality of logistics services and, therefore, to an increase in customer satisfaction. Regarding marketing research, a genetic approach is proposed (Micu et al., 2016), which could allow a deeper understanding of consumer behavior and lead to the development of more effective and sustainable marketing strategies.

The evolution of consumer needs in the last decade and especially after the outbreak of the COVID 1 pandemic has led retailers to take very seriously the ethical needs of their customers. According to Accenture, since the beginning of the pandemic, 60% of consumers are making greener, more sustainable or more ethical purchases and paying attention to the overall SR efforts of the retailers they buy from.

In order to build effective strategies in this context, a series of recommendations can be formulated that have proven useful in practice: manifesting environmental responsibility ;setting an example to be followed; upskill and reward employees, while promoting work-life balance; prioritize workplace health and safety, and staff work-life balance; economic responsibility assuming; a sustainable future.( <https://www.sml.com/implementing-an-effective-csr-strategy-for-retail/>)

## 5. Conclusions

From a practical point of view, the aspects highlighted in the present work can provide real support in making managerial decisions in the retail industry, thus bringing a series of contributions for the activity of social responsibility of companies in the field, such as:

- stimulating retail and company managers to invest in the development of social responsibility strategies;
- awareness of the long-term effects on consumers (loyalty, devotion, etc.);
- the possibility to analyze whether SR represents a cost or a long-term investment;
- a deeper understanding of consumer expectations regarding the social activities to be implemented;
- understanding the factors that can influence the success of actions: expectations consumers, the level of knowledge and information, correctness information source;
- better knowledge of the socio-demographic characteristics of consumers as well as the economic and competitive environment;
- provides arguments for the integration of accountability strategies in the company's general strategy;
- understanding that any action in this field must be communicated in order to win the trust of the consumer interested in the company's concerns in this regard;
- awareness of the fact that a socially responsible involvement can bring benefits from improving the image to increasing sales;



Although the present work contributes to the enrichment of knowledge general regarding the concept of social (corporate) responsibility, bringing a series of new information; it also presents a series of limits, related to the information with feedback from retailers but which, corroborated with the evidenced findings, offer the possibility of investigating new research directions.

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## Transfer Pricing in the European Union Context

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### Abstract

*The practice of transfer pricing for the purpose of fiscal optimization has become the center of attention in recent years due to the negative impact it has on the tax base, the state budget and competition.*

*In this paper, we analyzed the functioning of transfer prices from two points of view, the value of fiscal optimization and the value of the market.*

*The purpose was to determine the key indicators that address transfer prices in order to optimize the tax to come up with recommendations that could inhibit this practice.*

*The results of the paper showed that the indicators are sales revenue, tax level and profit. So, the proposed recommendations considered the three indicators and the main recommendation regarding the profit involves the taxation of profit at the level of the value that would be realized under the conditions of the sale at the market price.*

**Key words:** transfer pricing, multinational companies, profit shifting, European Union

**J.E.L. classification:** H26, H32, F23

### 1. Introduction

Transfer pricing is a frequently discussed topic in the field of international trade and even global economics. With the increase in the volume of trade and the growth of economic activities on a global scale, the European Union (EU) has designed a multi-faceted regulatory framework to address the inherent complexities of this field.

Transfer pricing involves the valuation of transactions between related enterprises, which may belong to the same corporate group or be controlled by a common entity. Although these transactions may apparently take place in a competitive and transparent manner on the open market, there are instances where such arrangements are deliberately structured to allocate profits or losses within the corporate group for tax optimization purposes.

Transparency and the reduction of tax evasion are identified, at least in recent years, as essential objectives within the European Union, considering that such practices can directly influence the tax revenues of the member states and can generate unfair competition on the market. As a result, the EU has established a series of specialized directives and regulations aimed at tackling this issue cohesively and uniformly across all member states.

The latest intention to tackle transfer pricing for tax optimization purposes is the new OECD/G20 tax reform plan based on two pillars which seeks to establish a global minimum tax of 15% and reallocate a part of the residual profits of multinational companies to the country where it was made.

Given these intentions regarding the reform of the tax system, in this paper we will examine precisely the concept of transfer pricing in the EU and investigate the reasoning behind the use of these tactics by multinational companies.

This paper is a part of a larger research through which we aimed to determine the impact that the implementation of the new tax reform plan will have on the member states of the European Union.

In this sense, by understanding how the practice of transfer pricing works for the purpose of fiscal optimization, we will be able to monitor whether the implementation of the new reform plan will produce changes in the way that transfer pricing is used.

## **2. Literature review**

Transfer pricing is the price at which goods, services or intellectual property are traded between economically related entities, such as subsidiaries or branches that are part of the same group of companies but operate in separate jurisdictions (Bastin, 2014).

The practice of transfer pricing is closely related to globalization and international trade. The genesis of this practice being found itself when these two variables took off (Hajnikova, 2017).

The correct way to practice transfer pricing is to establish an appropriate valuation of commercial transactions between these related entities, thus ensuring fair conditions similar to those that would have been concluded between independent entities, in a free and competitive market.

Also, correctly applied transfer pricing ensures the proper management of international taxation, having the role of allocating profits in a fair way and in accordance with international tax principles. In this context, transfer pricing regulations aim to prevent the artificial transfer of profits between related entities, so as to ensure adequate taxation of their income and economic activities in the countries in which they operate (Rakovsky, 2018).

In reality, many multinational companies shift their profits to jurisdictions with a preferential tax regime in order to reduce their tax burden in certain states that represent profitable markets for these companies but practice high tax rates (Supukovic, 2021).

Practice of transfer pricing for the purpose of fiscal optimization by multinational companies can have several negative consequences. One of these is related to the decrease in tax revenues of the host country, which could cause tensions between governments and corporations (Solilova et al, 2013).

Improper transfer pricing erodes a country's tax base by understating revenues and overstating costs, leading to an inequitable distribution of the tax burden between companies and citizens, affecting the efficiency of the country's tax system.

Improper transfer pricing practices also affect trade flows and foreign direct investment within a state. Multinational companies that use transfer pricing in this way gain competitive advantages that have a negative impact on other companies, especially local ones.

## **3. Research methodology**

In this paper we propose to examine the way in which transfer pricing is used with the aim of fiscal optimization. So, we propose a descriptive research through which to compile a complete description of the transfer pricing phenomenon.

In this way, we will create a picture of the situation and observe the characteristics that make up the phenomenon of transfer pricing for tax optimization, without determining aspects related to causality.

Observing how transfer pricing is used helps determine the stage at which transfer pricing can be used for tax optimization purposes.

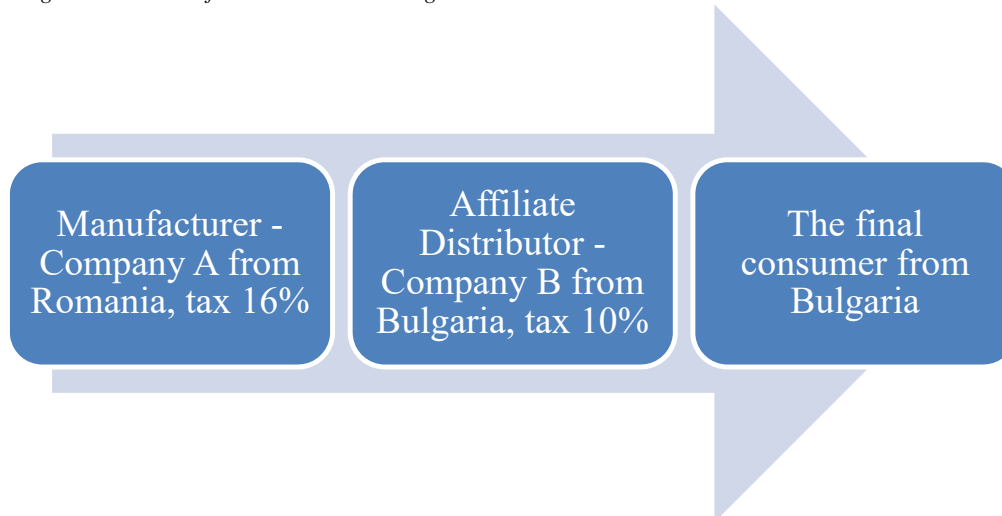
## **4. Findings**

In this part we will examine how to use transfer pricing appropriately from the perspective of compliance with the market value principle and inappropriately from the perspective of tax optimization.

Therefore, we will consider company A that manufactures PC systems in Romania, where the tax rate is 16% and sells them to a related company, namely company B in Bulgaria, where the tax rate is 10%. Company B in Bulgaria sells them to the final consumer. The distribution channel is as follows:



Figure no.1. The distribution channel from the manufacturer in Romania, to the affiliated company in Bulgaria and to the final consumer in Bulgaria



Source: own processing

Given the distribution channel in figure 1, there are two possibilities, one of the two involves the practice of transfer prices between the two affiliated companies aimed at fiscal optimization, as follows:

Table no. 1. Transfer pricing practice for fiscal optimization

	Company A Romania (Euro)	Company B Bulgaria (Euro)	Both Total (Euro)
Revenues from the sale of PC systems	800	1000	1800
Production costs	-700	-	-700
Acquisition costs	-	-800	-800
Gross result	100	200	300
Tax	16 (16%)	20 (10%)	36
Net result	84	180	264

Source: own processing

The second possibility is the one in which the practice of transfer prices reflects the market value, as follows:

Table no. 2. Practice of transfer prices at the market value

	Company A Romania (Euro)	Company B Bulgaria (Euro)	Both Total (Euro)
Revenues from the sale of PC systems	900	1000	1900
Production costs	-700	-	-700
Acquisition costs	-	-900	-900
Gross result	200	100	300
Tax	32 (16%)	10 (10%)	42
Net result	168	90	258

Source: own processing

In the framework of the two tables, it can be appreciated that both in the version in which transfer prices are used for tax optimization, and in the one in which the transfer prices reflect the market value, the value of the gross profit remained unchanged.

In the table regarding the practice of transfer prices in order to optimize the tax, the value of the taxes was reduced, increasing the value of the net profit.

## 5. Conclusions and recommendations

Transfer pricing for tax optimization involves selling a product at a lower price to a related party located in a jurisdiction with low taxes. In this context, the level of gross profit remains the same, but the amount of tax is reduced and the amount of net profit is increased.

Whereas, market value transfer pricing generates the same gross profit, but increases the value of the due taxes indicator and decreases the value of the net profit indicator.

According to the operation of the transfer pricing practice, there could be three directions of regulation that could inhibit the practice. One of them considers the price of products sold to the related party, the second considers the tax and the third considers the profit.

Regulations in the direction of selling prices to related parties could be effective but at the same time could affect the degree of market liberalization. These regulations would require a price range for each product category at which it could be sold to the related party.

In terms of tax, what is being tried now through the new global tax reform plan proposed within the OECD/G20 framework, is definitely the establishment of a global minimum tax. In this way, in any state the company would operate, the budget forecasts can take into account that minimum of 15% and thus the practice of transfer prices for fiscal optimization could not significantly affect the tax base and the state budget.

In the direction of profit, which is also taken into account by the new global taxation reform plan proposed within the OECD/G20 framework, several measures could be taken into account.

In the framework of the reform plan, it was intended to reallocate a part of the residual profit made by the company in the country where it carried out its activity.

Another measure could be taken in the case of multinational corporations that register a significant turnover, namely the taxation applied to the level of profit that could be achieved under the conditions of sale at the level of market prices, be it set at a minimum level. In this way, whether the company uses transfer prices for fiscal optimization or other practices that have in mind the reallocation of profit, their taxation will take into account the minimum profit that would be made following the sale at the correct price, in relation to the market.

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## **Section III**

### **Economic and Social Studies**

## Creating a Narrative Arc for Business Communication Courses- Promoting Attention, Motivation, and Meaningfulness

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### Abstract

*The present study aims to highlight the usefulness of creating meaningful and memorable course for students by organizing its content in a narrative manner and by making use of stories and of narrative activities adapted to serve the educational needs of the course, with examples applied on a BE course structure. Combining narrative structures encourages students to use language in a dynamic form, to organize ideas and sequences in a logical order and to connect fragments of information in a natural manner. Narrating is part of our individuality, through it individual knowledge, personal reactions and professional experience are activated and offer a useful support for meaningful and memorable language practice.*

**Key words:** narrative arc course, teaching BE, BE activities, students' motivation, students' attention

**J.E.L. classification:** Z13

### 1. Introduction

The present study started from personal observations that despite the generation gap, certain professors have a better impact on students. Through examination and reflection, I noticed that while I was more focused on teaching content and skills, other professors were more focused on telling. I was concerned with teaching vocabulary, grammar, reading, speaking, listening through the right type of activity, while they were more focused on telling stories, creating an emotional bond with students, making the courses memorable, by linking them to student's immediate experience and to the surrounding world, offering them an insight into a new cultural, intercultural cross-cultural perspective.

By reviewing my teaching experience from the perspective of a philologist who teaches ESP, I noticed that most often it is even more important to first construct an individual narrative arc and then to be able to transpose this personal view into a course dedicated to students. Finding the relevant examples which support each other, which illustrate and give a general overall meaning to the entire structure is the most challenging issue. Instead of asking ourselves about the content to be covered in our courses, a change of perspective concerning what we want our students to learn from this course experience would open in front of our eyes a multitude of choices. From the multiple options available, finding the most relevant and those which can form a cohesive structure becomes more important.

From early childhood, we learn from stories. We are taught by our parents, educators, what is good or bad from stories, or how we should react or see the world. We later learn from other peoples' stories and about what is right or wrong, when the right time comes, we reflect on our experiences and become creators and transmitters/narrators of stories concerning personal experiences. The use of stories in formal education can increase students' interest in the course content, develop cultural awareness, improve knowledge on human relations, provide a bridge between studies and great existential questions and transform the whole educational process in a natural flow of information.

## 2. Theoretical background

Using a story in a class improves students' recollection, emotional attachment, and sustained attention, it gives a general meaning of a complete learning process. Students in the narrative lecture condition rated the teacher higher and were more likely to enrol in another course taught by the instructor in the future. Moreover, when compared to students in the examples condition, students in the narrative condition showed more sustained attention to the lecture and did somewhat better on a short-term test. An extraneous information retention test corroborated students' performance by enhancing student recollection of course content with more comprehensive information on the one hand and raising their total cognitive load on the other. (Kromka and Goodboy, 2018).

Traditionally a story arc or narrative arc, in a simplified version, is defined as a construction of plot in a novel or story, which includes episodic storytelling. Translating this structure in the academic world, any course is or can become a narrative arc which has an introductory part, assimilated to exposition, a climax, in which the peak of the arc is reached. The information provided in the course builds up to a core horn and reaches a point of maximum tension, and a dénouement, which wraps up the entire construct. By viewing the course as a cohesive structure which has *a fil rouge* similar to a *roman à tiroirs* (a novel made of drawers), in which the main narrative gives birth to a series of secondary narratives (similar to the matryoshka dolls principle), which may in turn give birth to other derived narratives, the information can be more effectively organised and motivate students to engage in an active learning process.

The syllabus components essentially comprise a list of items to be covered and the order in which they are presented, by managing to transform these into a narrative arc structure and introducing this arc to our students will provide more structure and meaning to them. For a more effective semester or a yearlong story course, a coherent narrative to guide the students through their learning experience, arouse their interest, captivate their attention and make more meaning to them coupled with a backward method of planning is suggested (Oswald K., 2022). In addition, another basic consideration is starting from the discourse learners will need, which needs to be suitable to the workplace context (Frendo E., 34). As Frendo noticed, it is often difficult to precisely name the structures and the communication skills, for example, how much should a "learning about" include? How do we quantify "an understanding"? (Frendo, 35) Setting the course objectives is another requirement, most BE courses aim performance and training objectives, what the student is expected to do and to what standard. A valuable tool is offered by students themselves if we ask them to define and write their own objectives. A common problem of courses today is regular attendance, as for various reasons many students today do not attend courses regularly. This can affect the overall impact of the course, some of the activities, the entire "narrative" of the course, or the project work proposed.

A reversed course structure which starts from the final point of the academic journey, the point which is a natural course for learning, considering that from early age children are thought through narrative techniques. When instructors utilised course related almost palpable and easy to remember stories, students' cognitive engagement raised, by increasing their attention and perceptions on structuring and integrating the content (Bolkan S., 2021). Studies in L2 students using Digital Story Telling in their narratives indicated an improvement in terms of being more aware of personal feelings and the audience's presence and providing more details to the story. Furthermore, the availability of numerous ways of communication was discovered to broaden their story subjects and more forcefully evoke their experiences and visions (Kim and Lee, 2018).

Narrowing our discussion, business narratives are part of a professional ecosystem of stories which tell people stories about success or failure, teaching people how they could fit in the world, fuelling people's dreams and paving the way or explaining the failure. In the business world stories are intended to market, to sell, to train or to teach. The types of narratives to be used specific to the field of business: career narratives, professional narratives, industry narratives, organisational narratives, product/service narratives, cause narratives, creation narratives. A wide range of business studies underline the possibilities of using design narratives for organisational purposes, such as sensemaking, corporate strategy tools, as well as entrepreneurial identity and legitimacy building (Hakayama et al., 2021)

Various structures connected to narratives reflect this attitude: *a tall story, a Cinderella story, don't let the facts get in the way of a good story, get the story right, same old story, end of story, a fishy, a long story, to make up a story*. The linguistic structures detail our complex relationship with stories. They can be very personal, invented, misleading, old, surprising, similar to well-known stories, scary, honest, different, two sided, nonsensical. Even some idioms and phrases have a story of their own (cost the arm and leg, pull someone's leg, be caught red handed, break the ice), the ways of teaching and exploiting them through vocabulary, grammar, speaking, writing complex activities. Apart from transferring personal information, storytelling enriches vocabulary, grammar, self-assessment (guided through self-assessment checklists), narrator's perspective, critical thinking, imagination etc. Storytelling is a form of therapy which guides people towards exploring fundamental aspects of their own internal architecture, discovering and becoming aware of their strengths, values, beliefs, self-compassion etc.

### 3. Research methodology

The narrative arc structure can span on one semester, two semesters or in the case of other courses, lasting two to three years of study. The research methodology includes a lengthy process of regularly asking students to write their thoughts, learning techniques, newly discovered vocabulary or structures and organising them in a personal autobiographical portfolio which creates for them a palpable sense of progression and anchor in time. They can retrospectively visualise their journey through learning and nurture their motivation to pursue their studies.

The course is organised as a *roman a tiroir*, with a main story-a semester long story that highlights the most important course elements, a cohesive narrative to be developed that accompanies like a fil d'Ariadne the student, in which the tiny pieces of individual stories will fit, most often by themselves, into their places. Students will enjoy making the course interactive by bringing their own examples and experiences. The attitude of the teacher should be *I'm here to weave a story with you*.

Applying metacognition by guiding students to reflect on what they could acquire during the lesson and how they could use that in their ordinary life such as negotiating skills, presentation techniques, networking, socialising skills, intercultural skills. As learning in faculty is for their entire life and for the world beyond, therefore, teaching higher-order skills needs to be prioritised, whether we talk about learning how to work in teams and how to collaborate, sympathising or extracting a rule from examples or finding suitable examples to illustrate a theoretical approach, managing a project or developing market research.

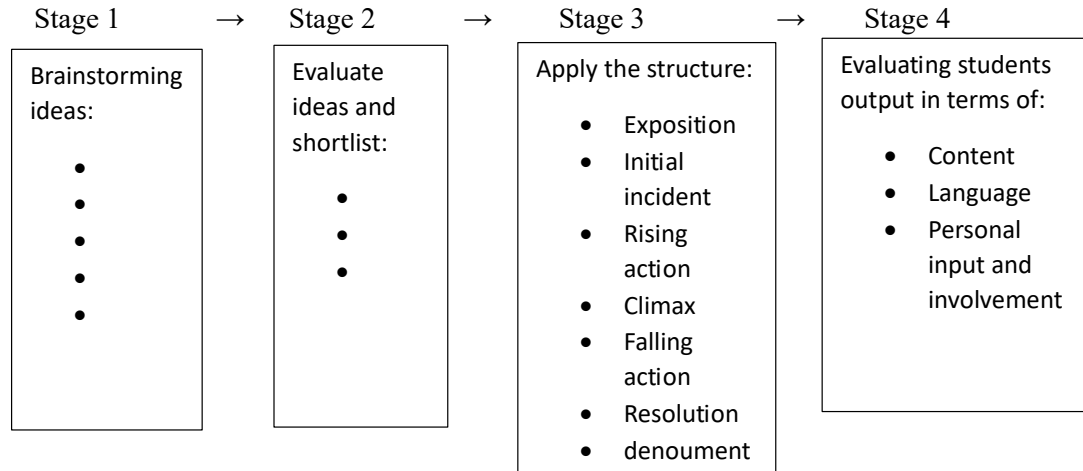
### 4. Findings

In order to allow students to provide a context in which to include their own experience, with numerous advantages in terms of attention, motivation, easiness to remember and to construct meaning around concepts, linking concepts to other pre-existent acquisitions, we suggest the use of framework materials which allow the learner to produce narrative content and narrative context directly applicable to their own experience as an extremely rewarding type of practice. Even in the case of limited language knowledge, the activity itself brings a plus of value to the course. Such activities are suitable for individual, pairs or groups of learners which can be challenged to produce their own materials in different circumstances. When delays or structural mistakes occur, most often they are due to poor organisation once the organisational skills are activated. The foreseen problems are minimised or disappear. Framework narratives offer a good support for hesitant learners in terms of organising their ideas, language, organisational and team spirit. They do not dictate the exact words or structures to be used in the task, but they offer support and suggestions and once the task is accomplished, the level of satisfaction of the students involved increases.

Framework narratives can serve different purposes and can be used in developing an analysis, describing a contrast, a structure, a similarity, commenting with personal arguments, describe a sequence of events and their possible causes and effects.

Suggestions of such activities which can be used for various types of courses and can be modified to serve multiple educational purposes, can be based on the following structures:

A.



B.

A customer-supplier story:

Stage 1 → discuss and decide on a problem/story/request which forms the core of the narrative.

Stage 2 → present the narrative (as an individual, pair or group production).

Stage 3 → evaluate the narrative according to a grid (suggest areas of improvement, highlight the positive outcomes).

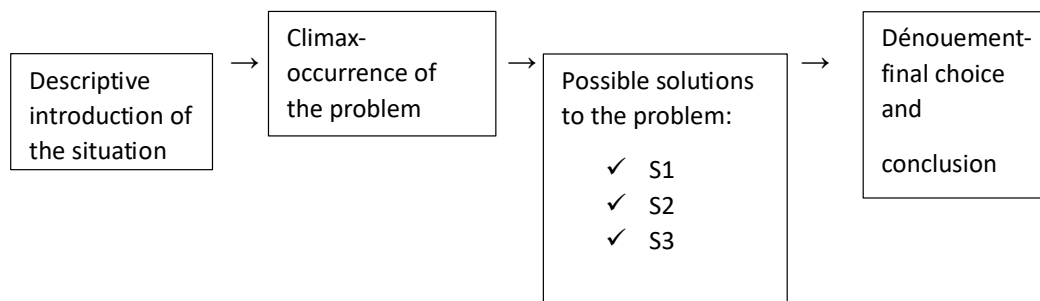
C.

Production stage description under the form of a flowchart or a web chart:

stage 1 → flowchart completion

stage 2 → narrative of the process

D. problem-solving narrative:



E.

Roll-and-write a story activity can be based on the following structure:

Stage 1	- roll a setting – Where? -When? -roll a character-Who? -roll a plot- Why?
Stage 2	In pairs or groups students make their choices from stage 1 output
Stage 3	Produce stories
Stage 4	Evaluation of the activity

F. Roll-and-write in pieces- using a folded paper on which each member of the group writes a paragraph, respecting the given structure below:

-exposition	-falling action
-initial incident	-resolution
-rising action	-dénouement
-climax	

The advantages of the method include: a low input from the trainer is required for the student to begin production because the frames offered may be placed on any support and include many shapes and combinations of different frames. Students are encouraged to be creative, to focus on the message, and to organise ideas and language structures in a personal and adaptable manner. These forms of practises are easily adaptable to the requirements and capabilities of learners, allowing students of all levels to communicate their experiences while also inspiring them to learn from the other members of the group and expand their knowledge. Students have the opportunity to learn from one another and work in pairs or groups. Activities can serve as an interactive teaching and diagnostic tool when assessment grids are used. They can be easily modified and keep students alert, motivated, and attentive, deeply engaged in the activity that contains language practise and activates experience relevant to their needs and expectations, because of their flexibility, which allows a multitude of combinations and input to be brought instantly into action, and because of the high degree of unpredictability of the production.

## 5. Conclusions

Authentic fragments or pieces of materials (such as advertisements, articles, personal stories, pictures, charts, timetables, bus tickets, annual reports, company narratives, menus, minutes of meetings, brochures) as well as created structures can be exploited and efficiently used. Frame narrative activities are particularly relevant for a great variety of purposes, they offer an infinite number and possibilities to combine, through their dynamic and creative, as well as unexpected output, changing from one student to another, they keep the course alert, students deeply involved and attentive, motivated and willing to contribute or offer support to colleagues in need.

Offering students the opportunity to teach us will make them feel empowered and will reward us with valuable suggestions and transform learning in a memorable experience. We will thus transform them into our co-learners and we will prove them that we are also there to learn from them, for them and with them. Students feel encouraged to transfer the knowledge required in the classroom to their everyday lives, communities or future careers.

Such activities offer a complex support for meaningful practice based on individual knowledge, personal reactions and professional experience. However, they are limited in terms of possibilities to stop the activity, to offer personalized methodical support based on thorough explanations, these forms of practice cannot replace materials especially designed to explain and exemplify structures. From the students' point of view, they will always benefit and be more enjoyable to certain types of learners than to some others. An overuse of these frames will tire the learners. From personal experience, we consider that they take more time than other more targeted types of activities. Even



if the initial input of the instructor is reduced, during the activity the narrative development stage requires a better monitoring of the group of learners and a continuous support from the instructor, a constant physical and mental connection to each participant and to all at the same time.

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## The Public Employment Service – the "Catalyst" for Connecting Employers and the Unemployed in the Labour Market

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### Abstract

*The objective of this paper is to show the role of the Public Employment Service (PES) regarding the connection between employers and the unemployed on the labour market. In this respect, PES is the government institution that, through its activities, provides employers and the unemployed with the necessary information and undertakes concrete actions to bring the two actors of the labour market closer together. For this purpose, several researches were carried out regarding the activity of the PES in different situations, including during periods of crisis. In this paper, we analyse the level of cooperation between NEA and employers in the Republic of Moldova. In the given case, a questionnaire was developed to assess the aspects related to the cooperation between NEA and employers. The sample included 350 employers from different fields of activity that operate in both urban and rural areas. The obtained results show that the level of cooperation between NEA and organizations depends on their size, location and field of activity.*

**Key words:** workforce, unemployed, public employment service, employers, labour market.

**J.E.L. classification:** J21; J48; M51

### 1. Introduction

The Public Employment Service (PES) is the government institution that ensures the connection between employers and unemployed, offering the latter a faster integration into the labour market. Also, PES has an essential role on the labour market functionality at national and regional level. PES should assist in matching the jobseeker with employers, thereby helping to reduce the unemployment rate (Behncke, 2007). PES plays a key role in ensuring that employers and the workforce have access to up-to-date information on the labour market, including information on future skills needs (Andersen et al., 2009).

Over time, the PES's role, as well as the extent of its involvement in the labour market, has varied considerably from one country to another (Dockery & Stromback, 2001). The authors argue that the main reason for the continued existence of public employment services was to promote equity in the labour market, ensuring that the most disadvantaged or the most difficult to integrate into the labour market have access to a guaranteed level of assistance to increase employability. In most countries, the public employment service, through its branches, informs the unemployed about available jobs. The services provided by PES are usually free for both employers and the unemployed (Fougère et al., 2009).

Taking into account the economic and social role that PESs have on the labour market, they have attracted the attention not only of researchers, but also of decision-makers in government institutions. In the most cases, decision makers consider improving the efficiency of PESs, expressed by reducing the high level of structural or non-cyclical unemployment (Sheldon, 2003). At the EU level, European public employment services, including their employees, face major challenges in terms of providing efficient and quality services (Bimrose et al., 2014).

Even though social networks have a determining role in terms of individual labour market outcomes (Castilla et al., 2013; Oesch & von Ow, 2017), the public employment service can be a substitute for jobseekers and which are weakly connected to social networks (Liechti, 2019). In the

given case, "creating connections" between disadvantaged unemployed and employers should become an element of social policy (Ingold & Valizade, 2017) that could be promoted by PES on the labour market. Likewise, active labour market policies could act as an intermediary in the labour market when between jobseekers and employers (Liechti, 2019). There is also a major interest in hiring unemployed people from disadvantaged groups and how PESs can become attractive to employers (van der Aa & van Berkel, 2014; van Berkel et al., 2017).

In order to increase the efficiency of the public employment service, many countries have initiated the process of its decentralization (Mergele & Weber, 2020). The authors argue that local decision-makers might favour certain active labour market policies or monitoring strategies, even if these policies are less effective in facilitating re-employment by providing certain fiscal gains. Employees of the Public Employment Service, including their professionalism and experience, have an important role in ensuring its effectiveness. That is why some authors have analysed the effectiveness of PES specialists according to: different performance indicators (Koning, 2008), the job placement rate of the unemployed (Burgess et al., 2004), the level of unemployment (Vassiliev et al., 2006). It should be noted that not only employees can influence the effectiveness of the PES, but also internal managerial practices can do this. In this context, Nunn & Morgan (2020) conducted a study on how internal PES management practices influence the delivery of services on the labour market, the beneficiaries of which can be both the unemployed and employers. Analysing the effectiveness of PESs at the local level could help decision-makers regarding the redesign of labour offices (Baños et al. 2019).

At the same time, Suárez et al. (2014) analysed the effects of the public employment service on the labour market in transition. The concern of Broschinski & Assmann (2020), was to determine the relevance of public employment services on the labour market integration of young people with low qualifications, and Ludwig-Mayerhofer et al. (2013) analysed the interaction between PES specialists and unemployed clients, highlighting that the latter receive differential treatment.

For public employment services, the Covid-19 pandemic crisis was a big challenge, because the services provided to clients were carried out remotely. Thus, Schmidt & Mitze (2023) investigated the effect of public employment services on labour placement during the crisis.

Considering that employers are the main actors on the labour market, in this paper we propose to analyse the cooperation between them and the PES of the Republic of Moldova. In this context, we formulated the following research question: *"What is the level of cooperation between employers and the Public Employment Service of the Republic of Moldova?"*

## **2. Literature review**

### **2.1. "PES - employers" connection**

The mission of the PES is to collaborate with all categories of organizations, both in the public and private sectors, regardless of their size (small, medium or large). Relationships between public employment services and small businesses through assistance programs have been in the centre of attention of researchers and practitioners because they have had a positive effect on the reintegration of the unemployed into work (Martin & Grubb, 2001; Card, Kluve & Weber, 2009; Rodriguez-Planas, 2010). In this context, Boone & Van Ours (2004) developed a search model to examine how PES can change the search effort of the unemployed in the presence of active labour market policies.

Theoretically, the PES could have an important role at the local level regarding the collection of additional information about employers and employees (Larsen & Vesan, 2011). The authors argue that employers and employees are looking not only for information, but especially for reliable information. Thus, employers have difficulty anticipating how will be the new employee: would he work hard, would he cause trouble, or would he quit the job soon. Only the jobseeker can know this, but he has a clear incentive to present themselves as reliable and productive.

Many employers do not have a positive perception of PES, which causes some reluctance to cooperate with it. Usually, employers do not have much confidence in PES because they have the obligation to help both inexperienced and unskilled unemployed (Larsen & Vesan, 2011). The reluctance to cooperate with PES is also supported by the skilled workforce. Jobseekers know that

PESs are often considered a last resort for recruitment and will suspect them of having many bad jobs in their databases (Larsen & Vesan, 2011).

Employers play a dual role in public employment services, as they can be perceived as both clients and potential co-producers of enabling policies (van der Aa and van Berkel, 2014). As clients, they are volunteers because filling vacancies can also be provided by other recruitment channels (Larsen & Vesan, 2012). As co-producers, their decisions create occupational opportunities for people included in activation programs: both directly, if they are involved in the design and implementation of such programs; as well as indirectly, if they trust the PES as an intermediary in the labour market (Bonet et al., 2013). Even though employers have an essential role in the labour market, Ingold & Stuart (2015) point out that research on activation policies has neglected the relevance of employer engagement. Thus, several authors argue that research on activation policies has been oriented, most of the time, towards job seekers and service providers (Gore, 2005; van Berkel & van der Aa, 2012; Ingold, 2018; Raspanti & Saruis, 2022).

According to Larsen & Vesan (2012), there are four disadvantages that determine employers to alienate themselves from the public employment service:

- PES requires that all jobseekers should be helped, regardless of their attractiveness on the labour market;
- PES supports the unemployed by offering unemployment benefits, while employers consider them less valuable because the job loss could be due to poor performance;
- The negative attitude of jobseekers with valuable skills towards PES, causing them to look for other employment strategies;
- Both employers and highly skilled jobseekers want to rely on networks that provide reliable information on the qualifications required.

Taking into account the mentioned, PES must undertake concrete actions for better cooperation with employers. Ingold (2018) highlights three strategies that PES uses in cooperation with employers. The first strategy is based on the B2B sales approach where job seekers are seen as "products" for employers, while employers are seen as "customers". The second strategy consists in the fact that PES tries to influence the recruitment processes of the employer by interpreting their needs and evaluating candidates for vacancies. The third strategy involves building a long-term relationship with employers, through informal and emphatic interactions.

## **2.2. PES in the Republic of Moldova**

The public employment service functions as an independent government agency to implement active labour market policies (Kuddo, 2012). In the Republic of Moldova, the National Agency for Employment (NEA) is the government institution subordinate to the Ministry of Labour and Social Protection that is responsible for implementing policies on the labour market, including ensuring a relationship between employers and the unemployed.

The relationship between employers and the unemployed on the labour market can be influenced by how NEA performs certain tasks:

- implement employment measures;
- apply mechanisms to support employers operating on a reduced schedule;
- monitor and forecast changes on the national labour market, etc.;
- cooperates with employers on two dimensions: identifying vacant jobs and implementing measures to promote employment.

In recent years, NEA's activity is influenced by several changes taking place in the Republic of Moldova. First of all, the activity of NEA in the Republic of Moldova is caused by the negative demographic trends, coming from the aging of the population and the international migration of the labour force. Second, technological change is another challenge for NEA. Technologies advance faster compared to the level of professional education of the workforce, which causes a gap of professional skills in the labour market, and in the given case, the NEA must act to reduce it, by organizing professional training programs.

### 3. Research methodology

Starting from the research problem formulated in the first section of the paper, we tried to evaluate the cooperation level between NEA and domestic employers. For this, a questionnaire was developed. Employers from the Republic of Moldova were the respondents. The questionnaire was addressed to heads of organizations, in the case of small and micro-enterprises, as well as human resource managers, in the case of large and medium-sized enterprises. The information gathering procedure took place online, following the sending of a letter with the access link for completing the questionnaire. The sample comprised 350 organizations.

### 4. Results and discussions

The results show that of the 350 responding organizations (employers), 53.2% cooperate with NEA, while 46.8% gave a negative response. An objective proposed in this paper was to evaluate the level of cooperation between NEA and employers according to certain criteria. First, we analysed the cooperation level of organizations with the NEA according to their size (Figure 1).

Figure no. 1. The cooperation level of employers with NEA depending on the size of the organization, %

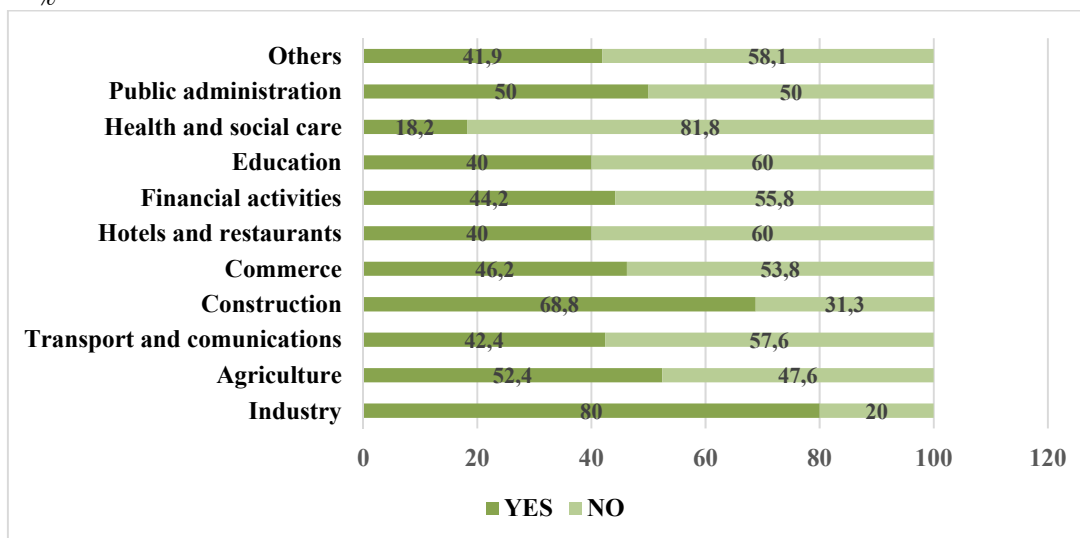


Source: Developed by the author

The results prove that large organizations have better collaboration with the NEA, unlike the other organizations. About 3/5 of large organizations collaborate with the NEA on various dimensions. Out of 83 large enterprises participating in the survey, 60.2% have a collaboration with the NEA. Similarly, we see greater collaboration in the case of medium-sized enterprises. Out of 105 medium-sized enterprises participating in the survey, 58.1% have a cooperation with the NEA. At the same time, we observe a lower connection between small and micro-enterprises with the NEA. Out of 100 small enterprises that participated in the research, only 46% gave an affirmative answer regarding the collaboration with the NEA. Respectively, in the case of microenterprises, cooperation is even less with the NEA. Out of 82 micro-enterprises included in the research, only 43.5% mentioned that they collaborate with the NEA.

The second criterion for determining the level of cooperation between NEA and the responding organizations was their field of activity. In this sense, the responding organizations were included in 11 fields of activity. (Figure 2).

Figure no. 2. The cooperation of employers with the NEA according to the organizations' field of activity, %

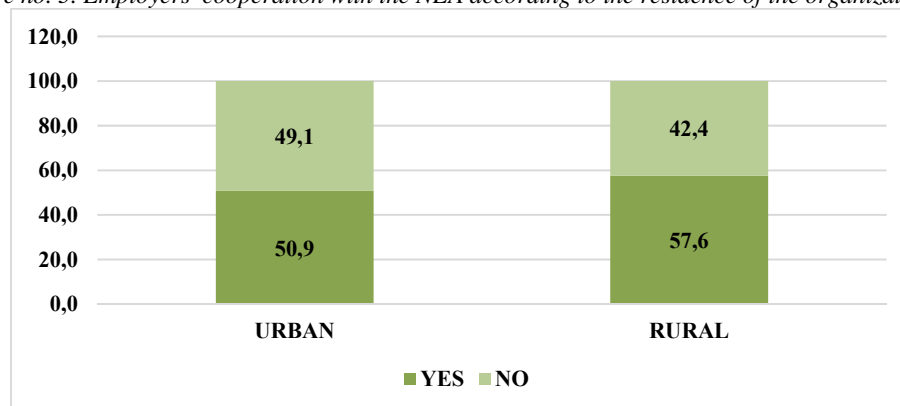


Source: Developed by the author

According to Figure 2, we find that organizations cooperate differently with the NEA, depending on their field of activity. The best collaboration with the NEA is observed in the case of industrial enterprises. Out of the total of 76 industrial enterprises participating in the survey, 4/5 of them collaborate with the NEA. In the next position are the construction companies. Of the 16 responding companies, more than 2/3 have a collaboration with the NEA. On the third position are agricultural enterprises. Out of 42 agricultural enterprises participating in the survey, 52.4% collaborate with the NEA. Commercial enterprises represent the largest share that participated in the survey. At the same time, we find that they cooperate less with the NEA. Out of 78 organizations participating in the survey, only 46.2% cooperate with the NEA. In the case of organizations from other fields of activity, the level of cooperation with the NEA is less than 50%.

The residence was the third criterion by which the level of cooperation between NEA and employers was analysed (Figure 3). 265 employers from the urban environment and 85 - from the rural environment were included in the research.

Figure no. 3. Employers' cooperation with the NEA according to the residence of the organizations, %



Source: Developed by the author

As can be seen from Figure 3, organizations from the rural area have a better collaboration with the NEA, unlike those from the urban environment. Out of 85 rural organizations that participated in the survey, 57.6% have a collaboration with the NEA. At the same time, the collaboration of urban organizations with the NEA is lower, being around 50%.

The cooperation level of employers with the NEA also depends on the efficiency of their activities. Therefore, we asked the employers participating in the survey to evaluate certain aspects related to the NEA activity (Table 1). The survey participants evaluated 7 aspects related to NEA's activity, on a scale from "1" to "5".

Table no. 1. Aspects that characterize NEA activity

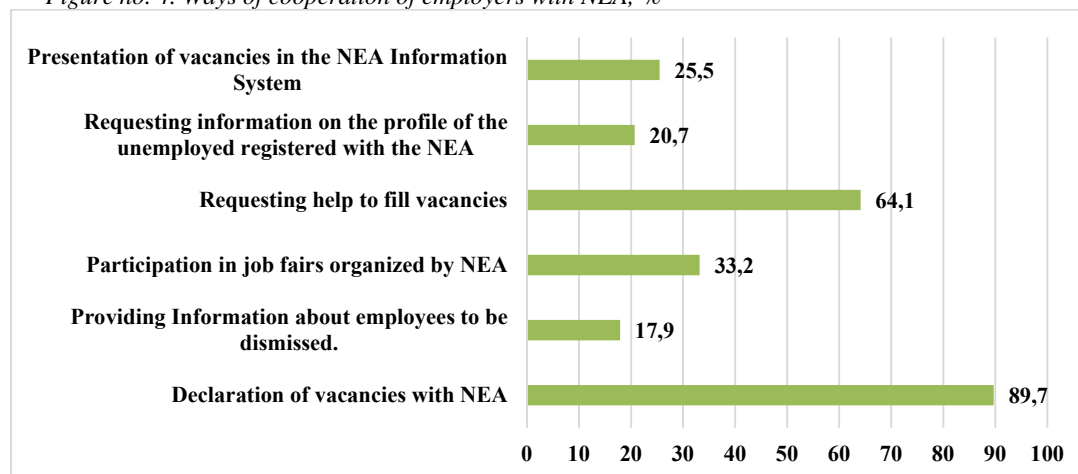
Aspects included in the research	Average score	Total organizations
The professional profile of the workforce registered with the NEA matches to the organizational requirements.	3,6	184
NEA provides support in the process of recruiting people from the unemployed.	3,6	184
The services offered by the NEA are of high quality.	3,8	184
Regular information about the evolution of labor demand and supply.	3,5	184
Permanent information about the organization of job fairs.	3,7	184
NEA's WEB page provides information we need on employment.	3,8	184
NEA staff demonstrates professionalism in providing us with solutions to the workforce issues we face.	3,9	184

Source: Developed by the author

Overall, the assessments given by the responding organizations regarding the NEA's activity are high. At the same time, we can see that some aspects are appreciated higher than others (Table 1). The highest appreciation was given to NEA specialists. The average score was 3.9 points. Also, both the quality of the services offered by NEA and their WEB page were evaluated at a high level, both being appreciated with 3.8 points. The lowest assessment related to NEA's activity refers to the information regarding the evolution of labour demand and supply (3.5 points).

The cooperation between employers and the NEA can take place on several dimensions. In some situations, national legislation obliges organizations from the Republic of Moldova to cooperate with the NEA. Employers must notify the NEA about the persons to be dismissed and they have to declare vacancies in the organization. In our research, we aimed to identify the ways in which organizations cooperate with the NEA. Thus, several answer options were offered, each responding organization had the option to provide a multiple answer to this question. The results are shown in Figure 4.

Figure no. 4. Ways of cooperation of employers with NEA, %



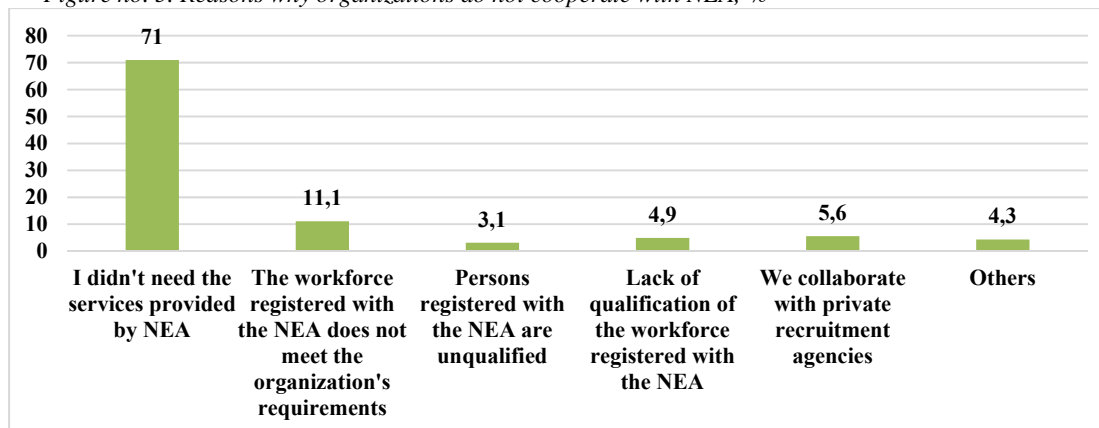
Source: Developed by the author

The results of the research show us that out of all the organizations that cooperate with the NEA, 89.7% do so by informing it about vacancies. Even though the legislation stipulates the obligation of organizations to inform the NEA about the layoffs that are to take place, only 17.9% assume this responsibility. Almost a quarter of the responding organizations cooperate with the NEA by

presenting vacancies in the information system managed by this government institution. Also, almost 2/3 of the responding organizations that cooperate with the NEA request help to cover vacancies, which demonstrates the credibility of this government institution. This is also an advantage for the respective organizations because they manage to save some financial resources, in case of requesting the services of private recruitment agencies. In the case of 1/3 of the responding organizations, cooperation with the NEA consists in their participation in job fairs.

Another concern in our research was to identify the reasons why organizations do not cooperate with NEA. In this sense, 5 items were formulated in the questionnaire, with the responding organizations having the possibility of providing multiple answers (Figure 5).

Figure no. 5. Reasons why organizations do not cooperate with NEA, %



Source: Developed by the author

As can be seen from Figure 5, the main reason why 71.0% of the responding organizations do not cooperate with the NEA is that they did not need the services provided by this government institution. At the same time, some organizations invoked as a reason the fact that the workforce registered with the NEA is unskilled (4.9%), and in the case of 11.1% - the workforce does not meet the organization's requirements. That is why 5.6% of the responding organizations that do not collaborate with the NEA prefer to request, if necessary, the services of private recruitment agencies.

## 5. Conclusions

The Public Employment Service has an essential role for the effective administration of active policies on the labour market, thus contributing to the unemployment decreasing. At the same time, the effectiveness of the PES is determined by how it manages to make the connection between employers and the unemployed, by involving them in various active measures carried out on the labour market.

The results of the research showed us that NEA from the Republic of Moldova cooperates more with large organizations, which is reasonable because there is a variety of trades and professions within them. At the same time, it should be mentioned that they represent a tiny share in the total number of organizations in the Republic of Moldova. This is why it is necessary for the NEA to make efforts to increase the cooperation level with small businesses, which are characterized by greater flexibility and adaptability in the labour market. The large share of industrial enterprises that cooperate with the NEA can also be explained by the fact that they are part of large enterprises. There is also less collaboration with commercial enterprises. These are mostly small enterprises and micro-enterprises that have less cooperation with the NEA.

Research has shown that rural organizations cooperate more with the NEA, compared to urban ones. This can be explained by the fact that in rural areas there is a limited spectrum of trades and professions, which makes employers request the NEA services to identify the right people, as a solution to cover vacancies. At the same time, urban organizations, having other alternatives (private recruitment agencies, educational institutions) for attracting people to the organization, are



less likely to request the help provided by NEA. Also, knowing the profile of the people who register with the NEA (unqualified or lower qualified people), many employers avoid requesting the services offered by it.

In addition, it should be mentioned that the employers that do not collaborate with the NEA are not aware of the active measures implemented on the labour market, respectively they cannot be the beneficiaries of the financial resources offered by this government institution, in exchange for the employment of the unemployed from disadvantaged groups.

## 6. Acknowledgement

This paper was developed within the research project "Development of labour market policies to increase employment", code: 20.80009. 1606.09, provided in the State program for 2020-2023 and funded by the Government of the Republic of Moldova.

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## Overall Impact of Specific Regulations on the Statutory Auditor's Behavior

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### Abstract

*The level of audit regulation has seen an accelerating dynamic in recent years, with the issue of auditor independence increasingly highlighted in the regulations. In Romania, at the level of public institutions, there are, according to the latest reports, vulnerabilities in terms of transparency and the level of cooperation with auditors, manifested by the issuance of qualified audit reports on the basis of events such as the lack of inventory or transparency in the provision of information for audit (failure to issue the audit report). In this context, we proposed to carry out an impact study on the behavior of the statutory auditor in the context of specific regulations and to develop an auditor independence model. The used methods used consist of literature review, econometric modelling and critical impact analysis. The results of the study will highlight the vulnerabilities induced by the level of auditor turnover on the economic performance of public institutions and are useful to decision makers in order to optimize audit practices.*

**Key words:** audit, auditor independence, audit opinion, economic return, auditor rotation

**J.E.L. classification:** H83, M42

### 1. Introduction

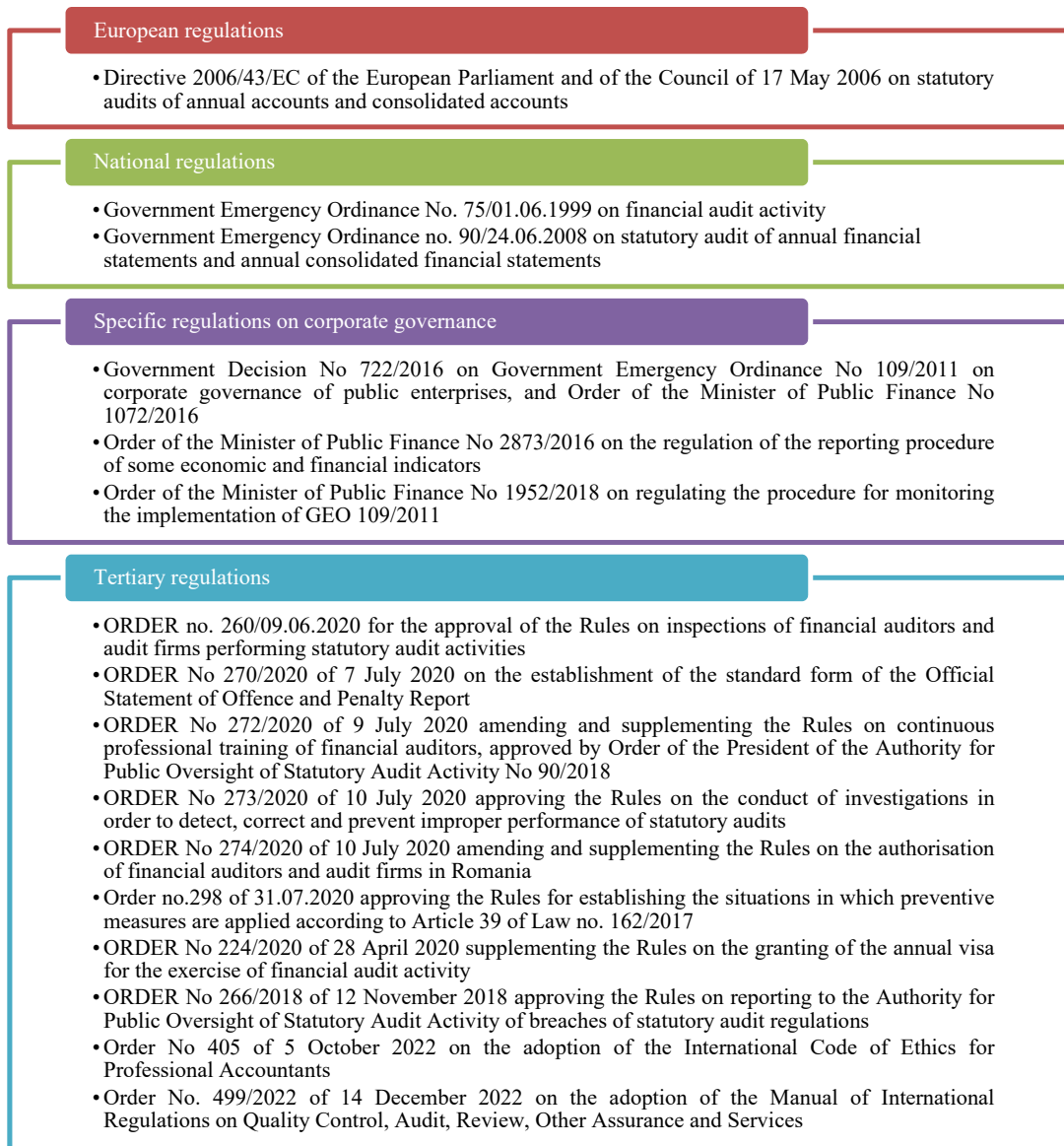
In Romania, in addition to privately owned companies, there are central public enterprises whose purpose is to provide products and services that are fundamental for the functioning of the Romanian economy and social security. The areas in which the Romanian state manages access to resources are: energy, transport and infrastructure, banking and environmental protection. In 2021, there were 846 central public enterprises in Romania, of which 409 with majority public participation and 437 with minority participation (Ministerul Finanțelor Publice, 2022). In order to ensure the traceability of their activities, public enterprises are obliged to provide the general public with information of general interest on their websites, such as the structure and competence of the management bodies, the code of ethics, annual financial statements and audit reports.

According to a national survey conducted in 2021, the audit of the financial statements of this type of entities encountered problems of public dissemination especially in the case of local public enterprises, with situations where the audit opinion could not be expressed. As of 2021 there are a number of 3 local public entities in this situation. As regards the type of audit opinion, in most cases, this opinion was expressed without reservation. The reasons for expressing a qualified opinion are: non-participation of the auditor in the inventory, non-constitution of provisions in some cases or issues of the certainty of income reported in the financial statements.

It results that the role of auditors in strengthening financial discipline is essential, so it is recommended to implement some recommendations made by them in the annual audit reports. Also, the issues of auditor independence and the quality of fraud and error monitoring can be key elements in identifying errors that can ultimately contribute to reducing or even eliminating losses recorded by some of these public entities. In line with the role of the statutory auditor, an important aspect is the discussion with the audit committee on threats to independence and measures taken to mitigate this threat (Petre and Lazăr, 2009).

Specific regulations influencing the role of the statutory auditor are defined at European and national level (see Figure 1).

Figure no. 1. European and national audit and corporate governance regulations



Source: Realized by the author

The need to provide relevant and reliable information to all parties interested in the financial statements published by a company or institution legitimizes the existence of the financial auditor. In order to avoid opportunistic dissemination of financial information, the auditor intervenes to lend credibility to this information, through the capacity with which it is invested - to attest them (Ardelean, 2014). The auditor has a responsibility to act in the public interest, which implies that, in addition to the professionalism and confidentiality he or she places at the service of the client, the auditor will seek to respect and embrace the moral values described by the ethical rules (Cheffers and Pakaluk, 2007).

Furthermore, the auditor's honesty and integrity are reflected in the public's perception through their level of trust. Code of ethical and professional conduct (Batrancea, 2006; Autoritatea pentru Supravegherea Publică a Activității de Audit Statutar, 2022) states that the objectives of the financial audit profession are to carry out work to the highest standards of professionalism, to achieve the

highest level of performance and generally to meet the requirements of the public interest. In this regard, the Code of Ethics issued by IFAC (Autoritatea pentru Supravegherea Publică a Activității de Audit Statutar, 2022) describes the five principles of ethics, namely integrity, objectivity, professional competence and due care, confidentiality and professional conduct. These fundamental principles are best applied by auditors to identify those threats that could compromise the compliance of an audit process in order to avoid them. The IFAC Code of Ethics also describes some specific situations that illustrate the framework that may create threats to auditors. The importance of auditor independence has also been tested in the context of the recent financial crisis, with voices questioning the integrity of external auditors and their possible complicity in issuing misleading reports (in the case of Lehman Brothers we are considering the reporting of credit-related transactions known as Repo 1052).

Prior to this time, a series of accounting scandals in the early 2000s prompted measures to preserve auditor independence. Clearly, financial scandals involving auditors have resulted in a deterioration of the reputation of the profession. As stated above, the public perception of auditor independence is reflected in the level of confidence the community places in an audit report. In order to maintain a high level of confidence, auditors must be independent in fact as well as in appearance. Although there are a number of factors that can interfere with their independence and objectivity in the audit engagement, concerted international action is being taken to neutralize and even eliminate these risk factors or challenges. Maintaining auditor independence often has to pass the test of the auditor's relationship with the client's management, in the context of the client appointing the auditor and paying the auditor's fees. It is clear that a compromise of independence can have serious consequences for the profession, and it is desirable that auditors properly identify possible threats that could interfere with the proper conduct of an audit. Therefore, measures have been and continue to be taken at international level to protect the good reputation and credibility of auditors as a barometer of public confidence.

Strengthening public confidence in the profession is promoted by IFAC through the promotion of high ethical and professional standards. High standards, built on a code of ethics, directly influence the quality of the audit and consequently the credibility of the audit is strengthened (Davenport and Dellaportas, 2009).

The Code of Ethics issued by IFAC, a professional body whose aim is to protect the public interest, provides a framework for threats that disrupt the work of professional accountants and auditors. The risks have been grouped into five categories of pressures that are likely to adversely affect the work of auditors. Thus, the circumstances that may generate threatening situations for auditors are based on internal factors and external factors that have a negative impact on their independence and objectivity. If the challenges are internal in nature then they are influenced by the auditors' perception of their own work, and if they are external in nature, then the audited client's management is involved and has an interest in presenting the financial statements in the most favorable light. The IFAC Code of Ethics refers to the most common challenges facing auditors and presents a classification of threats. Thus, self-interest threats are triggered when the auditor has a direct financial or material interest in the company he is auditing, while threats related to the evaluation of his own work occur when the auditor is also involved in the preparation of the audited client's financial statements and is likely to evaluate the work he has performed. Obviously some threats can be counted as advantages, in this sense familiarity can be considered as a contributing element to a quality audit due to a very good knowledge of the client. In the same vein, threats of intimidation arise when the client pressures the auditor to give an unqualified audit opinion and warns the auditor that he will not renew the engagement otherwise.

The *objectives of the study* are to:

- O1. Literature review to identify the impact of specific regulations on the status of the auditor.
- O2. Carrying out a panel of data for representative national public institutions in order to identify elements of uncertainty induced by the rotation of auditors under the effect of specific regulations in the field.
- O3. Constructing an audit independence model based on the observations of the data panel.

The study continues with a literature review, methodological approach, presentation of the main research results and conclusions.

## 2. Literature review

In the literature, the study of auditor behavior is conducted in terms of the effects on the audit results and the financial performance of the audited company.

The quality of audit missions in the case of companies belonging to Big4 is quantified with the help of statistical surveys by Che et al. (Che, Myllymäki and Svanström, 2023). The analysis refers to audit firms belonging to Sweden's Big4 and shows that auditors who prioritize the client tend to rate the overall quality of the audit as higher. The quality of the audit is influenced in their opinion Hou et al. (Hou et al., 2023) by the auditor's political affiliation. The analysis covers the period 2001-2019 and refers to companies listed on the Chinese stock exchange. The authors conclude that there is a positive relationship between the quality of the audit activity and the auditor's political affiliation. The quality of the audit can also be influenced by the sanctioning of the auditor. Li et al. (Li et al., 2022) carry out an analysis in which they find that sanctioned auditors increase audit fees and the reporting gap. In support of this hypothesis, the authors use specific tools to measure audit quality such as abnormal engagements, modified audit opinion, F score and restatements, concluding that audits that have been sanctioned increase audit quality. Audit quality is also analyzed from the perspective of audit firms' culture by Alberti et al. (Alberti et al., 2022), with the help of a three-phase model that quantifies the mechanisms of cultural incorporation, perceptions of the existing culture and the consequences of culture.

The research finds that an essential role in the development of the audit firms' culture is played by the openness of their management. The same issue is addressed by Eulerich et al. (Eulerich et al., 2023) through the lens of the costs and benefits of technology-based auditing techniques. Although the general idea is that these techniques are beneficial for the audit activity, by identifying more risk factors and recommendations and by reducing the duration of the audit. These immediate benefits are countered by the costs of technology implementation, material and labor costs, the decision to use technologies depending on each individual auditing firm. The quality of the audit can also be associated with the method of issuing the equity offer. Authors such as Dang et al. (Dang et al., 2022) note that American firms with higher quality auditors adopt the method of issuing accelerated offers, which leads to lower audit fees in subsequent years. An interesting approach to audit quality is carried out by Acar (Acar, 2023) and takes into account the implications that the national culture of the country of origin of an auditing firm can have on the auditing activity. The analysis covers 16,444 industrial companies from 51 countries for the period 2009-2019 and uses the Hofstede model. The main finding of the analysis is that the national culture of the countries where the headquarters of the audit firm is located significantly impacts the earnings of the respective firm.

The auditor's evaluation of the risk of significant distortion is influenced in his opinion Zengin-Karaibrahimoglu et al. (Zengin-Karaibrahimoglu et al., 2021) by the audit committee and the manager of the audited company. The authors note a decrease in risk assessments when the audit committee is strong and the manager of the audited company has an appropriate attitude towards the auditing activity. The auditor-client relationship is studied by Agrawal et al. (Agrawal, Wang and Woodliff, 2021), who highlight the importance of an early-stage conversation with an expert management in the auditors' decisions. Such an early discussion can ensure the relaxation of both the auditors and the manager of the audited company and can lead to adjustments that satisfy the interests of both the auditor and the client. An interesting problem related to the audit committee is its efficiency in relation to the stability of the audited company. Nguyen (Nguyen, 2022) found that small audit committees with independent auditors can increase the stability of the audited company by reallocating profits and by providing incentives for holding larger shares of capital. An interesting analysis carried out by Kasper & Alm (Kasper and Alm, 2022) finds that there is a strong relationship of dependence between the efficiency of the auditing activity and the post-audit fiscal compliance of the audited company. Effective fiscal controls have positive effects on post-audit fiscal compliance, while inefficient auditing diminishes this compliance. In the current conditions, the audit activity faces major challenges related to the regulatory space, digitalization, the change in the design of service provision, the audit mode and the auditor's responsibility in the context of the new complex global crises. Ferry et al. (Ferry, Radcliffe and Steccolini, 2022) considers that we can speak of a crisis in public audit, the solution of which seems difficult to achieve.

In this context of the new challenges faced by the current auditing activity, artificial intelligence plays an important role. Fedyk et al. (Fedyk et al., 2022) approaches this topic based on the analysis of the answers given by 310,000 people from 36 large audit firms in the USA. The authors find that the audience that uses artificial intelligence in their work presents special characteristics of age, gender and technical skills. Following the analysis, it is found that artificial intelligence improves audit quality, reduces fees and successfully replaces human auditors. An atypical connection between environmental disasters, resource constraints and the audit environment of the public sector is the subject of a research carried out by Cordery & Hay (Cordery and Hay, 2022). The authors start from the concept of mimetic isomorphism, which they apply to the Supreme Audit Institutions with the help of an international survey and conclude in relation to the modification and the need to adapt these audit institutions to an uncertain future.

Other authors (Yeboah, Addai and Appiah, 2023) discuss the correlation between the audit and the time gap related to the audit fees. The authors find that the reduction in the time for the audit report results in a significant reduction in the paid audit fee. Moreover, the specialization of audit firms in economic branches is supported. There are also concerns regarding the interaction between the auditor's incentives, the auditor's skills and the quality of the audit Velte (Velte, 2022). The authors carry out a large meta-analysis that focuses on the financial restatements of companies and find that the number of these restatements decreases significantly under the influence of the auditor's expertise and the size of the audit company. According to researchers such as Al-Dhamari et al. (Al-Dhamari, Alquhaif and Al-Gamrh, 2022) audit firms are viewed by debt holders as transparent, of lower operational risk and can be associated with lower debt costs. Another interesting research Ghafran et al. (Ghafran, O'Sullivan and Yasmin, 2022) starts from the premise that audit committee members have a negative impact on the quality of earnings. This negative impact increases during the financial crisis and affects the quality of corporate governance. In their opinion Fariha et al. (Fariha, Hossain and Ghosh, 2022), the characteristics of the board of directors and the audit influence the performance of commercial banks. The authors carry out a study based on 30 commercial banks for the period 2011-2017 and find, following MOL modeling, that the independence of the board of directors has a negative and significant relationship with ROA. Authors such as Changwony & Kyiu (Changwony and Kyiu, 2023) believe that companies that employ the services of external auditors and adopt international standards are less likely to be corrupt.

The analysis of specialized literature supports the necessity and opportunity of our scientific approach.

### 3. Research methodology

In order to achieve the objectives, we set the following *working hypotheses*:

H1. The auditor's Big4 affiliation does not significantly influence auditor turnover in public institutions.

H2. Auditor independence and competence significantly influence auditor turnover in public institutions.

H3. The risk of non-detection of errors increases in case of lack of auditor rotation.

In order to validate these hypotheses, we proceeded to the study of the transparency outputs of the central public enterprises, selecting a number of 9 enterprises that have fulfilled the transparency requirements for the analyzed period, being monitored the following indicators:

- AuRot(1N2Y) - Auditor rotation in the period 2018-2022, dichotomous variable (1- without auditor rotation in the period, 2- with auditor rotation in the period).
- Big4(1N2Y) –auditor's affiliation to the Big4 group (1 - auditor does not belong to the Big4 group, 2 - auditor belongs to the Big4 group).
- Opinion(1WR2R) – type of audit opinion (1 - unqualified, 2 - qualified).
- Texp/TRN – return on total expenditure in relation to turnover.
- ADVI/TRN – return on revenue in advance of turnover.
- EQT/TRN – equity return on turnover.
- FA/TRN – return on fixed assets in turnover.
- CA/TRN – return on current assets in turnover.
- DB/TRN - debt to turnover ratio.



The data on the audit information was collected directly from the companies' websites (National Company of Copper, Gold and Iron "MINVEST" S.A. Deva, Lower Danube River Administration, Waterways Administration, Sea Ports Administration, Oltenia Energy Complex, National Company for Road Infrastructure Administration, National Company for River Danube Ports Administration SA Giurgiu, Autonomous Regia for Nuclear Activities and Romarta SA) based on the audit reports published in 2018-2022. Financial data for the period 2018-2022 were collected from the website topfirme.com (TopFirme, 2023). The data were processed using IBM-SPSS 26 statistical software, and the calculation of Pearson correlation coefficients of the variables resulted in custom equations of auditor turnover variation with respect to the variables presented above.

$$\begin{cases} AuRot(1N2Y) = -0.019 * Texp/TRN + \varepsilon \\ AuRot(1N2Y) = 0.11 * Opinion(1WR2R) + \varepsilon \\ AuRot(1N2Y) = -0.047 * ADVI/TRN + \varepsilon \\ AuRot(1N2Y) = 0.081 * EQT/TRN + \varepsilon \\ AuRot(1N2Y) = -0.134 * CA/TRN + \varepsilon \\ AuRot(1N2Y) = -0.127 * DB/TRN + \varepsilon \end{cases} \quad (1)$$

From the equation system (1), it follows that the change in auditor turnover is inversely proportional to the economic return expressed as the ratio of various economic and financial indicators and turnover. The only exception is the equity return, which in the case of public entities is represented by a multitude of redundant assets with low use value, thus expressing an enterprise value that is inconsistent with the market value. It can be seen from the system of equations that there is a direct proportional relationship between auditor turnover and audit opinion.

We performed the independence model on the basis of a multiple linear regression with a statistical significance level of over 50%, which means that there is a strong connection between economic return, auditor turnover and audit opinion and the other economic indicators analyzed (see Table 1).

Table no. 1 Model Summary

Model a,b	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin- Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.787	0.619	0.559	0.687913	0.619	10.294	6	38	0.000	0.808
a. Predictors: (Constant), DB/TRN, Opinion(1WR2R), AuRot(1N2Y), ADVI/TRN, EQT/TRN, CA/TRN										
b. Dependent Variable: Texp/TRN										

Source: Realized by the author using SPSS statistical software vers. 26

By designing the ANOVA test using SPSS software, the independence model was validated in the sense of obtaining representation rates of the regression squares values higher than the residual squares, the validity of the model being confirmed by the representativeness of the errors within the chosen significance threshold ( $\alpha < 0.05$ , see Table 2).

Table no. 2 ANOVA

Model a,b		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.230	6	4.872	10.294	0.000
	Residual	17.983	38	0.473		
	Total	47.212	44			
a. Dependent Variable: Texp/TRN						
b. Predictors: (Constant), DB/TRN, Opinion(1WR2R), AuRot(1N2Y), ADVI/TRN, EQT/TRN, CA/TRN						

Source: Realized by the author using SPSS statistical software vers. 26

Homogeneity testing of the data was performed with the nonparametric Kolmogorov-Smirnov test, which validated the homogeneity of the panel data, resulting in error representation rates close to 0, allowing the rejection of the null hypothesis and the validation of the alternative hypothesis according to the data in Table 3.



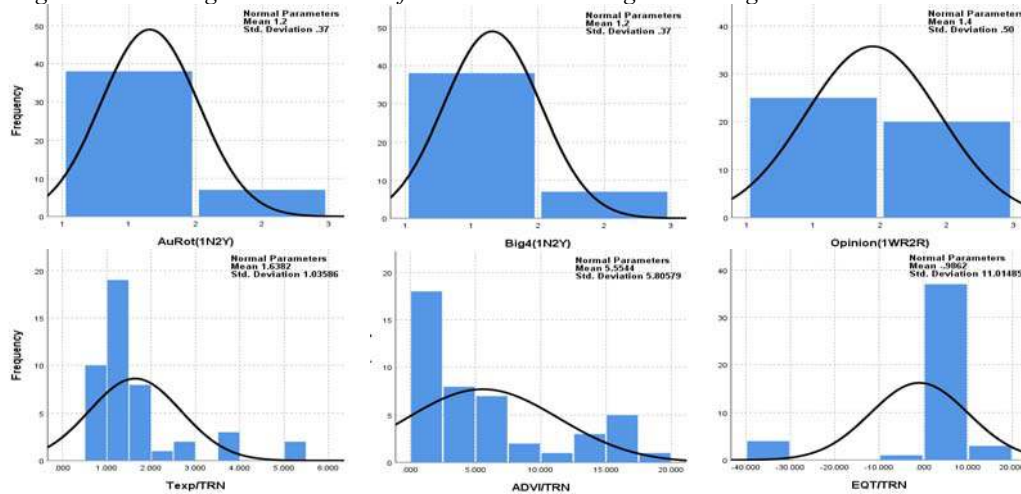
Table no. 3 Hypothesis Test Summary

No	Null Hypothesis	Test	Sig. <sup>a</sup>	H.
1.	The distribution of AuRot(1N2Y) is normal with mean 1 and standard deviation .367.	One-Sample Kolmogorov-Smirnov	0.000	Reject the null hypothesis.
2.	The distribution of Big4(1N2Y) is normal with mean 1 and standard deviation .367.		0.000	
3.	The distribution of Opinion(1WR2R) is normal with mean 1 and standard deviation .503.		0.000	
4.	The distribution of Texp/TRN is normal with mean 1.638 and standard deviation 1.035858.		0.000	
5.	The distribution of ADVI/TRN is normal with mean 5.554 and standard deviation 5.805786.		0.002	
6.	The distribution of EQT/TRN is normal with mean -.986 and standard deviation 11.014853.		0.000	
7.	The distribution of FA/TRN is normal with mean 19.362 and standard deviation 28.638411.		0.000	
8.	The distribution of CA/TRN is normal with mean 7.988 and standard deviation 19.307105.		0.000	
9.	The distribution of DB/TRN is normal with mean 21.093 and standard deviation 49.437953.		0.000	
Asymptotic significances are displayed. The significance level is .050.				
<sup>a</sup> Lilliefors Corrected				

Source: Realized by the author using SPSS statistical software vers. 26

The histogram distribution of the variables according to the nonparametric tests performed in SPSS26 software shows a polarization of auditor turnover towards the low turnover area for the selected sample of firms and a representation of small auditors from outside the Big4 in the audit group, with the majority opinion being "unqualified", as shown in Figure 2.

Figure no. 2. Histogram distribution of indicator values using the Kolmogorov-Smirnov test

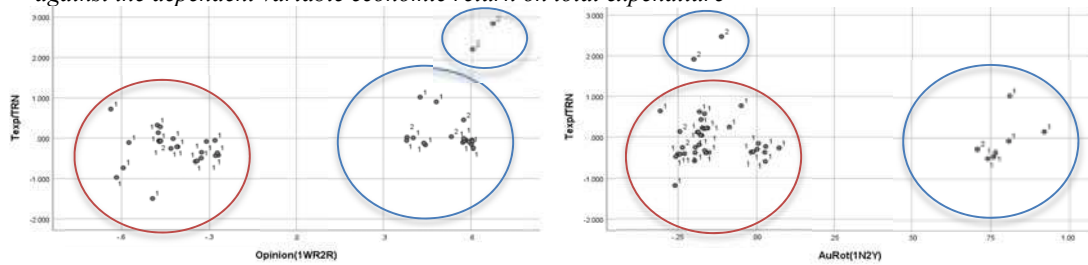


Source: Realized by the author using SPSS statistical software vers. 26

From Figure 2 above, it can be seen that the economic performance of firms is predominantly low, with points of maximum clustering observed in the lower area of performance. In terms of return on capital, a variation with predominantly positive values is observed around the range 0-10000 monetary units.

The analysis of the effect of auditor independence through auditor rotation and audit opinion is reflected on the economic return on expenditure through three clusters, of which that of non-Big4 auditors is predominantly in the lower median area of performance (marked in red in the graph), while the Big4 effect is quantified with impact on return by shifting the position in the graph to the upper median area (with blue), (see Figure 3).

Figure no. 3. Partial distribution plots of the independent variables audit opinion and auditor turnover against the dependent variable economic return on total expenditure



Source: Realized by the author using SPSS statistical software vers. 26

The proposed independence model has a high degree of replicability through the methodology explained in detail and demonstrates that auditor independence has an effect on economic performance.

#### 4. Findings

As a result of data collection, the panel layout was developed and its descriptive-statistical characteristics were analyzed using IBM-SPSS26 software and the case summary table was drawn up (Table 4).

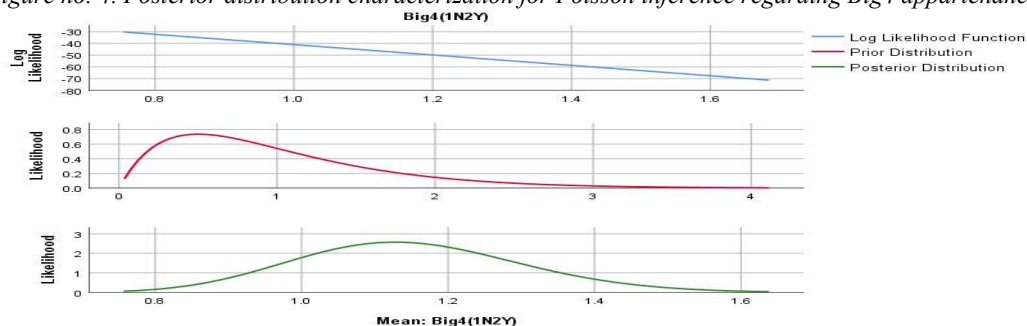
Table no. 4 Case Summaries

Indicators			Big4	Opinion	GPr/	Texp/	ADVI/	EQ1/	FA/	CA/	DB/
1	Without auditor's rotation during 2018-2022	Mean	1.16	1.42	0.12	1.65	5.67	-1.36	20.90	9.08	23.75
		Median	1.00	1.00	0.05	1.27	3.80	1.21	6.41	0.94	0.57
		Std. Deviation	0.37	0.50	0.49	1.06	5.87	11.97	30.32	20.83	53.06
2	With auditor's rotation during 2018-2022	Mean	1.14	1.57	0.03	1.59	4.93	1.06	11.04	2.05	6.66
		Median	1.00	2.00	0.05	1.20	4.76	1.19	5.49	0.77	0.43
		Std. Deviation	0.38	0.53	0.26	0.98	5.83	0.73	15.83	3.19	16.62
Total		Mean	1.16	1.44	0.11	1.64	5.55	-0.99	19.36	7.99	21.09
		Median	1.00	1.00	0.05	1.20	3.91	1.19	6.22	0.92	0.46
		Std. Deviation	0.37	0.50	0.46	1.04	5.81	11.01	28.64	19.31	49.44

Source: Realized by the author using SPSS statistical software vers. 26

From Table 4, it can be seen that the distribution of the data series by Big4 auditor criteria shows that in the case of Big4, audit firms tend to have a higher turnover than non-audit firms. The level of turnover does not increase significantly for public firms due to their financial strength, which does not significantly affect the cost of auditing, but also due to procurement procedures that are more cumbersome in public institutions, which is why we estimate that the Big4 membership of the auditor does not significantly influence the turnover of auditors in public institutions (proving working hypothesis H1). This evolution analyzed by the Poisson posterior distribution effect is shown in Figure 4.

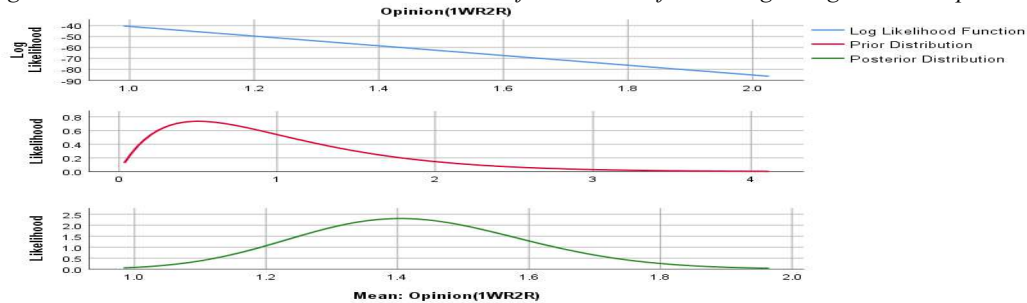
Figure no. 4. Posterior distribution characterization for Poisson inference regarding Big4 appartenance



Source: Realized by the author using SPSS statistical software vers. 26

From the audit opinion point of view, there is an increase in the intensity of auditor turnover on the criterion of thoroughness in detecting errors, which means that auditor independence and competence significantly influence auditor turnover in public institutions (proof of working hypothesis H2). This evolution analyzed by the Poisson posterior distribution effect is shown in Figure 5.

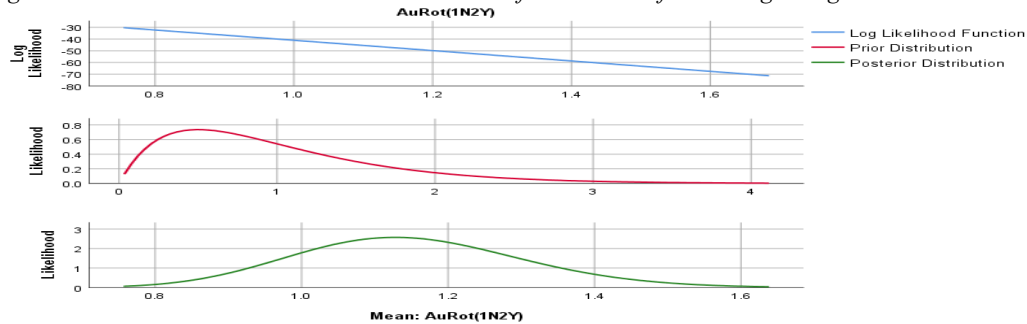
Figure no. 5. Posterior distribution characterization for Poisson inference regarding auditor's opinion



Source: Realized by the author using SPSS statistical software vers. 26

As for the expenditure yield, it can be seen from Table 1 that it is higher in the case of no auditor rotation, and the level of standard deviation assimilated to the spectrum of variation of the distribution is higher in this case, which means that the risk of non-detection of errors increases in the case of no auditor rotation (proving the working hypothesis H3). This hypothesis is also validated by observing the statistical distributions of the other indicators: ADVI/TRN, EQT/TRN, FA/TRN, CA/TRN and DB/TRN. This analyzed evolution by the Poisson posterior distribution effect is shown in Figure 6.

Figure no. 6. Posterior distribution characterization for Poisson inference regarding auditor's rotation



Source: Realized by the author using SPSS statistical software vers. 26

From the presented analysis, it appears that auditor independence and auditor behavior influence the detection of elements of fraud and error in public institutions by means of statutory audit, these aspects being enhanced by legislative changes in the field.

## 5. Conclusions

The author aimed to carry out an impact study on the influence of auditor independence and rotation on the economic performance of the firm in the context of new national and European audit regulations. In this respect, the objectives of the research were achieved, the author conducting a literature review and proposing an econometric model of independence, which was statistically validated during the research.

During the study, it was shown that: the auditor's Big4 affiliation does not significantly influence auditor turnover in public institutions; auditor independence and competence significantly influence auditor turnover in public institutions; and the risk of non-detection of errors increases in case of lack of auditor turnover.

The results of the study are useful for decision-makers to optimize audit practices. The limitations of the study are given by the relatively small number of companies and analyzed indicators, as well as the time period for which the analysis was carried out, the author proposes to further develop the proposed model in order to improve its results.

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## Interviews in Business Communication

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### Abstract

*This paper tackles the role and the advantages of studying job interviews in business communication and proposes several activities and strategies that can be implemented in English Business Communication courses and seminars. The first sections of the article deal with certain theoretical issues related to the concepts of communication (in general), communication in the business environment and job interviews. It further proposes several types of activities that can be employed in order to teach students about job interviews, such as roles and interview simulations, analysis of real interviews, analysis of CVs and cover letters, research projects and presentations, writing and revision exercises, vocabulary exercises on the topic of job interviews, discussions with specialists from the field, online resources and authentic materials. It is expected that the knowledge about employment interviews, implemented in ESP courses and seminars provide students the skills and tools required for the success on the workforce market.*

**Key words:** interviews, communication, English Business Communication, ESP, teaching activities

**J.E.L. classification:** D83

### 1. Introduction

Since the success of a company depends, to a great extent, on its employees, interviews play a crucial role in the recruitment process, as they represent an opportunity to certify and assess a candidate's skills and competences, mentioned in his/ her CV and/ or cover letter, and decide whether s/he is suitable for the respective vacant position in the company. Inappropriate interviews are often affected by biases, by prejudices that influence the interviewers' judgement in the selection of candidates that are not suited for the vacant position. Inadequate recruitment processes based on poor interviews that do not provide sufficient or competent information about the candidate usually trigger the employment of people that are not suitably qualified for the respective positions, often entailing financial losses for the company, and psychological consequences as well, such as motivation decrease and decline in the employees' trust in the management team.

### 2. Theoretical background

The English word "communication" – which originates from the Latin "communicare" – generally refers to the idea of sharing information, attitudes and/ or feelings in various ways and understanding it (see *Cambridge Dictionary* online). Communication also encompasses the idea of dynamism and interaction between the participants involved in this process of information conveyance, being assigned various meanings and perceptions, depending on the field of study that tackled it.

The specialists in the field (see Nadrag, 2019; Novak, 2019; Chaturvedi and Chaturvedi, 2012) also add that the communication process generally involves a person who sends the information (i.e., communicator) and another one who receives the respective information and from whom a response is expected (i.e., receiver). The scholars further explain that the communicator's purposes are attained if s/he succeeds in estimating the communication levels typical of the receiver and if s/he employs appropriate elements that serve the purposes of the message, such as language type (verbal and paraverbal), language items (e.g., words, idioms), the receiver's level of comprehension of the

respective elements, etc. In his/ her turn, based on previous experiences, the receiver seeps through the information and develops an answer, switching thus the roles when s/he sends it (i.e., the receiver becomes sender of the message and the previous sender becomes receiver). The communication process includes paralanguage elements as well (e.g., mimicry, body position and movements, etc.), which contribute to the interpretation of the message.

As far as business communication is concerned, it represents a vital instrument in a wide array of business contexts, in order to achieve goals and attain success, from daily activities to important meetings, negotiations, interviews, procedures and transactions. In the perspective of scholars such as Beck et al (2002), Coffelt and Smith (2020), Gulati et al (2017), adequate and solid communication skills support managers in their progress on the career ladder and in their endeavors to develop their companies. Furthermore, scholars mention several communication methods, from the dispatch and reception of physical things or beings to the conveyance of information by using various technological means, and the transmission of ideas, feelings and attitudes via different forms of art. In the business environment, communication takes the form of an art as it is often the key to successful business transactions (see Novak, 2019; Chaturvedi and Chaturvedi, 2012). In his turn, McLean (2005) sees business communication as an art of persuading others persons for the attainment of certain objectives, as a skill that should characterize efficient leaders. The specialists in the field have noticed that when the organization develops and the number of employees increases, communication turns into a laborious and challenging process and it is often replaced by information, which is a one-way (downward, upward or horizontal) partial process (McLean, 2005; Mumby and Kuhn, 2018). In this situation, the information flow and its processing play a vital role as far as the success of the organization is concerned (see Sutherland et al, 2004).

Conrad and Newberry (2011) and Conrad (2014) pinpoint that, in the business environment, communication allows people to perform a wide array of actions that are vital for the survival and development of the organization they work for, i.e., discuss, react, interact, convey messages, negotiate, coordinate, brainstorm, design regulations, perform various transactions, monitor and cooperate in order to achieve their common goals. Since it takes place inside the organization, it is known as internal communication, and it also keeps the both people and the company branches interconnected. It is noteworthy that efficient communication skills empower an organization's employees. In addition, the specialists in the field (see Kumaran, 2012; Avram, 2015; Katter, 2021) assert that a successful communication process benefits both the organization and its employees on the long run, as it brings solutions to various problems and conflicts, enhances productivity, helps employees climb the career ladder and strengthens collegial relationships.

In the literature (see Kumaran, 2012; Avram, 2015; Katter, 2021) it is further explained that the communication process among different organizations/ bodies or between an organization and the public/ persons outside it is known as external communication; such instances (given by the aforementioned scholars) are the communication processes that an organization has with its distributors, customers, state authorities or agencies; public speeches held by managers; informative documents, advertisements and press releases referring to the organization and/ or to its products/ services; responses to various events in the media related to the company; etc. External communication is mainly aimed at constructing and administering the image and reputation of the organization, removing irrelevant correspondence, boosting the number of customers and stakeholders, thus increasing its profit (see Conrad, 2014; Conrad and Newberry, 2011).

When it comes to efficient communication, there are several aspects that should be taken into consideration, such as effective listening, adaptation to the audience, non-verbal communication (Nadrag, 2008). Effective listening, which is a skill that should be mastered by medium and top-level managers, is often encumbered by the pace discrepancy between the comprehension process and the speaking ability, external attention distractors, lack of time, faulty listening, biased message filtering (see Scott McLean, 2000, p. 25). Methods recommended for the development of effective listening are focusing on facts and feelings, retention of key words, paying attention to the speaker's point of view and to paraverbal elements, avoiding unpleasant remarks, message clarification where necessary, ensuring common ground (Novak, 2019; Chaturvedi and Chaturvedi, 2012). When it comes to the adaptation to the audience, speakers should have in view that their message may not be always comprehended entirely and that their audience may have a different understanding level, especially when it comprises more receivers. This triggers the requirement of a constant adaptation

to the audience, an open mind, knowledge of the audience and awareness of what is being communicated, in order to maintain their attention and make sure that the message is clearly and fully understood (see Mujezinovic, 2011; Littlejohn and Foss, 2009). As far as non-verbal communication is concerned, it refers to both willing and unwilling body language elements of the individuals involved in the communication process, which add meaning to the conveyed messages (see Mujezinovic, 2011).

Job interviews are organized in order to help an employer (i.e., interviewer) decide whether a candidate (i.e., interviewee) is suitable for a certain vacant job (Huffcutt and Culbertson, 2011), in accordance with the business principles, policies and strategies of the respective organization and with its prospects, the largest power being held by the interviewer, as s/he usually controls the entire process. Interviews are vital in the selection process, as poor staff selection may trigger serious issues within the organization, especially in terms of image and profit, having in view that they usually provide various products and services, thus satisfying the customers' needs (see Half, 2022; Di Pietro, 2018; Charaba, 2023).

In order to achieve their goals and employ the most suitable applicants, organizations use various types of interviews (see Salgado and Moscoso, 2011; Dippoye, 1997), such as the unstructured conventional interview (although it is the most widely used, it is less reliable because it is an informal conversation whose content is shaped in accordance with the candidate and it has feeble psychometric grounds), the structured conventional interview (it is based on a script/ instructions, so as to obtain similar pieces of information from all candidates, and it has psychometric grounds – see Huffcutt et al, 2013), the structured behavioral interview or the competency interview (it is the most reliable and it has predictive capacities, as it is based on the behavior consistency principle, in order to forecast the candidate's work behavior, based on past behavior – see Chorogwicka and Moscoso, 2007; Salgado et al, 2007).

Interviews can be conducted either one-to-one (i.e., between one interviewer and one interviewee), between two or more interviewers and one interviewee (where one interviewer conducts the interview and the others ask additional questions occasionally) or between one interviewer and more interviewees (group interview) (Hamdani et al, 2014).

The interviewer's main objective is to select the best candidate for the vacant position, while the interviewee seeks to convince the former that s/he represents the best choice for the respective job (Macan, 2009). The literature highlights three main parts that make up the selection process based on job interviews (see Hamdani et al, 2014), i.e., company and interviewer presentation, the applicant's presentation of his/ her knowledge, skills, experience and motivation in connection to the vacant position within the company, negotiation of the pecuniary aspects (e.g., remuneration package, holiday leave, responsibilities, etc.). Moreover, scholars (see Derous et.al, 2016) explain that the job interview consists of several stages, i.e., the opening (the first contact between the parties involved in the interview), the rapport (the interviewer attempts to generate a climate of trust, prone to the exchange of information), rules communication (awareness of the rules underlying the interview), development (asking questions in order to obtain the necessary information from the candidate), closing (signaling the end of the interview) and reporting (drafting a report about the interviewee).

### **3. Research methodology**

This section is focused on a research proposal to be conducted in the English Business Communication courses and seminars, in the future academic year 2023-2024, with students enrolled in Economic Sciences.

As they represent important stages in the employment process, job interviews should be inserted within the ESP curriculum, and students should be provided adequate knowledge and practice in this regard, in order to enhance their chances of success on the labor market. Moreover, the student's communication abilities would enhance, as they learn how to present in a clear and efficient way their knowledge, experience, skills and assets, in order to convince the potential employers to hire them.



Being an interactive process, the job interview involves the creation of a communication bridge between the parties involved in this process, which facilitates dialogue (Macan, 2009). These communication abilities are also useful in one's professional life, in general. Another advantage of inserting knowledge about job interviews in the ESP curriculum is represented by the fact that students would be able to better understand the employer's expectations, which would enable them to prepare adequately for the interviewer's questions, to highlight their abilities and experience relevant to the respective job and to exhibit their potential in connection to the organization culture and values.

Since knowledge about the features of various types of job interviews (i.e., individual interviews, group interviews, structured interviews, unstructured interviews, competency-based interviews, etc.) should also be tackled, students would better understand the specific tasks associated with each type of interview and be better prepared. Furthermore, the adequate training for job interviews could contribute to the decrease in the students' stress level, as they would feel more confident and have a positive attitude, being thus able to handle tense situations successfully. Students would also understand better the selection process and its stages, which would help them prepare in advance; they would know what to expect and would be prepared for, and familiarized with every stage of the employment process. Furthermore, on this occasion, their knowledge gaps can be identified and their abilities can be amplified as they receive constructive feedback with regards to their strengths and weaknesses, in order to improve their future performances.

Thus, the research hypothesis proposed by this article regards the connection between the insertion of the topic of job interviews in the ESP curriculum (in Business Communication course and seminars) and the advantages it brings in terms of the enhancement of the students' ESP knowledge and skills, increasing thus their employment chances on the labor market.

The research methods that will be employed in order to verify the validity of the hypothesis are the observation ("a complex research method because it often requires the researcher to play a number of roles and to use a number of techniques, including her/his five senses, to collect data", Baker, 2006, p. 172) and the experiment ("the backbone of good research", which orchestrates "data collection, defines the statistical analysis of the resultant data, and guides the interpretation of the results" – Knight, 2010, pp. 98-99). By means of the observation method, pieces of information about the students' attitudes and reactions during the ESP courses and seminars will be collected, in connection to the introduction of the topic of job interviews and to the tasks they receive. The experiment is designed to assess the influence that the topic of job interviews has on the students' ESP skills, in general, and on their communication skills, in particular. For this purpose, the students' ESP and communication skills will be assessed before and after the teaching stage (focused on job interviews). The results from both tests will be compared in order to establish whether there is any possible evolution of the students' skills and if the research hypothesis can be validated.

#### **4. Findings**

First of all, students should learn about the main objectives of job interviews, i.e., collecting information about the applicants and their needs, motivation and interests, assessing/ exploring their knowledge, skills, professional path and behavioral abilities connected to the job, providing additional pieces of information about the vacant position (e.g., tasks, rules, collaborators, benefits, payment, career prospects), etc. (Hamdani et al, 2014).

The scholars in the field suggest a series of activities and strategies that can be implemented in the ESP courses and seminars, in the teaching stage of the experiment, in order to teach students about job interviews; such activities and strategies include roles and interview simulations, analysis of real interviews, analysis of CVs and cover letters, research projects and presentations, writing and revision exercises, vocabulary exercises on the topic of job interviews, discussions with specialists from the field, online resources and authentic materials.

Roles and interview simulations, where students can play the roles of job applicants (as interviewees) and employers (as interviewers), allows students to practice various types of job interviews (e.g., one-to-one interviews, group interviews), to formulate questions and answers typical of such contexts, to develop their communication skills and confidence, and to receive feedback from both the ESP teacher and their colleagues (see Razali and Ismail, 2017; Tompkins, 1998). In addition,

teachers can also create specific job interview scripts, by providing students with specific interview questions or by setting a specific context (i.e., interviews focused on certain jobs from the students' field of study).

Students should be aware that interviews also represent an opportunity to collect as much reliable information as possible about candidates and that a good and relaxing atmosphere diminishes their anxiety. They should also pay attention to the paralinguistic (e.g., nodding/ shaking one's head, grinning, smiling, body position, etc.) employed by both the interviewer and the interviewee and to the meanings conveyed by it (e.g., approval, disapproval, attention, lack of attention, restlessness, anxiety, etc.) (Derous et.al., 2016).

By analyzing and discussing real (recorded) interviews selected by the teacher, the students can learn about the answer strategies used by interviewees, and they can comment upon the strengths and weaknesses of the respective candidates. Moreover, students can be asked to identify the interviewer and the interviewee's objectives and to check their fulfilment degree in the respective interviews. For instance, as far as the interviewer is concerned, students can check whether s/he has identified in the candidate the job profile features, his/ her weaknesses and strengths, his/ her motivations and knowledge about the respective job; they can also try to determine if the interviewer has established whether the candidate is suitable for the job, if s/he is willing to fill in the respective position and/ or if the interviewer intends to/ has managed to employ the respective candidate (see Hamdani et al, 2014). As regards the interviewee, students can be required to establish the following: whether the candidate is truly interested in the respective job and if s/he has proved that s/he is the right person for the job; if the candidate has impressed the interviewer in any way, if s/he has met the interviewer's expectations and furnished appropriate and pragmatic pieces of information; if the candidate has collected more information about the job and if it has met his/ her expectations; if the candidate will be employed within the respective company. Thus, the analysis of job interviews can teach students several elements that otherwise cannot be measured or noticed, and highlights the importance of the information it provides (see Hamdani et al, 2014).

Students can also be provided with examples of CVs and cover letters and asked to analyze them. They can also be asked to perform various tasks involving the preparation for interviews, solving exercises related to the content and structure of CVs and cover letters. They will thus be able to apply the acquired knowledge in their own future job interviews and they will better understand the structure and content of efficient and interesting CVs and cover letters.

Teachers can encourage their students to conduct research about job interviews in their field of study and prepare presentations about them, either individually or in small groups. On this occasion, they can explore the various types of questions used in interviews, they can become acquainted with the wide array of techniques and strategies employed by interviewers, and they can also draw their own list of practical pieces of advice and tips. Students can share and discuss these presentations with their colleagues, the exchange of information contributing to the development of their skills.

The teacher can ask students to complete various writing tasks involving the formulation of certain answers to questions typically encountered in job interviews, to draft their CV or a cover letter (for more details on writing activities see Giesen, 2001). Furthermore, vocabulary exercises and materials focused on typical interview questions can also be employed (for more details on vocabulary activities see Peery, 2021; Zipser, 2013). For instance, students can be required to ask or answer certain job interview questions, to solve exercises involving knowledge of the adjectives used in order to describe personal or professional skills or verbs employed in order to talk about one's professional experience, achievements and abilities. The feedback to these tasks can enhance the students' writing and speaking skills.

By inviting various specialists professing in the students' field of study and discuss about the employment process and job interviews, teachers can furnish their students an opportunity to ask questions in this regard. In addition, they also extract valuable pieces of information from real experiences and obtain practical pieces of advice from the specialists in the field, with a real and fresh perspective upon the job interviews and the expectations of the employers from the respective field.

Authentic materials and online resources (e.g., videos about job interviews, blogs, articles) can familiarize students with the topic of job interviews and boost their knowledge on this topic (see Berardo, 2006; Kilickaya, 2004). These materials can be discussed in the ESP seminars in detail, in

order to deepen the students' knowledge.

It is noteworthy that the above strategies and activities should be adapted in accordance with the students' English proficiency level, their needs, objectives and field of study.

Therefore, by integrating job interviews in the ESP classes, students will be granted the opportunity to learn and apply practical knowledge and skills, being thus better prepared for their future careers. Moreover, this also represents an efficient and relevant way of developing their ESP vocabulary and communication skills in real-life contexts. It is therefore expected that the research hypothesis be validated by the post-teaching test results.

## 5. Conclusion

In conclusion, learning about employment interviews is important because it provides students with the skills, tools and knowledge required for the success on the workforce market. This knowledge implemented in ESP courses and seminars helps them prepare adequately, develop their ESP skills and communication abilities and understand the employers' expectations, enhancing thus their chances of finding the right job. Thus, they are granted both practical and psychological advantages, which contribute to their personal development and to the achievement of a successful career.

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## Project-Based Learning in ESP. Case Study in Economic Sciences

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### Abstract

*This paper deals with the advantages brought by Project-Based Learning (PBL) in the ESP courses and seminars. The first two sections tackle several theoretical elements related to the topic (definition of PBL, main features and advantages); the next sections focus on a case study proposal (based on observation and an experiment) in economic sciences, i.e., the application of PBL in ESP courses and seminars, in order to enhance the students' ESP skills and soft skills. The practical sections also propose several PBL activities that can be adapted and implemented for the purpose of the study, taking into account the curriculum, the students' needs and proficiency level. The findings highlight the possible developments in the students' skills, entailed by the implementation of PBL in the ESP courses and seminars.*

**Key words:** Project-Based Learning, ESP skills, soft skills, activities, business English

**J.E.L. classification:** D83

### 1. Introduction

The constant technological development and expansion of the globalization phenomenon has contributed to the transformation of the English language into a contemporary lingua franca, and hence the need to renew the teaching approaches, strategies and materials and to adapt them regularly to the students' needs and fields of study, in real life learning contexts and non-formal environments as well. For this purpose, ESP teachers employ various modern approaches, in order to increase their students' motivation and upgrade the teaching and learning processes (see Maruntelu, 2019). Such an innovative and student-centered approach in this knowledge-based environment is represented by Project-Based Learning, which would also open the path towards modern assessment and provide precious opportunities for the development of ESP skills in lifelike contexts. Project-Based Learning also allows the integration of modern teaching, learning and assessment strategies and resources in the ESP courses and seminars, contributing to the enhancement of several soft skills as well, such as critical thinking, creativity, teamwork, and communication.

### 2. Theoretical background

#### 2.1. Project-Based Learning – definition and main features

The concept of Project-Based Learning is defined as "a systematic teaching method that engages students in learning important knowledge and 21<sup>st</sup> century skills through an extended student-influenced inquiry process, structured around complex authentic questions and carefully designed products and learning" (Larmer and Hallerman, PBL in elementary grades, 2009: p. 7).

According to the literature, this dynamic and comprehensive approach allows learners to investigate issues similar to those from the real life, engaging them into the learning process and deepening their knowledge of the respective subject. Scholars also agree that when working on projects, students actively involve into an experiential learning model, and enhance their teamwork skills and independence (see, for instance, Guo et al., 2020; Markula and Aksela, 2022). In addition,

Project-Based Learning also increases their motivation, through their personal participation in the learning process, the tangible product of this process (i.e., the project), and the opportunity to communicate in authentic situations.

According to Fried-Booth (2002: p. 127), projects represent a modality to engage the student in the learning process and make him/ her employ "the full range of skills and talents available", furnishing at the same time "a planning approach for multi-level classrooms" and the necessary tools for "cross-curriculum and language skill integration". Therefore, in the ESP seminars, Project-Based Learning involves activities based on authentic communication, such as planning, organizing, teamwork, problem-solving, decision-making, negotiation, role assignment, selection and presentation of information; in addition to soft skills, they also employ their English receptive and productive skills regardless of the students' proficiency level), creativity and knowledge acquisition skills (see Chmelárová and Pasiar, 2017).

In Slavin's perspective (1995), cooperative learning is connected with Project-Based Learning, as it opens the path towards cooperation, and the design of some of its forms requires the assignment of specific roles for the achievement of an overall group task, facilitating meaningful and authentic learning. Thus, Project-Based Learning involves all students, but each one of them should have different responsibilities in order to make sure than everybody participates.

The literature presents several significant steps that should be implemented in the design of successful Project-Based Learning, i.e., planning or preparation (for instance, establishing the project purpose, main topic, place, final product and assessment procedures; selecting human resources and materials); implementation (e.g., carrying out the established activities, acting out the roles, with the teacher as supervisor and resource provider), and assessment (formative and summative), the project being regarded as both process and product. This last stage requires teachers to assess the entire project, the students' individual contributions and the work performed as a group; thus, this student-centered process is problem-oriented (see Thomas, 2000). During the entire process, learners are provided feedback and they are also given opportunities to present their own feedback, to assess their peers' work and to self-assess their own performance.

In his study, Orey (2010) presents several elements that should be taken into account when it comes to Project-Based Learning. First, the context should be learner-centered, in order to furnish students the opportunity to make decisions and take the initiative throughout the entire process. Second, according to the aforementioned scholar, the focus should fall on collaboration (which will boost the learners' teamwork skills), time management (opportunities to plan, revise and reflect; appropriate timelines) and the curricular content (well-established goals, standard-based projects that assist and exhibit content learning). Furthermore, the same scholar specifies that students should be given authentic tasks – in order to connect them to the real world – and multiple expression modes; this can be achieved through relevant topics, authentic strategies and modern technologies authentically employed for communication purposes, project planning, development and presentation. Thus, Project-Based Learning triggers an investigation process, in which students have to select the best solutions in order to achieve their goals. Last but not least, Orey (2010) states that teachers should employ innovative assessment methods, substantiated by the idea according to which assessment is a constant and varied process, involving the students' direct participation.

## **2.2. Advantages of Project-Based Learning**

There are several aspects that highlight the efficiency and value of Project-Based Learning, such as its practical applicability and relevance, as this approach provides the opportunity to implement theoretical knowledge, preparing learners for real-life situations, which can be encountered in their future professional life. Project-Based Learning also involves learners actively in the learning process, as they are placed in the limelight of their own learning and participate in all project stages, from design to implementation and assessment, which boosts their motivation and engagement in the process (Chmelárová and Pasiar, 2017). In addition, the students' practical skills – required in one's professional life – are also enhanced; they are given the opportunity to develop and employ key soft skills in various activities, with focus on critical thinking, creativity, communication, teamwork, decision-making, problem solving, time management (see Guo et al., 2020; Markula and Aksela, 2022).

Since students are required to find solutions to various issues and approach complex challenges in their projects (Thomas, 2000), their creativity and critical thinking develop throughout this process; they are encouraged to explore new ideas, ask questions and develop their own points of view in connection to their project topics. Moreover, teamwork and communication are promoted as they are often involved in group activities in order to carry out common tasks, which is vital in our contemporary work environment. Project-Based Learning also furnishes a concrete and personal learning experience (Helle et al., 2006), enhancing the students' ability to memorize various pieces of information, employed in projects. At the same time, the above-mentioned scholars assert that learners become more responsible and autonomous, as they are required to establish their own objectives and manage their learning process, thus developing their self-management skills and learning independence.

As far as the development of ESP skills is concerned, Project-Based Learning certainly contributes to the enhancement of oral communication abilities (fluency, pronunciation, grammar and vocabulary), through the learners' participation in various discussions, presentations or debates connected to their project (Poonpon, 2018). The literature also reveals that, as part of a team, students have to interact, express their ideas and opinions, present their part of research, and even assess their peers' performance, in an authentic environment. Moreover, there are types of projects that involve presentations and discussions with colleagues or with a larger audience, which also stimulate the students' oral communication skills (see Ali and El-Henawy, 2015). In the business environment, these communication skills can be employed in various activities, such as negotiations, presentations, discussions with partners and clients, business meetings, trainings, etc.

Specialists in the field also argue that receptive skills are also stimulated by involving learners in intensive reading and listening activities typical of Project-Based Learning (see, for instance, Puangpunsi, 2021); for instance, the teacher can require them to read certain documents or to watch certain videos in order to identify key pieces of information necessary for the design and implementation of their project. Teachers can also ask them to search for and analyze relevant information in the English language, connected to their project topic.

In addition, since Project-Based Learning tasks also stimulate productive skills (see Astawa, 2017), they often require students to write certain professional documents, such as plans, reports, letters and presentations, their writing skills (with a focus on grammar, vocabulary, coherence and organization of ideas) are also improved. According to the literature, these tasks also require the familiarization with, and use of specific formats and writing styles, appropriate to the respective contexts. The learners' vocabulary is expanded (Sari, 2019) by their involvement in projects, as they are often exposed to, learn and employ a wide array of English specialized vocabulary items, often connected to their field of study. When it comes to business English, for instance, this can include economic, financial, marketing and HR concepts.

Having in view that projects are based on the assessment, analysis and synthesis of various pieces of information, learners should be encouraged to develop their critical thinking and express their opinions using the English language (see, for example, Chmelárová & Pasiar, 2017; Thomas, 2000). They can also provide feedback to their peers and exchange ideas in order to improve their projects and reach their objectives (Renard, 2023).

In Project-Based Learning, cultural and intercultural skills are also developed when projects involve the collaboration among students from different countries or communities; it is noteworthy that these skills offer them the opportunity to explore and understand their peers' culture and perspectives and strengthening their intercultural communication abilities and cultural understanding (see Peraza and Furumura, 2022; Visan, 2018). These skills are vital in today's globalized business world. Teachers can also furnish students the opportunity to explore topics connected to specific aspects of the English culture, in line with their field of study.

### **3. Research methodology**

This section of the paper proposes an experiment in order to highlight the advantages of implementing Project-Based Learning in the ESP courses and seminars. Therefore, the research hypothesis is as follows: Project-Based Learning strategies and activities employed in the ESP courses and seminars contribute to the enhancement of the students' English language skills and



vocabulary and will also support the development of their soft skills.

The subjects of the experiment will be BA students from the Faculty of Economic Sciences, 1<sup>st</sup> year of study. The main research methods are represented by observation and experiment. The experiment will start with an initial test, in order to establish the students' English proficiency level and to identify their learning needs. Then, during the four-week teaching stage, Project-Based Learning strategies and activities will be employed. At the end of the teaching stage, the ESP teacher will give students a final test, in order to assess their progress. These test results should highlight the improvement of the students' ESP skills and soft abilities and thus validate the research hypothesis.

Below we will exemplify some Project-Based Learning activities that can be employed during the teaching stage.

During the teaching stage, ESP teachers can use various activities adapted to the topics of the curriculum and teaching content. The literature recommends a wide array of activities specific to Project-Based Learning, that can be customized to the teaching and learning of business English. Such an instance is represented by the design of a research project (see Lynch, 2017; Borovoy, 2011), where students are required to study a certain topic or field from the business environment and to present their research results either in writing (a report) or orally (presentation). Furthermore, as a separate activity, the ESP teacher can ask students to write a diary in the English language during the design and implementation of the project. Thus, they will reflect upon their experience, challenges and success, and they will be able to express their thoughts and feelings connected to the respective project (see Fasso, 2020).

Simulations in Project-Based Learning are also extremely useful in this context, as they are also tightly connected with experiential learning (see Egilmez et al., 2018). For example, students can also be involved in negotiation projects or simulations. For instance, the ESP teacher asks students to participate in a negotiation scenario for a commercial agreement or for the resolution of a certain commercial/ business conflict. Students can play various roles (e.g., parties involved in the conflict, business partners, negotiator, CEO, chairperson, etc.) and thus develop their business English vocabulary and communication skills. Moreover, this activity requires students to employ their negotiation abilities and critical and strategic thinking as well. Another Project-Based Learning activity based on simulations is represented by the organization of a symposium or conference simulation, to which the students are required to participate with presentations (see, for example, Staake, 2023) on various topics connected to the business environment; this activity gives them the opportunity to exercise their ESP communication skills and to exhibit their knowledge of the selected topic.

Similarly, the teacher can organize debates on business topics (see Abdo, 2020) (e.g., the advantages/ disadvantages of the globalization phenomenon in the business environment, business ethics in connection to a certain situation, the influence of new technologies on the labor market, etc.), which will contribute to the enhancement of the students' ESP communication skills in professional contexts and deepen their business knowledge as well.

The ESP teacher can also simulate a business fair, where students design stands for imaginary companies and present their products/ services (see Renard, 2023) in the English language, in the most convincing way possible. Thus, they are furnished the opportunity to use their communication skills in a simulated business environment.

Drafting marketing projects is another activity springing from Project-Based Learning. The ESP teacher can ask students to design and present a marketing plan for a product or campaign, in the English language. This type of activity involves research, analysis, the design strategies and marketing materials (see, for instance, Staake, 2023).

Project-Based Learning activities can also include the preparation of product or service presentations (Renard, 2023; Staake, 2023) in the English language. The ESP teacher asks students to choose a real product/ service or to imagine one and present it. These presentations usually deal with product/ service features and advantages, marketing strategies and target market.

Another activity derived from the previous one is the analysis of marketing materials, where students are required to analyze and assess various marketing materials in the English language, such as advertisements, brochures, leaflets or websites (see Abdo, 2020; Borovoy, 2011). The analysis should include the identification of key words or messages, the target audience and the employed marketing strategies. Discussions about the efficiency of these materials and suggestions for their



improvement should also be included in the activity.

The ESP teacher can also require students to develop a project based on (international) collaboration, involving information exchange, the design of a product, the development of a campaign in collaboration with students from other universities or countries (Borovoy, 2011). The achievement of these tasks greatly depends on the communication and collaboration in the English language.

The organization of a case study project is a Project-Based Learning activity that also develops the students' ESP skills, and their analysis and problem-solving abilities, in a real-life context. For example, teachers can require students to analyze and solve the challenges presented in a case study from the business environment (see Renard, 2023; Staake, 2023; Borovoy, 2011). They should present their analysis and recommendations in English, using business terminology.

The ESP teacher can ask students to draft a business plan (see Hummel, 2022; Abdo, 2020) for a product, service or idea. This task presupposes several activities, such as conducting market research, carrying out a SWOT analysis, setting the business objectives, identifying the most appropriate marketing strategies. Students are then required to present their business plan to the teacher and their peers, in order to receive feedback.

It is noteworthy that these activities should be customized in accordance with the students' needs and proficiency level, in order to keep them motivated and enhance their various skills, and that they support the objectives of the teaching and learning processes.

#### **4. Findings**

It is also noteworthy that Project-Based Learning is an approach directly connected to authenticity (Polman and Broadman, 2022), the research performed for the project having application in the real life. During the entire process, the ESP teacher directs the students for the purpose of creating the final product, for instance a certain type of text (an article, a letter, an essay, etc.), a media product (such a website, a forum, a blog, etc.) or any other type of technology-based product (e.g., a video, a vlog, a film, etc.).

It is expected that the implementation of Project-Based Learning in the ESP courses and seminars contribute to the development of the students' ESP skills and soft skills, as well. By participating in projects, they will carry out various presentations, discussions, debates, negotiations, teamwork activities, which will enhance their abilities to communicate in the English language (Poonpon, 2018; Ali and El-Henawy, 2015). They will have the opportunity to express their ideas clearly and coherently, improve their pronunciation and be more confident when it comes to oral or written communication.

Projects often involve collaboration, task distribution and coordination; thus, it is expected that the students' teamwork skills will also benefit from the use of Project-Based Learning (see Guo et al., 2020; Markula and Aksela, 2022). In addition, they will also develop their ESP vocabulary due to Project-Based Learning, as they will be exposed to the English specialized terminology (Sari, 2019) employed in the business environment; through the involvement in business projects, for instance, they will learn new words and phrases connected to fields such as marketing, business, finances, HR, etc.

By tackling projects and solving tasks in a creative and innovative way, students will develop their critical thinking and problem-solving abilities (Thomas, 2000); they will be able to analyze the given information, identify solutions, present arguments and take rational and appropriate decisions. Moreover, their research abilities will also be improved; they will learn how to identify adequate sources of information, analyze and synthesize the information and employ them adequately within the project (see Markula and Aksela, 2022). The students' motivation and confidence will also be boosted via Project-Based Learning. It is expected that the participation in projects and the tangible results increase the students' confidence in their ESP skills. Their progress and contribution to various projects should also enhance the students' motivation to learn and develop the ESP and soft skills.

## 5. Conclusion

In a constantly evolving society, Project-Based Learning is a modern approach that provides teachers the necessary tools in order to respond to the students' learning needs and boost their motivation, regardless of their proficiency level. Therefore, the proposed experiment should reflect the ways in which Project-Based Learning can contribute to a great extent to the development of business English skills, necessary in the professional environment, but also to the increase of the learners' interest and confidence in the teaching and learning processes. We hope that both the theoretical background and the suggested case study can be held up as an example of interesting, engaging ESP teaching and learning activities

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## **The Difference Between the Average Score at the National Assessment Examination and the Average Score in Lower Secondary School Cycle – a Comparative Analysis for Romania Between 2019-2022**

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### **Abstract**

*Education is the one of the corner-stones of a society and as long as this is not consolidated in the rural environment, nothing endures. Our research aims to explore the difference between the average score from national assessment examination and the average score in lower secondary school cycle. As such, a research variable, the "score discrepancy" is employed. The findings show that the average score at the National Evaluation exam is lower than the average score after completing the lower-secondary educational cycle. Furthermore, the ANOVA test results for the score discrepancy in 2022 and three years before, and by year and area of residency followed by year and sex reveal that there is a statistically significant difference between the series. The results for Romania depict that more effort has to be done in the education for the rural pupils to catch up the results of their counterparts.*

**Key words:** returns to education, national examinations, lower secondary school

**J.E.L. classification:** I21, I26

### **1. Introduction**

National examination tests are often used to "certify, classify, sort or select students" and "to make important decisions about them", therefore all participants in the educational process must have a clear vision on the objectives of the test, its intended use as well as the characteristics of the students eligible for the test (Madaus, 1991 p. 227). Many experts, especially constructivists, argue that national examinations often lead to the narrowing of the curriculum and focusing on lower-order thinking skills in both instruction as well as assessment (Phelps 1999 p.18-22). Yet, "eliminating high-stakes standardized testing would necessarily increase our reliance on teacher grading and testing", a process not always oriented towards higher-order thinking skills and often biased by teacher's perception on student's attitude towards the subject (Phelps 1999 p.32). However, Amrein and Berliner (2002, p. 2) demonstrated that a high score in high-stakes tests is often the result of a good preparation program that includes the exclusion of certain students and focusing only the test curriculum. Raising scores in high-stakes tests is a key element when deciding the instructional strategies for a certain topic (Boardman and Woodruff p.552).

For the purpose of this paper a research variable, called the "score discrepancy" is defined as the difference between the average score at the national assessment examination and the average score in lower secondary school cycle. The following research questions will be answered:

Q1. Is the score discrepancy significantly lower than 0 for the results in 2019, 2020, 2021 and 2022 respectively?

Q2. Is there a difference in the score discrepancy by year (2019, 2020, 2021 and 2022)?

Q3. Is there a difference in the score discrepancy by year (2019, 2020, 2021 and 2022) and by area of residency?

Q4. Is there a difference in the score discrepancy by year (2019, 2020, 2021 and 2022) and by sex?

## 2. Literature review

In Romania, the national assessment examination occurring at the end of the lower secondary school cycle (8th grade) is a high-stake exam for students, teachers and schools; based on the obtained score, students access the upper secondary school cycle, their teachers may obtain rewards and their schools are evaluated (Rado et al., p. 90-92). Students who are not prepared enough to enter the upper secondary school cycle and therefore are not able to obtain a good score in the national evaluation will have no choice but to enrol in less prestigious upper secondary schools, often failing the baccalaureate exam (Hâj and Țucă, p. 40). This reflects into severe inequalities between the educational institutions (Necula et al., 2022 p.1), revealing the need for new metrics to rank upper secondary institutions (Necula et al., 2022 p.1; Firescu et al., 2022 p.59-60).

Regarding the success rates at the national assessment examination, severe discrepancies between the eastern and western counties of Romania as well as between rural and urban areas were observed based on scores from 2015 to 2018 rounds (Muntele et al., 2018 p. 54). The COVID-19 pandemic deepened the inequalities in education due to the lack of access to online education for children from disadvantaged groups (Hosszu and Rughiniș, p. 34). Yet, in Romania, online education "is an effective sustainable learning solution" (Ionescu et al., 2020 p.1).

In 2020, the national assessment examination was organized according to the announced calendar, with special sanitary measures in place, in two sessions; this approach was supported by the National Federation of Parents and by students (Berceanu et al. p. 17-18). The results for this session show that female students from urban areas with good academic records perform better than other categories of students grouped by area of residency, sex and previous academic performance (Ceban et al. 2021a p. 75). Also, being a male from rural areas increases the probability of not attending the exam (Ceban et al. 2021b p. 3895).

## 3. Research methodology

For the purpose of this paper, data on the results of the National Evaluation Exam in Romania for 2019, 2020, 2021 and 2022 as retrieved from data.gov.ro (accessed May 15th 2023). In order to answer the first research question, a t-test was performed on the variable "score discrepancy" computed for each year. Moreover, the histogram for each series is presented and analysed.

Furthermore, to answer the second research question, the ANOVA single factor test is used. The null hypothesis that is tested is: "The score discrepancies for 2019, 2020, 2021 and 2022 respectively are from different statistical distributions". The box-plot for the score discrepancy by each year is provided and analysed.

Next, the ANOVA two factor test is employed for answering the third and the fourth research question. The null hypothesis that is tested in order to answer the third question is "The score discrepancies for 2019, 2020, 2021 and 2022 respectively in urban and rural areas are from different statistical distributions". Answering the fourth question involves testing the following null hypothesis: "The score discrepancies for 2019, 2020, 2021 and 2022 respectively for males and females are from different statistical distributions". Box-plots are provided and analysed.

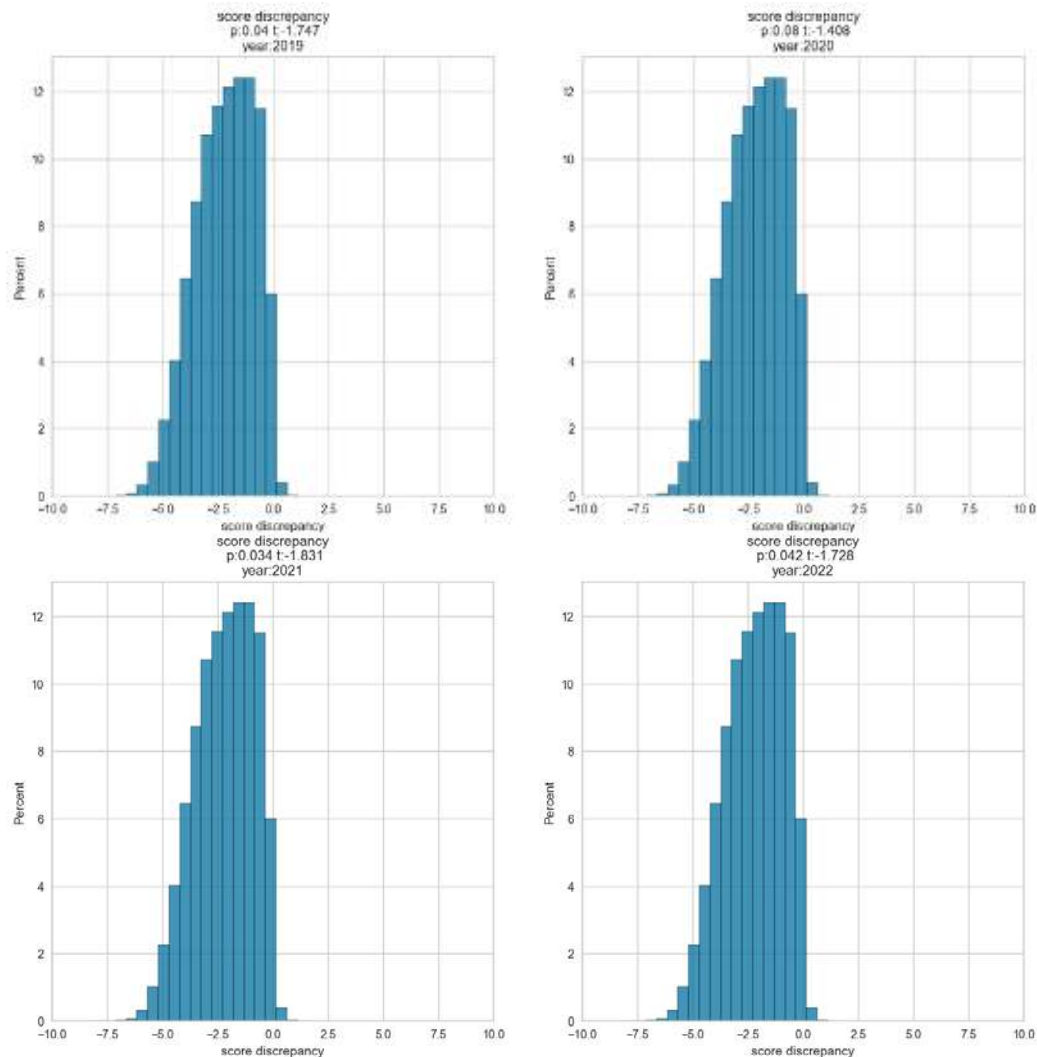
All computations were performed using Python. To interpret the results, a 5% level of significance was chosen.

## 4. Findings

Figure 1 presents the results of the t-test and histograms for the score discrepancy in 2019, 2020, 2021 and 2022 respectively. Most of the values of this variable are negative for all years, meaning that the average score at the National Evaluation exam is lower than the average score after

completing the lower-secondary educational cycle. Moreover, the mean is statistically significantly different from zero for 2019, 2021 and 2022. One possible explanation is that high stakes exams often affect teaching practices in subjects that are not covered by the exams, resulting in higher grades (Freitas, 2021p.15). Also, the National Evaluation exam in Romania covers only a narrow set of skills in Romanian literacy and language and mathematics. The discrepancy may be due to the lack of preparation in these specific skills during the school years. Also, narrowing the curriculum to specific language and mathematics skills, although it leads to better results in high-stakes exams does not necessarily imply that students master maths and language (West and Pennell, 2005 p.37).

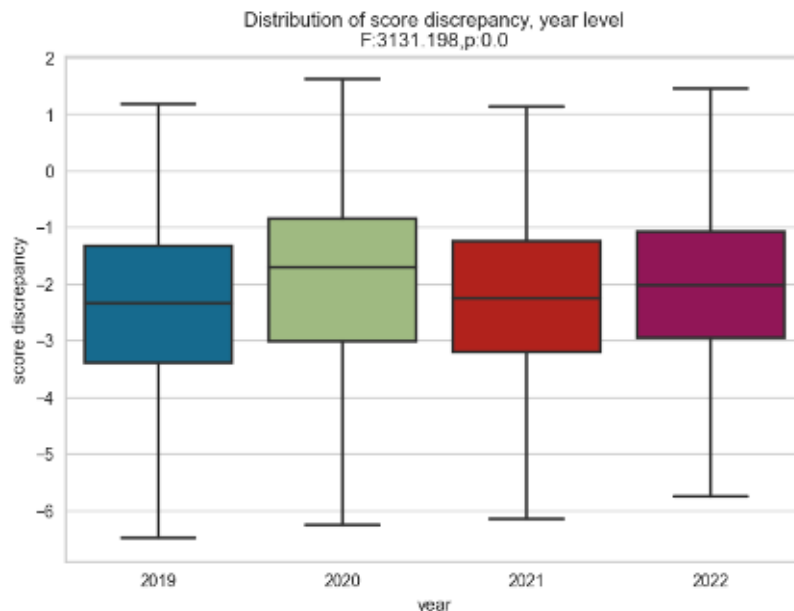
Figure no. 1. Score discrepancy in 2019, 2020, 2021, 2022 – results of the t-test and histogram



Source: designed by the authors

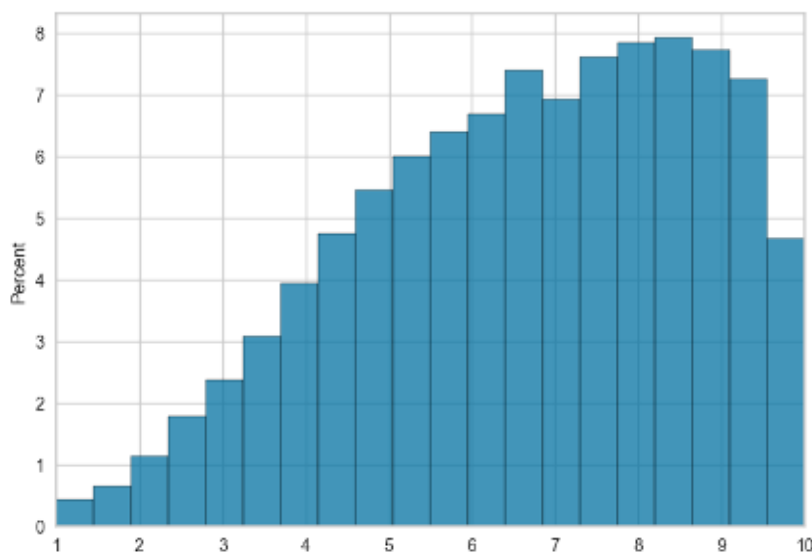
Figure 2 displays the box-plots for the score discrepancy in 2019, 2020, 2021 and 2022. Moreover, the results of the ANOVA test performed on these series are computed. There is a statistically significant difference between the series. Thus, the median of the score discrepancy has a value closer to zero in 2020 and the values in 2019 and 2021 are close to each other. No outliers can be observed. These findings should be interpreted together with the ones revealed by the Ministry of Education in its report on the results of the National Evaluation Exam in 2022. According to this report approximately 95% of the pupils were present at the exams in the analysed years (Ministry of Education, 2021, p.1). This high attendance rate makes the results relevant to our analysis.

Figure no. 2. Score discrepancy in 2019, 2020, 2021 and 2022 respectively – Box-plot and ANOVA results



Source: designed by the authors

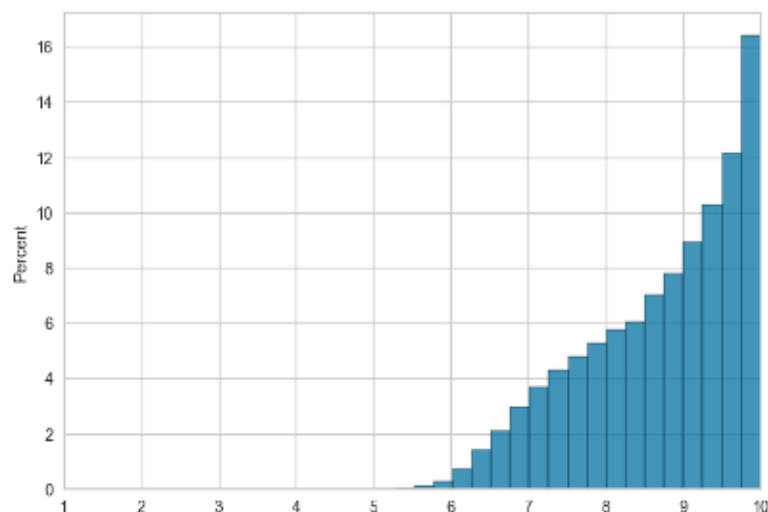
Figure no. 3. Histogram of the Score in National Evaluation Exams between 2019-2022



Source: designed by the authors

Also, in 2019 and 2020 approximately 39% of those attending the exam had an average score below 5 (which is considered the passing score) while in 2021 and 2022 the share of pupils with an average score below 5 was 28,5% and 26,3% respectively (Ministry of Education, 2021, p.1). These data are in concordance to our results displayed in figures 3. When corroborating the information with the results in figure 4, it can be concluded that many of the pupils who obtained a passing average score during lower secondary studies didn't manage to pass the national exam.

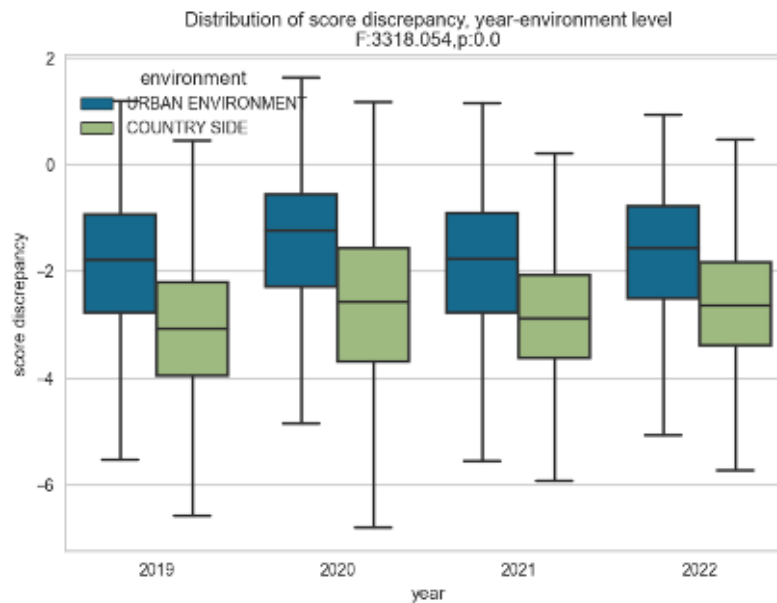
Figure no. 4. Histogram of the Score in National Evaluation Exams between 2019-2022



Source: designed by the authors

Figure 5 shows the results of the ANOVA test for the score discrepancy by year and area of residency (urban environment – urban area and countryside environment – rural area) as well as the corresponding box-plots.

Figure no. 5. Score discrepancy in 2019, 2020, 2021 and 2022 respectively by area of residency – Box-plot and ANOVA results



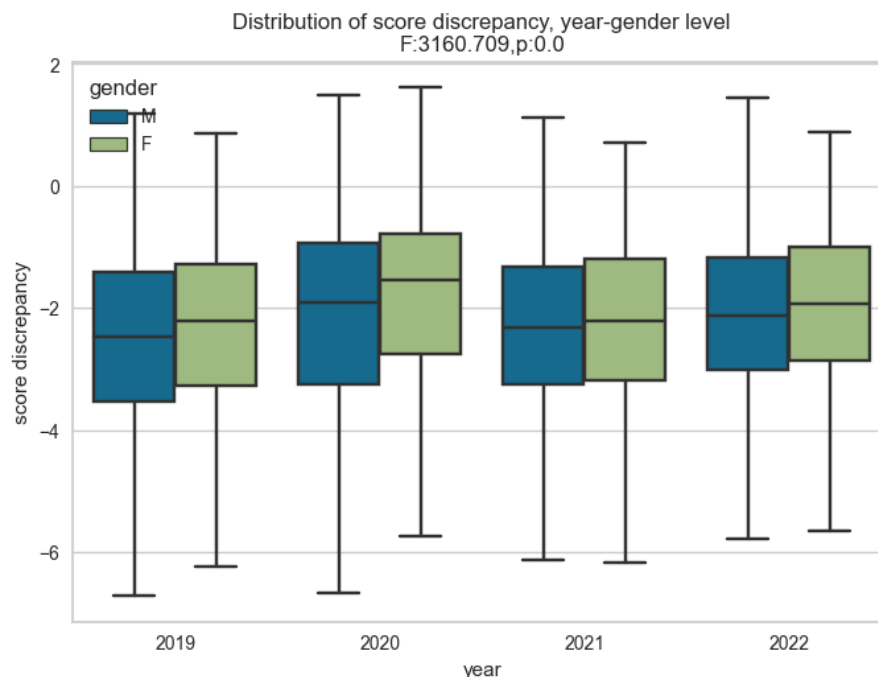
Source: designed by the authors

There is a significant statistical difference in the score discrepancy by these two variables. Moreover, the absolute values for the score discrepancy are higher in rural areas compared to urban ones for all years. Slight fluctuations were registered during the analysed period in both environments. These results are not surprising given that the share of pupils who do not pass the National Evaluation Exam is considerably higher in rural areas compared to urban ones – approximately 3 times higher in 2022 (World Vision Romania 2022). According to the same source, one third of the teachers in rural areas consider that 25% to 50% of the students in a class have serious flaws in their education (World Vision Romania 2022).



Figure 6 shows the results of the ANOVA test for the score discrepancy by year and sex as well as the corresponding box-plots.

Figure no. 6. Score discrepancy in 2019, 2020, 2021 and 2022 respectively by sex – Box-plot and ANOVA results



Source: designed by the authors

A significant statistical difference in the score discrepancy by these two variables can be observed. Values closer to zero for the score discrepancy is observed for females. Non the less, the difference between males and females was highest in 2020. This is in line to with research literature, for example Schlosser et al. (2019 p.25) concluded that the performance gap in high-stakes exams vs low-stakes evaluations is higher for males compared to females.

## 5. Conclusion

This present study adds value to the scientific literature in two ways. Given the results of the National Evaluation Exam in Romania for 2019, 2020, 2021 and 2022 available on the Ministry of Education open-data portal the analysis was performed accounting the difference between the average score at the national assessment examination and the average score in lower secondary school cycle.

First the computed ANOVA test highlights significant score discrepancies for the included dataset. Moreover, the median of the score discrepancy is almost zero in 2020 with values in 2019 and 2021 not far from to each other. Secondly, the absolute figures for the score discrepancy are lower in urban areas compared to rural ones for all analysed years.

As such, the findings show significant difference between the score discrepancy and also between two demographic characteristics, area of residency and sex.

To have a bright future, education should always stay in focus both from social perspectives and from economic sustainability, otherwise the existing score discrepancies in education may continue to grow. Analysing the role of education in Romania on the rural-urban wage gap, Petcu (2022, p. 223) reveals that rural workers get paid less than their urban counterparts. As such, investing more in the education for the rural Romania will have a significant contribution to the decrease of the migration phenomenon and furthermore decrease the burden on the Romanian economy.

An interesting further approach is to study the impact of "score discrepancy" across generations on the University admission exams.

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## Study on the Consumption and Demand of Organic Food Products

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### Abstract

*The behaviour of the consumer and his decisions regarding the purchase of products intended for consumption are increasingly influenced by his desire to consume food that does not alter his state of health, offering him a balance in his daily diet. The tendency to consume organic products is constantly growing, because the consumer's level of information regarding the existing products on the market is quite high. The main purpose of this study is to provide an image of the upward trend in consumption and demand for organically certified food products.*

*The consumption and demand for ecologically certified agro-food products have experienced an evolution in the direction of growth during the last years, a fact that is the basis of this study. This dynamic is found both at the level of our country, but also at the European and global level, which leads to a continuous development of the production and marketing of ecologically certified food products.*

**Key words:** organic agriculture, consumption, demand, consumption of organic products, demand for organic products

**J.E.L. classification:** Q13

### 1. Introduction

Adopting a balanced lifestyle in terms of health is the starting point in defining the consumption habits of a new type of consumer. The similarity between the visual appearance and the name of the product, as well as the positioning on the shelf, gives the consumer an extremely short time to make the purchase decision. The price is no longer a defining criterion, its place being taken by itself as an internal structure, way of obtaining, keeping, the impact it brings on the health of the consumer and the environment.

During the last years, many studies have been carried out regarding the dominant characteristics of this type of consumer, the conclusions showing that they have a behaviour of maximizing economic efficiency, proving responsibility but also high levels of quality compared to consumers whose behaviour is manifested in the traditional way. Thus, the consumer's choice becomes criterion, first of all imposing sanitary rules, but not leaving aside the appearance, the source of obtaining the product, but also the direct impact on the personal or family budget correlated with the impact on the environment (Negrea, Popescu and Voinea, 2015).

The desires, expectations, needs of consumers know an accentuated dynamic due to a very large number of factors that determine them. Protecting the environment through an efficiency in the organization and development of food production, the changes in the climate sphere, the increase in the health level of the population, the reduction of food waste, the increased attention to the well-being of the animals involved in obtaining food products, the increase in the degree of urbanization thus represent factors that leave their mark more and more strongly on the purchase decision (Nunes, J., Ordanini and Giambastiani, G., 2021).

Published estimates of food demand for 2050 show an enormous range of values. This paper projects a 50-60% increase in total global food demand between 2019 and 2050. Our analysis indicates a substantial slowdown in rice demand, an increasing share of palm oil in global fats and oils markets and a continued shift to poultry as the dominant form of meat consumption. Unlike most existing dietary models, we integrate fish consumption into plant and animal protein analysis and highlight the dangers of using commonly cited food ratios to project feed grain demand. More broadly, we demonstrate the value of a regional commodity approach to understanding the complexities of the global food system (Walter P. Falcon, Rosamond L. Naylor, 2022).

## **2. Theoretical background**

Food consumption represents that process through which a series of nutrients are supplied to the body in order to carry out physiological activities and which also provides the necessary enzymes, energy, hormones to fulfil the important functions of the human body (Țimiras, 2016).

The demand for agro-food products represents the amount of agricultural and food products that consumers are willing to purchase from the market at a certain time, being determined by a series of endogenous factors (age, sex, particularities related to the individual side of the person), of an exogenous nature (the environmental conditions in which the person works). Another series of factors that leave their mark on the demand for agro-food products are the subjective ones (represented by preferences, tastes and which have become extremely important in the purchase decision that the consumer has to make, compared to the objective factors). As a trend in the demand for current organic food products, we find the need to satisfy the hygienic-sanitary requirements that they must meet, but also consider their sensory and energetic-biological properties. Since agricultural production has a seasonal determination, this aspect also implies a corresponding adaptation of the demand, but the production of ecological agro-food products has the possibility to be realized through the food industry throughout the year, regardless of the season (Țimiras, 2016).

## **3. Research methodology**

To carry out this study on the consumption and demand for organic agro-food products, we used series of statistical data provided by the International Federation of Organic Agriculture Movements FiBL IFOAM - Organics International The World of Organic Agriculture Statistics and Emerging Trends 2023, through which we performed an analysis of consumption and demand for ecologically certified agro-food products at global, European and national level. The methods used were both quantitative and qualitative.

## **4. Findings**

### **4.1. Consumption and demand for organic agro-food products at global and European level**

Global retail and per capita sales for the period 2019 – 2021, by region, are presented in table no. 1. It can be seen that worldwide the trend in terms of the demand for organic agro-food products has an annual increase at the level of each reference area, worldwide reaching an increase in 2021 with 17.31% compared to 2019.

The main countries with the largest traded volumes of organic agri-food products worldwide in 2021 were: USA with 48,618 million euros, Germany with 15,870 million euros, France with 12,659 million euros. Compared to previous years, namely 2020, in the USA the volume had reached 44,721 million euros, in Germany 11,970, and in France 11,295. This shows us a maintenance of the ranking for the volume of sales, the hierarchy not being modified in terms of the occupant of the place but only by increases of 8.71% for the USA, 32.58% for Germany, respectively 12.07% for France.

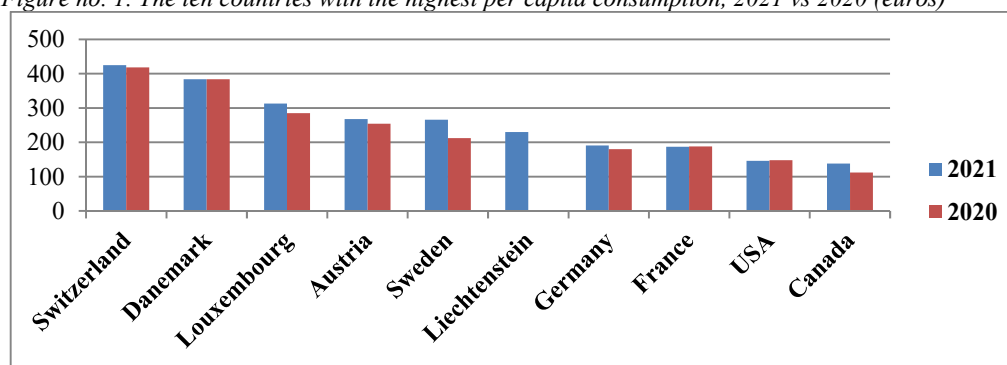
Table no. 1 Retail sales by region, 2019-2021

Region	Retail sales 2019 (million euros)	Retail sales 2020 (million euros)	Retail sales 2021 (million euros)
Africa	17	16	No date
Asia	10,949	12,540	13,747
Europe	45,049	52,000	54,539
Latin America	810	778	778
North America	48,201	53,717	53,901
Oceania	1,378	1,594	1,866
World	106,404	120,647	124,845

Source: <https://www.fibl.org/en/>

Regarding the distribution by country in the year according to the highest per capita consumption of ecologically certified agro-food products, it is presented as follows:

Figure no. 1. The ten countries with the highest per capita consumption, 2021 vs 2020 (euros)

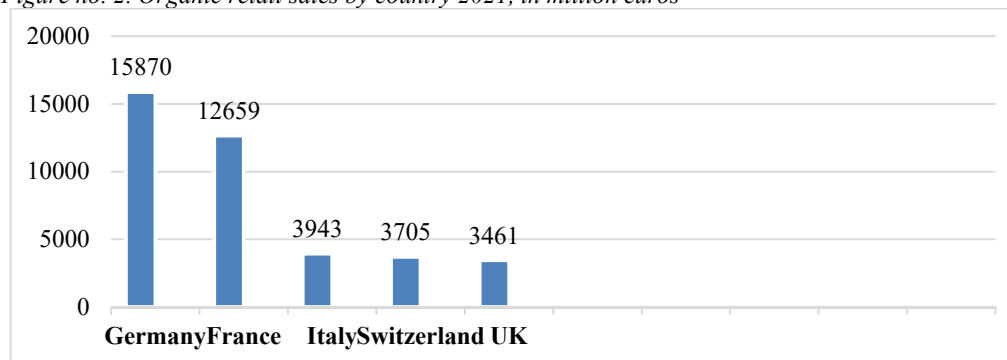


Source: <https://www.fibl.org/en/>

If in 2020 Norway was in the ranking of the top ten countries with the highest consumption per inhabitant, with 83 euros/inhabitant, it was outranked by Liechtenstein, which reached a rate of 230 euros/inhabitant, rising to sixth place in this hierarchy.

At the European level, in 2021 there was a substantially reduced increase compared to previous years in the volume of organically certified agro food products traded, with Germany maintaining the first position in a ranking of countries regarding retail sales of organically certified agro food products.

Figure no. 2. Organic retail sales by country 2021, in million euros



Source: <https://www.fibl.org/en/>

Switzerland maintained its per capita consumption at €425, once again at the highest level, followed at a relatively short distance by Denmark at €384, with six countries exceeding the €200/capita threshold. Even if sales growth in the period 2012-2021 recorded a level of 140.2% at

the European level and 148.8% at the level of the European Union, the percentage by which it increased in the period 2020-2021 is a relatively low one of 3, 8% at the European level, respectively 3.6% at the European Union level. The level of income directly influenced the level of consumption of ecologically certified agro-food products, which has a slow growth and reaches 65.7 euros on average at the European level and 104.3 euros at the level of the European Union.

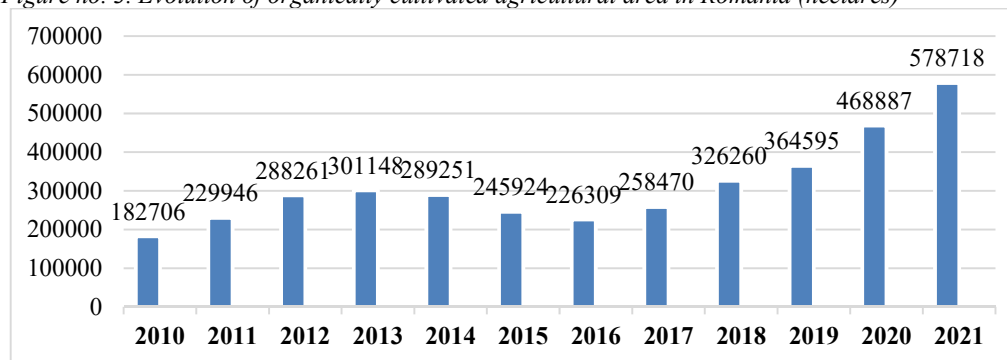
If at the level of Denmark, the value of the amounts allocated for the purchase of ecologically certified agro-food products reached the sum of 277 euros per person, approximately equal to that of Switzerland, i.e., 274 euros per person, below 200 euros we find Sweden with 194 euros per person allocated for the same type of consumption, while in our country in 2016 this value was 3.72 euros. The interest that Romanians give in regards to ecological agro-food products mainly depending on the aspects related to the product category, the most requested being vegetables and fruits, the price not representing a determining factor, but on the contrary, to purchase them they are willing to spend even 35% more.

During the last ten years, there has been a constant increase in the consumption of organic food products, but in a very low proportion if we refer to the average consumption at the European level. If the export is the main destination of the products obtained as a result of the practice of organic farming, the processors being in a rather small number, the consumption on the domestic market of organic products being mostly provided by imports in a percentage of 80%. In the period 2012-2018, the presence of ecologically certified agro-food products on the shelf experienced a 10 percent increase, reaching the level of 33% in hypermarkets, 3% more than in supermarkets, the volume of sales knowing an annual growth rate of up to 20 %, about 65 million dollars (Asociatia Quasar, 2020).

#### 4.2. Consumption and demand for organic food products in Romania

At the level of the European Union, Romania, together with Bulgaria and two other states, is on the lowest step of the hierarchy regarding the area of land cultivated in the ecological agriculture system, reaching a percentage of 3.2% of the total area with an average of decrease of one third compared to the European average. In 2021, the areas of land that were cultivated in the organic farming system registered an increase compared to the previous year, with a percentage ratio of 5.2% at the level of the European Union. Romania was one of the countries that made the largest contribution, along with two other member states, namely France and Spain, to this increase with approximately 500 thousand hectares of land, while other neighbouring states, such as for example Bulgaria decreased in the areas of ecologically cultivated land by 25.8%.

Figure no. 3. Evolution of organically cultivated agricultural area in Romania (hectares)



Source: MADR, 2021

Along with the evolution of the pandemic, ecologically certified agro-food products were more and more in demand in consumption habits, especially in large store chains, reaching a 50% increase in sales in 2019 and 2021, above the sales level in the year's precedence, even reaching a triple quota for vegetables and fruits obtained through the practice of ecological agriculture, the assortment range increasing by up to 50% compared to the previous period. This trend was recorded for sausages, dairy products with increases in the quantities sold of 60% and 30% in 2021, respectively, compared

to recent years, a fact that was also confirmed by the large retailers Auchan, Kaufland, Carrefour. In order to meet the consumers, they sought to diversify the existing offer for ecologically certified agro-food products that they distribute because the demand for this category is constantly growing. Increases in the quantities of organic products were at the double-digit and triple-digit level, depending on the assortment of goods. Olive oil, biscuits, pasta, yogurt are among the best-selling products in the range of packaged items, while tomatoes, cucumbers, apples, bananas hold the first positions in organic fruit and vegetable sales. However, a very small increase is recorded in the sales of fresh cheese and butter, depending on the assortment of goods.

At the level of our country, we can see an increase in the production of vegetables grown through organic agriculture, compared to the production of fruits, where the production of red fruits is starting to gain momentum, a fact that once again demonstrates the increase in the consumption of organically certified agro-food products. If until now a relatively large difference can be found between the price of ecologically certified agro-food products and the price of products obtained from the practice of traditional agriculture, this difference will have a decreasing course in the years to come, thus facilitating the access of all consumers to this range of products. However, considering the context in which our country's economy finds itself, the accelerated increase in prices and the decrease in purchasing power, in order to support and develop this market segment, an accessible value for the purchase of ecological products must be reached (European Commission, 2023).

Every year, in our country, sales in the category of ecologically certified agro-food products amount to more than 300 million euros, representing very little of the value of total consumption, which reaches a value of 12 billion euros per year. Thus, producers operating in our country must have the opportunity to access this market (Ministry of Agriculture, 2023).

Through Eurostat, the data provided about our country at the European level recorded more than 11,000 ecologically certified agricultural producers providing a varied range of such products. This level brings our country to the top ten states in a hierarchy of the European Union. There is a suffocation of the Romanian market with imported products, thus creating an unfair competition in terms of the purchase price, the price of the products from the ecological agriculture of our country being high compared to those of similar imported products. This situation can be overcome by educating consumers, starting from the age of 3-4 years in kindergartens.

The Romanian producer is limited in terms of the quantity he can produce, thus making access to the markets of large retailers difficult. Opening your own outlets seems an increasingly suitable solution for small producers, or distribution in small shops.

At the level of the European Commission, it was decided that until the year 2030 the agricultural areas cultivated in the ecological agricultural system should be considerably developed, ensuring financial support for producers who want to develop on this side of agriculture. The aim is to shorten the distribution channel as much as possible precisely to reduce the level of the price paid by the final consumer.

Reveal Marketing Research carried out a study which determined that more and more residents of our country want to lead a healthy lifestyle, 30 percent of them purchasing and consuming organic products, while 86% are aware of the fact that their way of consumption has a direct impact on the environment in which they live. Among those interviewed, 32% consume on average two to three times a week ecologically certified food products, 60% take measures regarding the protection of the environment and over 40% want to live healthier. Their approach to organic products emphasizes the degree of nutrients, vitamin intake, certification, quality (European Commissions, 2022).

The volume of retail sales in 2021 reached a value of 40.7 million euros, which was equivalent to 2.1 euros/person. This indicator puts us on the same level as Portugal with 2.0 euros/person and more than half the value below Bulgaria, which registers 4.8 euros/person. Compared to Switzerland, which allocates 424.6 euros/person on average for the purchase of ecologically certified agro-food products, Romania is at the opposite pole.

## 5. Conclusions

This study carried out on the consumption and demand of ecologically certified agro-food products brings to attention the upward trend that characterizes the dynamics of the development of ecological agriculture. If more than 10 years ago the area cultivated with organic crops was quite



small, today it is expanding considerably, a fact that implicitly leads to an appropriate adaptation of the supply to the demand for organic agro-food products.

The implementation of a marketing mix according to this segment of agriculture, combined with a permanent education of the consumer regarding the benefits that the practice of ecological agriculture brings to the environment, the state of health, the animals combined with the allocation of a budget corresponding to the purchase of agro-food products ecologically certified leads to a significant increase in the consumption of these types of products, implying an increase in supply and therefore an economic development in this sphere of the economy. Once this way of living is assimilated, the consumption of organic products will not decrease at the same rate and with the same weight as other categories of agro-food products, even if there will be disruptions, crises, at the local level, globally, this product category is intended for a market segment with average and above-average incomes, with a certain culture and with a certain social status.

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## **Pre-Pack Proceeding - A Hybrid and Derogatory Safeguard Tool. Member States' Future Obligation of Integrating a New Mechanism in Their National Insolvency Law**

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### **Abstract**

*Harmonizing Member States' insolvency frameworks has been a goal for the European Union for the past years, dating back to 2016, when the European Commission issued a Proposal for a Directive on preventive restructuring frameworks, second chance and measures to increase the efficiency of restructuring, insolvency, and discharge proceedings [COM (2016) 723 final], based on the Commission's Recommendation regarding a new approach to business failure and insolvency [C(2014) 1500 final]. This led to the Directive (EU) 2019/1023 on preventive restructuring frameworks, on discharge of debt and disqualifications, and on measures to increase the efficiency of procedures concerning restructuring, insolvency, and discharge of debt, and amending Directive (EU) 2017/1132. One key topic addressed by the "Directive proposal" [COM(2022) 702 final] is the "pre-pack proceeding", meant to offer an efficient alternative for safeguarding businesses.*

*Underlining the achievements of this Directive proposal by regulating pre-packed administrative proceedings is our scope in this paper.*

**Key words:** liquidation, insolvency, pre-pack proceedings, safeguard, reorganization

**J.E.L. classification:** K29

### **1. Introduction**

"A «pre-pack» is not a legal term of art. It describes a negotiated transaction, usually a sale of assets or business to a third party or directors, hammered out with major creditors prior to formal appointment, and completed immediately or shortly after formal insolvency commencements" (Brown, 2009, p.164). Historically, the origin of pre-pack administration proceedings derives from the English *scheme of arrangement*, a proceeding which aimed at avoiding bankruptcy in the 19<sup>th</sup> century.

At the European level, England was the first country to introduce a scheme of arrangement in 1883, a system which was also implemented by the U.S.A. in 1898 (Cioroiu, 2023, p.109). Nowadays, pre-pack proceedings consist of a hybrid and derogatory safeguard tool, used in several jurisdictions around the world to maximize business value, while protecting creditors' best interest. One characteristic of such proceedings is the fact that they consist of a synergy of both liquidation (which usually aims at eliminating a business from the economic circuit), and business safeguard (which aims at keeping a business in the economic circuit).

When corporate insolvency occurs, directors have the obligation of requesting the opening and undergoing insolvency proceedings, which, as a rule, are a dichotomous concept, consisting of either liquidating a business, or safeguarding it. Therefore, insolvency proceedings integrate two opposed remedies for a business facing financial distress, whether balance-sheet insolvency or cash-flow insolvency. However, as an exception, pre-pack proceedings merge both of these remedies, while offering advantages for all parties : (1) they aim at preserving the business value as a whole, therefore avoiding an unnecessary bankruptcy, which has a positive impact upon the economy in general; (2)

they ensure that the best interest of creditors is fulfilled, avoiding unnecessary conflicts which usually occur in an insolvency proceeding; (3) they exonerate insolvent business directors from a time-consuming and costly legal proceeding. Furthermore, pre-pack proceedings are pre-negotiated with creditors in an out-of-court environment, thus easing Courts' activity.

The Directive proposal aims for Member States to integrate this safeguard mechanism into their national law, as an alternative to classic liquidation proceeding which are well known to be less effective and time-consuming for all parties, if the business still has added value while facing insolvency or likelihood of insolvency. It is to be noted that, according to an INSOL Europe report called Study on a new approach to business failure and insolvency – Comparative legal analysis of the Member States' relevant provisions and practice (Bariatti *et al*, 2014), 13 of the Member States did not provide legal frameworks for preventive restructuring before the entry into force of the Directive 2019/1023.

This paper aims to analyze what does the Directive proposal try to achieve by regulating pre-packed administrative proceedings, considering that safeguard proceedings are still a new concept for several Member States.

## 2. Theoretical background

Safeguard proceedings of insolvent companies, as well as early intervention through pre-insolvency warning tools have become a subject of interest at the European level in the last decade, considering that merely 4%-6% of European bankruptcies are fraudulent (European Commission – Enterprise and Industry Directorate-General, 2011, p.3) and the stigma behind failure not only is not justified nowadays, but also it shouldn't automatically be linked to fraud. In an effort to provide a second chance to honest entrepreneurs who faced insolvency and overindebtedness, the European Commission continues to provide healthy alternatives to bankruptcy, which Member States will have to integrate in their insolvency legal framework in the near future, after the entry into force of the Directive proposal.

„The pre-pack approach, in particular, has emerged as an innovative corporate rescue method that incorporates the virtues of both informal (out-of-court) and formal (judicial) insolvency proceedings” (Bo Xie, 2016, p.vi). Basically, typical insolvency formalities occur out-of-court, meaning that directors of financially distressed or insolvent businesses anticipate the need of taking measures in order to limit a potentially negative impact upon stakeholders or creditors.

Article 19 of the Proposal Directive suggests that the whole proceeding is based upon two phases: (i) a preparation phase, and (ii) the liquidation phase.

- (i) While the business, as a whole or a part, is still economically viable, directors draft a plan concerning either selling the business, or selling its assets. This plan is amicably negotiated outside of typical insolvency formalities, and the aim is to convince creditors to manifest a positive vote upon the plan. However, the aim of the preparation phase is to find a third-party which usually doesn't participate in insolvency proceedings: the buyer. This person is an investor, having the economic capacity of acquiring the business, in whole or in part, or the business' assets, as an ongoing concern, thus maximizing the value and raising the creditors' claims recovery rates. During this phase, two problems may arise: (1) the debtor may underestimate the business value, due to the vulnerability caused by the state of insolvency, and (2) the debtor finds more than a buyer that are prepared to acquire the business. The European legislator anticipated both of these problems, and offers solutions as following: (1) to avoid the sale of the business below market price, Member States shall ensure that the debtor will appoint a monitor, who is usually a licensed specialist, such as a lawyer or an insolvency practitioner, which will make sure that the transaction will meet legal standards; (2) to maximize the value of the acquisition, an auction could be organized, which will unfold under the Court's supervision. During the preparation phase, if the debtor faces insolvency or insolvency likelihood, a stay of individual enforcements is possible until the second phase. This is justified by the fact that the commencement of this proceeding is voluntary and creditors may approve the plan considering that a pre-pack proceeding usually offers higher recovery rates of claims in comparison to a classic insolvency proceeding. Furthermore,

the debtor remains in possession, until the liquidation phase. These specific insolvency effects are justified by the fact that the proceeding aims at maintaining both business value, as well as buyers' interest. In the French legal system, this first phase unfolds within the conciliation proceeding (Vidal *et al*, 2016, pp. 251-253), because the ad-hoc mandate does not suffice (Saint-Alary-Houin, 2016, p. 631).

- (ii) The liquidation phase consists of submitting the pre-negotiated plan to the Court, which will approve its execution if all legal requirements are fulfilled, while also approving the distribution of the proceeds to the creditors. If the debtor is in a state of insolvency, a request for opening formal insolvency proceedings could be simultaneously submitted, along with the pre-negotiated plan. It is to be noted that the Court's role is limited in comparison to a standard insolvency proceeding, because most of the formalities are unfolded out-of-court, and the judicial phase only concerns the outcome of the acquisition. Before approving the acquisition, the Court shall request the monitor's opinion regarding the fulfillment of legal provisions, considering that the monitor's attributions are also limited in comparison to a standard insolvency proceeding. However, the monitor has both judicial and economic related obligations. If the Court appreciates that the sale price is below market price, not transparent, competitive and fair, or that the best interest of creditors test is breached, the acquisition will not be approved and, if the debtor is in a state of insolvency, the Court will order the commencement of formal insolvency proceedings. If more buyers manifest their interest of acquiring the business, a public auction will take place, under the Court's supervision. Taking into consideration the fact that the pre-pack proceedings unfold faster than standard insolvency proceedings, the Directive proposal limits in time this final phase. Thus, the public auction should commence in two weeks after the opening of the liquidation phase, and it should last no more than four weeks. After the acquisition, creditors' claims should be covered. The ranking of creditors and distribution rules are to be decided by Member States, providing that their national legal framework complies with the European law. The business will be acquired without debts, even if the sale price is not enough to cover all creditors' claims. Also, ongoing contracts will also be transferred to the acquirer, unless (a) the latter is a competitor of the acquired business, or (b) the Court decides otherwise, under limited conditions. As a closing remark regarding the liquidation phase, it is important to underline the fact that a judicial step is absolutely necessary, because the pre-pack proceeding will allow a cram-down, meaning that the will of the majority of creditors will be imposed upon the will of the minority of dissenting creditors; such a mechanism requires a Court's decision in order to be binding.

### 3. Research methodology

The European legislator aims at making safeguard proceedings a rule, while liquidation would only be reserved to non-viable businesses. This is the reason why Directive (EU) 2019/1023 imposed Member States' obligation of regulating early warning tools in their national framework. Since a small part of European bankruptcies are fraudulent (up to 6%), bankruptcy and overindebtedness are nowadays considered to be a normal effect of the competitive market, as opposed to an intentional and fraudulent action meant to prejudice the creditors.

When the Directive proposal will enter into force, all Member States will need to introduce pre-pack proceedings in their national law. Jurisdictions such as France and Germany have used this tool for more than a decade. „Within the European Union, the matter of business transfer is of particular interest, from the perspective of economic growth and jobs, which is why policies are being promoted for stimulating business continuity through transfer, as an alternative to business liquidation or incorporation, regardless of the business organization form, yet providing a particular attention to enterprise transfer.” (Tuleaşcă, 2016, p. 55). Considering the fact that the European legislator continues the reform in insolvency-related matters by having all Member States introduce a new safeguard tool in their legal system, and also the fact that the Directive is yet to enter into force at the time of this paper, we considered useful to use *the theoretical research method*.

## 4. Findings

### 4.1. A derogatory safeguard tool. Particularities.

Pre-pack proceedings are a **hybrid safeguard tool**, since they consist of merging two opposed, well-know proceedings: a safeguard proceeding and a liquidation proceeding. However, they are also a **derogatory type of proceeding**, since they have numerous particularities and may be viewed as a "particularized safeguard mechanism".

"Professor Corinne Sain-Alary-Houin has described it as an «instrumentalized» safeguard (...)" (Pérochon, 2014, p. 467). Pre-pack proceedings have numerous particularities in comparison to standard insolvency proceedings, as shown below:

- i. Generally, the parties involved in a pre-insolvency or insolvency proceeding concern debtors and creditors, as well as supervisory bodies. However, in pre-pack proceedings, a third-party is involved – the business acquirer – who doesn't usually participate in other safeguard proceedings.
- ii. Most steps unfold out-of-court, and the proceeding is opened only after obtaining a forecasted result. Thus, finding the acquirer, followed by negotiations with creditors, drafting, voting, and adopting a plan happen prior to the opening of the proceeding, saving time and unnecessary costs for all involved parties. It is to be noted that the content of the plan is freely determined, but it needs to pass the best interest of creditors test, which involves creating a fictive worst-case scenario.
- iii. The first step of the pre-pack proceedings may take place under another regulated safeguard proceeding, as is the case of the French legal system. Such an approach eases the unfolding, since the licensed specialist appointed by debtor's request will make sure all legal requirements are fulfilled. It is important to underline the fact that the Directive proposal imposes that the sale of the business would take place only at market price and under fair and competitive context, under the penalty of converting the pre-pack proceeding into a formal insolvency proceeding. Given these circumstances, debtors will have to make sure that the sale process meets the Directive proposal's conditions, to avoid the commencement of insolvency or even bankruptcy proceedings. Taking into consideration the fact that the first phase of pre-pack proceedings is compatible with any other pre-insolvency proceedings (separating creditors' claims into classes, drafting a plan and, in some cases, requesting the commencement of insolvency proceedings simultaneously, negotiating the plan, voting the plan etc.), Member States could regulate debtors' option for the first phase to unfold within another type of pre-insolvency proceeding.
- iv. To sustain the urgency of this mechanism, the Directive proposal limits in time the public auction. If the business would be subject to an auction in the liquidation phase, it must be initiated in a period of maximum 2 weeks and should only last maximum 4 weeks. Usually, public auctions are not limited in time.
- v. Ongoing contracts are to be transferred to the acquirer unless they are a business competitor or in other limited situations described by the Directive proposal. Generally, the liquidation of a business is followed by terminating ongoing contracts, to limit debtors' overindebtedness.
- vi. In order to avoid potential abuse, the Court may reject a request of authorization of the acquisition, if economic criteria are not met, even if creditors approve the plan. Usually, in safeguard proceedings, creditors hold full control of opportunity decisions, while the Court's control is limited to judicial aspects.

### 4.2. Advantages of pre-pack proceedings

Pre-pack proceedings objective is to offer an alternative tool for safeguarding the business value, while maintaining its activity, including ongoing contracts (with small exceptions). The key factor of a pre-pack proceeding consist of the sale of the business, either as a whole or a viable part of it, as

a going-concern, to a third-party who usually doesn't play a role in a typical insolvency proceeding: the buyer.

One of the main advantages of this mechanism is that **the outcome is predictable by all involved parties**.

Generally, after opening a safeguard proceeding, creditors cannot always predict the unfolding of the proceeding, thus pre-packed proceedings offer a higher degree of predictability, since negotiations occur before the opening of the proceeding. In addition, such mechanisms require a **minimum intervention of supervisory bodies**'.

Another main advantage consists of **lower liquidation costs**, therefore **maximizing creditors' claims recovery rates**, as well as a **time-saving alternative**. In the French legal system, the proceeding's confidentiality is mandatory to all involved parties. However, the Directive proposal doesn't yet establish a confidentiality requirement.

#### 4.3. Disadvantages of pre-pack proceedings

Even if this mechanism provides several advantages, it also generated criticism, especially because the Directive proposal seems to exempt them from the Acquired Rights Directive, following the European Court of Justice judgement in the Heiploeg judgement (C-237/20), which stated that in the case of the transfer of assets in a pre-pack procedure, the transferee has the right to derogate from the maintenance of workers' rights, if this procedure is regulated by legislative provisions or administrative rules (Gant, 2023).

In the French legal system for instance, the proceeding doesn't have any effects upon workers' rights (Saint-Alary-Houin, 2016, p. 635); however, the European Court of Justice decision is binding in all Member States.

Additionally, this mechanism was also criticized because it leaves room for potential abuse of the competition of the business in question, by allowing it to be sold below market price; however, the Directive proposal addressed this issue by providing that in such case, the Court will not allow the acquisition authorization.

#### 4.4. Business transfer in the Romanian Legal system

The Romanian legal system doesn't yet regulate pre-pack proceedings; however, the transfer of the business, in whole or in part, is regulated by Law no. 227/2015 regarding the Fiscal Code, which, in article 32 (1) letter d), states that „asset transfer is an operation by which a company transfers one, more or all branches of its activity to one or more companies, without being dissolved, in order to obtain participation titles in the capital of the beneficiary company”.

In order for the business transfer to not be qualified as a supply of goods, therefore being an exempted operation from VAT, the Methodological Norms of 2016 for the application of Law no. 227/2015 provides several conditions, the most important being that the recipient of the assets must prove the intention to continue the economic activity following the transfer, and not immediately liquidate the activity or, as the case may be, sell any stocks.

Therefore, in the present, the Romanian legal system only has a fiscal perspective upon business sales.

In order to be qualified as a safeguard proceeding, after the entry into force of the Directive proposal, the Romanian legislator needs to modify the Law no. 85/2014 regarding pre-insolvency and insolvency proceedings, setting rules for the commencement of pre-pack proceedings, the cram-down or cross-class cram-down mechanism, the conditions of the stay of individual enforcement actions commenced by creditors, the circumstances of debtors' request of simultaneously entering formal insolvency proceedings etc.

### 5. Conclusions

Pre-pack proceedings are an alternative to bankruptcy, aiming at preserving the business value, even if it faces insolvency or likelihood of insolvency. This type of proceeding tries to maximize the main principles of restructuring proceedings, taking into consideration the interest of all parties

involved. They may be considered as a semi-collective proceeding since it doesn't have any effects upon employees.

The Directive proposal doesn't set specific rules regarding pre-packs, but rather it sets flexible, general rules and objectives, which Member States will be able to freely determine. It is to be noted that there are two types of insolvency regulated across Member States: balance-sheet insolvency and cash-flow insolvency; some Member States recognize both as grounds to commence specific judicial proceedings.

Therefore, Member States will have to take into consideration the Directive proposal's objectives and regulate another type of safeguard proceeding, adapting it to the concept of insolvency they use. Member States such as Italy have already regulated pre-pack proceedings, after the entry into force of Directive (EU) 2019/1023.

However, Member States which already offer this alternative will have to adapt to the Directive proposal's rules and update their legal framework if they don't comply with its standards. Being categorized as a safeguard proceeding, pre-pack proceedings should also enter the field of application of the Regulation 2015/848 on insolvency proceedings (Lienhard, 2020, p. 332).

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## European Projects – Opportunities for Institutional Development of Education in Romania

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### Abstract

*This article explores the profound impact of European Projects in Education on the Romanian educational system. It delves into how these projects foster international collaboration, modernize curricula, and enhance teaching methodologies. By facilitating knowledge exchange and cultural enrichment, European Projects elevate the quality of education, prepare students for global challenges, and influence policy reforms. This analysis underscores the pivotal role these projects play in transforming Romania's educational landscape, equipping it to meet the demands of a dynamic and interconnected world.*

**Key words:** European projects in education; Romanian educational system; cross-border collaboration

**J.E.L classification:** I23, O15, F55, H52

### 1. Introduction

European Projects in Education hold immense significance in fostering educational development, innovation, and collaboration across European countries. These projects are often funded by the European Union (EU) through various programs such as Erasmus+, Horizon Europe, Jean Monnet, and others. The primary aim is to enhance the quality, accessibility, and relevance of education systems while promoting cross-border cooperation and exchange of best practices. Here are some key aspects of their significance:

European Projects bring together educational institutions, educators, researchers, and policymakers from different European countries. This collaboration enables the sharing of knowledge, experiences, and ideas, contributing to a more diverse and enriched educational landscape.

Participating in European Projects encourages institutions to develop innovative educational practices, teaching methods, and curricula. The exposure to different approaches fosters the identification and adoption of best practices, leading to the overall improvement of education systems.

The projects emphasize the enhancement of the quality of education at all levels, from primary to higher education. Through partnerships and exchange programs, institutions can address shortcomings, implement quality assurance mechanisms, and raise the overall standards of education.

Educators and staff members benefit from international mobility, training opportunities, and exposure to different educational environments. This promotes their professional development, helps them acquire new skills, and enriches their teaching methodologies.

In summary, European Projects in Education play a vital role in driving positive changes within education systems across Europe. They promote collaboration, innovation, quality enhancement, and internationalization, ultimately contributing to the holistic development of individuals, institutions, and societies.

## 2. Literature review

The role of European Projects in shaping educational systems has garnered substantial attention in contemporary literature. Numerous scholars have emphasized the transformative potential of these projects in enhancing the quality and internationalization of education. Studies by Smith (2018) and Johnson (2020) underscore how European Projects facilitate cross-border collaboration, enabling the exchange of innovative pedagogical approaches and best practices among diverse educational institutions. (Mihai & Istrate, 2019)

The work of Anderson and Martinez (2019) highlights the importance of curriculum development as a key outcome of such projects. They note how curricula are modernized through the integration of European perspectives, subsequently equipping students with globally relevant skills and knowledge. This sentiment is echoed by Gonzalez et al. (2021), who emphasize the value of international mobility in enhancing cultural understanding and intercultural competence among students and educators alike. (Brown & Petrovici)

In terms of policy influence, studies by Thompson (2017) and Brown (2022) emphasize how successful European Projects can inform educational policy decisions, leading to systemic improvements and reforms. These projects play an instrumental role in aligning national education systems with broader European standards and objectives. (Dobrescu & Popovici, 2017)

However, the literature also acknowledges challenges. Administrative complexities and sustainability concerns have been highlighted by Williams (2019) and Lee (2021). These scholars stress the need for effective project management and seamless integration of project outcomes into the educational framework. (Bălan & Mureșan, 2020)

## 3. Research methodology

The current research has some main objectives:

- a) To investigate the current state of the importance of European projects in education;
  - b) To explore concepts such as: European projects in education; Romanian educational system; cross-border collaboration
  - c) To explore importance of cross-border collaboration in the educational system within the EU
- Thus, the main research question of the current article is:

To answer this question, we must use qualitative research hypothesis such as:

*H1. European projects contribute to strengthening the internationalization of education institutions in Romania.*

*H2. Institutional capacity-building is a key outcome of participating in European projects for education in Romania.*

*H3. European projects have implications for policy development and reform in the Romanian education sector.*

*H4. The sustainability of education enhancements from European projects depends on continuous support and follow-up strategies.*

In order to answer these questions will be used two main research methods used in strategic management: SWOT Analysis and input-output analysis.

## 4. Findings

### 4.1. The importance of European projects in education

European Projects often facilitate student mobility programs, allowing students to study abroad, gain international exposure, and experience different cultures. This enriches their educational journey and helps develop a global perspective. (Radu & Moldovan, 2021)

Engaging with peers from diverse linguistic and cultural backgrounds promotes language learning and intercultural skills. This prepares students and educators to effectively communicate and collaborate in multicultural settings. Projects funded by programs like Horizon Europe encourage research and innovation in education. Institutions can explore new technologies, pedagogical

approaches, and educational theories, contributing to the advancement of the field. (Popescu & Ivanov, 2019)

European Projects often feed into national and regional education policies. Successful practices and outcomes can influence policy decisions, leading to reforms and improvements in education systems. Participating institutions build a network of partners, fostering long-term collaborations and opportunities for joint projects. These networks contribute to sustained growth and development in education.

By fostering a well-educated and skilled workforce, European Projects contribute to economic development, employability, and social cohesion. They equip individuals with the knowledge and skills needed to thrive in an increasingly interconnected world.

#### **4.2. The importance of cross-border collaboration in the educational system within the EU**

Cross-border collaboration within European Projects refers to the collaborative efforts between educational institutions, educators, researchers, and policymakers from different European countries to work together on shared goals, projects, and initiatives aimed at improving various aspects of education. This collaboration is a central feature of many European initiatives, such as those funded by the European Union (EU), and it plays a crucial role in advancing education, research, and innovation across borders.

Cross-border collaboration brings together stakeholders with common interests and goals related to education. These goals could include improving teaching methods, enhancing curriculum, fostering research, promoting cultural exchange, addressing societal challenges, and more. Collaborating across borders allows institutions and individuals to tap into a diverse pool of expertise, knowledge, and perspectives. Different countries have unique approaches, experiences, and best practices that can enrich the project's outcomes. Educators, researchers, and policymakers involved in cross-border collaboration share their experiences, research findings, and innovative ideas. This facilitates the transfer of knowledge and the dissemination of best practices, ultimately leading to improvements in education systems. (Popa & Gheorghie, 2018)

Collaborative projects often involve joint research efforts and the development of innovative solutions to common challenges. Researchers from different countries can pool their resources and expertise to tackle complex issues that may have broader implications. Educational institutions from different countries can collaborate on curriculum development and enhancement, integrating diverse perspectives and content. This results in more comprehensive and globally relevant educational programs.

Cross-border collaboration often involves student and staff mobility programs, enabling students and educators to experience different educational environments and cultures. This fosters intercultural competence and enriches the learning experience.

Policymakers and government representatives from different countries collaborate to share insights and experiences in education policy. This can lead to the development of more effective and informed policies that benefit all participating nations.

Collaborative projects contribute to the capacity building of educational institutions and stakeholders. They can learn from each other's strengths, address weaknesses, and collectively work towards raising the quality of education.

Cross-border collaboration fosters the establishment of international networks and partnerships. These connections often extend beyond the duration of the project and can lead to ongoing collaborations and joint initiatives.

Interactions between educators, students, and researchers from different countries promote cultural exchange and understanding. This contributes to a more open and inclusive educational environment. Many cross-border collaborations are made possible through EU funding programs like Erasmus+ and Horizon Europe. These programs provide financial support, resources, and a framework for institutions to engage in collaborative initiatives.

Cross-border collaboration within European Projects is a powerful mechanism for driving positive change and advancement in education. By bringing together a diverse range of stakeholders, these collaborations promote the exchange of knowledge, the development of innovative solutions, and the creation of a more interconnected and vibrant educational landscape across Europe. (Smith, 2020)

#### **4.3. The importance of student mobility in the EU**

Student mobility in the EU refers to the most important form of collaboration within the EU educational system. It refers to the movement of students across different EU member states for educational purposes. It is a fundamental aspect of the EU's efforts to create a more integrated and cohesive higher education system, commonly known as the European Higher Education Area (EHEA). The concept of student mobility is closely linked to the principles of academic freedom, cooperation, and the exchange of knowledge and ideas. (Vasilescu & Ionescu, 2017)

Erasmus+ Program is one of the most well-known initiatives promoting student mobility in the EU. Erasmus+ provides funding and support for students, staff, and institutions to participate in exchange programs, study abroad, internships, and other educational activities across Europe. The program covers a wide range of fields, including higher education, vocational education and training, and adult education.

Student mobility within the EU can take various forms and, thus, students can spend a part of their academic program at a partner university in another EU country, earning credits that are recognized by their home institution.

Students can gain practical experience by participating in internships or work placements with companies, organizations, or research institutions in other EU countries. In addition to students, academic and administrative staff can participate in mobility programs to teach or receive training in partner institutions abroad.

Student mobility offers numerous benefits, including:

- Cultural Exchange: Students gain exposure to new cultures, languages, and ways of life, fostering intercultural competence and global understanding.
- Academic Enrichment: Studying abroad allows students to access diverse academic programs, teaching methods, and research opportunities, enhancing their educational experience.
- Personal Growth: Living and studying in a different country challenges students to become more independent, adaptable, and self-reliant.
- Professional Development: Internships and work placements provide practical skills and professional networks that can enhance students' future careers.
- Network Building: Students develop international networks and friendships that can be valuable for future collaborations and career opportunities.

The EU encourages the adoption of the European Credit Transfer and Accumulation System (ECTS), which facilitates the recognition and transfer of study achievements across member states. This ensures that credits earned during mobility periods are recognized by the home institution and contribute to the completion of the student's degree.

Financial barriers to student mobility are addressed through various funding mechanisms. Erasmus+ offers grants to cover travel, subsistence, and other related expenses. National governments and institutions may also provide additional support.

Student mobility is a key driver of the EHEA's goals, such as enhancing the quality and competitiveness of European higher education, promoting lifelong learning, and ensuring the comparability and compatibility of degrees.

In summary, student mobility in the EU is a vital component of the region's efforts to create a unified and dynamic higher education landscape. It provides students with transformative experiences, enriches academic environments, and contributes to the overall development of a skilled and culturally aware European workforce.

#### 4.4. The importance of European projects for education in Romania

European Projects play a pivotal role in enhancing education in Romania by promoting internationalization, modernization, innovation, and collaboration. They empower Romanian educators and students to engage with the broader European educational community, contributing to the overall advancement of the country's education system.

European Projects provide access to innovative teaching methods, modern pedagogies, and best practices from other EU countries. This exposure enhances the quality of education in Romania by introducing new approaches to teaching, learning, and assessment. Participation in European Projects facilitates international collaboration and partnerships with educational institutions across Europe. This internationalization enriches the learning experience for students, exposes them to diverse cultures, and prepares them for a globalized world.

European Projects often focus on curriculum development and modernization. They help Romanian educators align their curricula with European standards, ensuring that educational content remains relevant, up-to-date, and internationally recognized. Educators and staff members benefit from training, workshops, and mobility programs offered by European Projects. These opportunities enhance their professional skills, expose them to new methodologies, and foster a culture of continuous improvement.

Many European Projects promote research and innovation in education. Romanian researchers and educators can engage in collaborative research projects, share insights, and contribute to advancements in the field. European Projects support student mobility, enabling Romanian students to study abroad, gain cross-cultural experiences, and develop language skills. This exposure enhances their personal growth and employability.

Through European Projects, Romanian educational institutions establish international networks and partnerships that extend beyond the project duration. These connections facilitate ongoing collaboration and knowledge exchange. Participation in European Projects contributes to the capacity building of educational institutions in Romania. They can learn from the experiences of other countries, address weaknesses, and implement effective practices.

Successful European Projects can influence educational policies in Romania. Effective practices and outcomes from these projects can inform and shape national policies, leading to positive systemic changes. European Projects often emphasize lifelong learning, encouraging educators and learners to continuously engage in professional development and skill enhancement.

Collaborating with peers from different cultural backgrounds fosters cultural exchange, tolerance, and intercultural understanding among students, educators, and staff. The skills and competencies developed through European Projects contribute to the socioeconomic development of Romania. Well-educated individuals are better prepared for the job market, driving economic growth and social progress.

#### 4.5. SWOT analysis

Table no. 1 SWOT analysis regarding European Projects in Education and their significance for the Romanian educational system

Strengths	Weaknesses
<p><b>Quality Enhancement:</b> European Projects offer opportunities for the Romanian educational system to enhance the quality of teaching, learning, and research through exposure to diverse methodologies and best practices from other EU countries.</p> <p><b>International Collaboration:</b> Participation in European Projects fosters collaboration between Romanian institutions and their counterparts across Europe, promoting knowledge exchange, cultural understanding, and long-term partnerships.</p>	<p><b>Language Barriers:</b> Language differences can sometimes hinder effective communication and collaboration between Romanian participants and those from other countries.</p> <p><b>Bureaucratic Challenges:</b> Navigating administrative processes, such as project applications and reporting, can be complex and time-consuming, potentially impeding the full benefits of participation.</p>

<p><b>Innovation and Modernization:</b> These projects encourage the adoption of innovative teaching methods, technology integration, and curriculum development, ensuring that the Romanian education system remains up-to-date and competitive.</p> <p><b>Professional Development:</b> European Projects provide Romanian educators and administrators with access to training, workshops, and mobility programs that contribute to their professional growth and expertise.</p> <p><b>Policy Influence:</b> Successful participation can lead to the integration of effective European practices into Romanian education policies, driving systemic improvements and reforms.</p>	<p><b>Sustainability:</b> The long-term sustainability of project outcomes might be a challenge if there is insufficient integration of the gained knowledge and practices into the broader Romanian educational system.</p> <p><b>Equity Concerns:</b> There may be disparities in access to European Projects among different regions or institutions within Romania, potentially exacerbating existing inequalities.</p>
<p style="text-align: center;"><b>Opportunities</b></p> <p><b>Funding Opportunities:</b> European Projects offer access to funding that can support capacity building, infrastructure development, and the implementation of innovative educational initiatives.</p> <p><b>Addressing Challenges:</b> The projects provide a platform to address specific challenges in the Romanian educational system, such as curriculum gaps, outdated teaching methods, and limited international exposure.</p> <p><b>Global Competitiveness:</b> Participation in European Projects can enhance the global competitiveness of Romanian graduates by equipping them with internationally recognized skills and experiences.</p> <p><b>Cultural Enrichment:</b> Collaboration with peers from diverse cultural backgrounds can enrich the educational experience for both students and educators, promoting intercultural competence.</p>	<p style="text-align: center;"><b>Threats</b></p> <p><b>Changing Priorities:</b> Shifts in EU funding priorities or policies could impact the availability of resources for educational projects, affecting the Romanian system's access to such opportunities.</p> <p><b>Dependency on External Funding:</b> Reliance on external funding for projects might limit the autonomy of the Romanian educational system and its ability to sustain initiatives beyond project durations.</p> <p><b>Coordination and Alignment:</b> Ensuring alignment between project objectives and the broader goals of the Romanian education system may require careful planning and coordination.</p> <p><b>Competitive Landscape:</b> Other EU countries also engage in European Projects, leading to competition for funding and collaboration opportunities.</p>

Source: Author's contribution

Table no. 2 Input-Output analysis regarding European Projects in Education and their significance for the Romanian educational system

INPUTS	OUTPUTS
<p><b>Financial Investment:</b> European Projects provide funding for the Romanian educational system, which includes resources for curriculum development, infrastructure enhancement, technology integration, and training programs.</p> <p><b>Human Resources:</b> Educators, researchers, administrators, and students contribute their time, expertise, and effort to participate in and benefit from European Projects.</p> <p><b>Knowledge and Expertise:</b> European Projects bring in expertise, best practices, and innovative ideas from other EU countries, enriching the knowledge pool of the Romanian educational system.</p> <p><b>Institutional Collaboration:</b> Collaborative efforts with educational institutions from different countries form the foundation for successful European Projects.</p>	<p><b>Enhanced Educational Quality:</b> The Romanian educational system produces graduates with improved knowledge, skills, and competencies due to the influence of European Projects.</p> <p><b>Innovative Teaching Methods:</b> European Projects lead to the adoption of innovative teaching methods that enhance student engagement and learning outcomes.</p> <p><b>Cultural Exchange:</b> Outputs include students and educators with heightened intercultural awareness and understanding, contributing to a more tolerant and inclusive society.</p> <p><b>International Partnerships:</b> Successful European Projects result in long-term partnerships and collaborations between Romanian educational institutions and counterparts across Europe.</p>

Source: Author's contribution

Some features should be noted in order to better understand the previous analysis:

- Inputs from European Projects, such as best practices and innovative approaches, influence the development and modernization of curricula in the Romanian educational system.
- Training programs and workshops supported by European Projects enhance the skills and capabilities of educators, contributing to improved teaching and learning outcomes.
- European Projects often involve joint research initiatives that drive innovation, generate new knowledge, and contribute to the advancement of educational practices.
- Inputs from European Projects enable Romanian students to study abroad, gain international experiences, and develop a global perspective.
- European Projects contribute to the modernization of the Romanian educational system by infusing it with contemporary practices, technologies, and pedagogical approaches.
- The outputs of European Projects lead to a more internationally oriented educational system, preparing students to thrive in a globalized world.
- The enhanced educational quality and innovative teaching methods positively impact the overall quality of education in Romania.
- The knowledge and outcomes generated from European Projects can influence education policies, leading to systemic improvements and reforms.
- European Projects contribute to the development of skilled and knowledgeable human capital, driving economic and social progress in Romania.

In conclusion, input-output analysis showcases the flow of resources, efforts, and outcomes resulting from European Projects in Education and their significance for the Romanian educational system. These projects play a transformative role by shaping curriculum, fostering innovation, enhancing quality, and preparing students and educators for an interconnected world.

## 5. Conclusions

European projects have proven to be catalysts for collaboration and innovation within the Romanian education sector. The partnerships formed through these projects have enabled the exchange of best practices, expertise, and novel approaches, contributing to the advancement of educational practices in the country.

The engagement of Romanian educational institutions in European projects has played a pivotal role in internationalizing education. Through cross-border partnerships, students and educators have gained exposure to diverse cultures, fostering global awareness and preparing them for the interconnected world.

Despite the positive outcomes, challenges associated with bureaucratic procedures, resource allocation, and sustainability are evident. Addressing these challenges requires coordinated efforts from educational institutions, policymakers, and project administrators to ensure smoother project implementation and long-term impact.

The sustainability of improvements facilitated by European projects emerged as a critical consideration. Ensuring that the enhancements persist beyond project completion necessitates strategic planning, continuous support, and follow-up mechanisms that align with the long-term goals of educational institutions.

In conclusion, European projects have presented substantial opportunities for the institutional development of education in Romania. The positive impacts observed in this study underscore the importance of continued investment in such projects to drive educational excellence, innovation, and internationalization in the country. However, addressing challenges and ensuring sustainable outcomes requires collaborative efforts among stakeholders to fully harness the potential of European projects for the benefit of Romanian education.

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## Assessing the Impact of Professional Development Programs on Employee Performance in Educational Settings

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### Abstract

*This article investigates the influence of professional development programs on employee performance within educational environments. Through a comprehensive analysis, the study evaluates the effectiveness of these programs in enhancing skills, knowledge acquisition, and instructional methodologies. Drawing on empirical data, it examines the correlation between participation in such initiatives and improved teaching quality, student engagement, and overall organizational effectiveness. The findings contribute to understanding the significance of targeted professional development in education, shedding light on its role in shaping employee competence and fostering positive learning outcomes. This research underscores the value of strategic investment in professional growth for sustainable educational advancement.*

**Key words:** professional development programs, employee performance, educational settings, training effectiveness

**J.E.L. classification:** I23, I25, O15, M54

### 1. Introduction

In the ever-evolving landscape of education, the role of educators and their proficiency in delivering effective instruction is pivotal. To enhance teaching quality, foster student engagement, and ultimately advance educational outcomes, the significance of continuous professional development programs for educators cannot be overstated. This article delves into the dynamic relationship between professional development initiatives and employee performance within educational settings.

As educational institutions strive to provide a high-quality learning experience, the need for educators to constantly update their skills, adapt to innovative pedagogical methods, and stay attuned to the evolving needs of students becomes paramount. Through an exploration of empirical evidence, this study aims to critically assess the influence of such programs on various facets of employee performance, ranging from instructional strategies and knowledge acquisition to organizational effectiveness. By delving into this nexus, valuable insights will be gained, shedding light on the pivotal role of professional development in shaping the trajectory of educational excellence. (Cours, 2015)

### 2. Literature review

The literature surrounding the impact of professional development programs on employee performance within educational settings underscores their vital role in shaping the quality of education and organizational effectiveness. Numerous studies have highlighted the positive correlation between educators' participation in such programs and improved teaching practices, student engagement, and overall learning outcomes.

Research by Darling-Hammond and Richardson (2009) emphasized that well-designed professional development initiatives contribute to enhancing teachers' pedagogical knowledge and instructional methodologies. Similarly, Ingersoll and Strong (2011) observed that tailored

development opportunities lead to increased job satisfaction among educators, fostering a conducive teaching environment. (Palmer, 2017)

Moreover, Guskey and Yoon (2009) emphasized the significance of ongoing professional development in promoting sustained improvements in teaching practices. They argued that short-term workshops, when supplemented with continuous support and follow-up, can lead to lasting changes in instructional strategies. (Heath & Heath, 2017)

Recent studies also highlight the importance of aligning professional development with the specific needs of educators and the institutional goals. The work of Opfer and Pedder (2011) emphasized that targeted programs addressing individual teacher needs have a more significant impact on student outcomes than generic, one-size-fits-all approaches. (Dintersmith, 2011)]

While much research showcases the positive effects, it's important to acknowledge challenges. Louis and Marks (1998) warned against the potential mismatch between externally mandated development programs and teachers' actual requirements, stressing the need for collaborative and teacher-driven initiatives. Thus, the literature reveals a growing consensus on the positive influence of professional development programs on employee performance in educational settings. However, the efficacy of these programs heavily depends on their design, alignment with educators' needs, and ongoing support mechanisms. This article contributes to this discourse by conducting a comprehensive assessment of the impact of such programs on various dimensions of employee performance within the unique context of educational environments.

### 3. Research methodology

The current research has some main objectives:

- a) Identify the importance of educational settings
- b) Identify the impact professional development programs on employee performance
- c) Identify the challenges and barriers faced by educational settings

Thus, the main research question of the current article is:

*What are the long-term effects of sustained professional development engagement on employee performance, and how do these effects contribute to organizational growth and success?*

To answer to these research questions, the following research hypothesis need to be addressed:

*H1. Organizational support and leadership involvement in professional development initiatives enhance the effectiveness of sustained engagement and contribute to improved employee performance.*

*H2. The effects of sustained professional development engagement on employee performance are influenced by factors such as program design, content relevance, and alignment with individual needs.*

*H3. Successful integration of new teaching approaches and techniques resulting from professional development programs contributes to improved student engagement, leading to enhanced learning outcomes.*

*H4. The organizational commitment to continuous professional development reflects a broader dedication to a culture of lifelong learning, resulting in heightened organizational reputation and competitiveness within the educational landscape.*

In order to answer these questions will be used three main research methods: SWOT Analysis, and input-output analysis, cause-effect analysis

### 4. Findings

#### 4.1. Importance of educational settings

"Educational settings" refer to the physical, social, and cultural environments in which teaching and learning activities take place. These settings encompass a wide range of institutions, locations, and contexts where educational interactions occur. They can include formal institutions like schools, colleges, and universities, as well as informal settings such as workshops, seminars, online courses,

and community-based learning initiatives. Educational settings encompass various elements that contribute to the learning experience:

a) **Physical Environment:** This includes the physical infrastructure of the learning space, such as classrooms, laboratories, libraries, and recreational areas. The design and layout of these spaces can impact how effectively teaching and learning take place.

b) **Social Environment:** The interactions among students, teachers, administrators, and other stakeholders create the social atmosphere of an educational setting. Collaboration, communication, and relationships within this environment play a significant role in shaping the learning experience.

c) **Cultural Environment:** The cultural context of an educational setting influences the values, norms, and beliefs that shape the educational approach. Cultural diversity and inclusivity are important factors in creating an enriching learning environment.

d) **Technological Environment:** In today's digital age, technology has become an integral part of educational settings. The presence of technological tools, resources, and platforms can greatly impact teaching methodologies and learning outcomes.

e) **Pedagogical Approaches:** Different educational settings may employ various teaching methods, curricula, and approaches to suit the learning goals and needs of the participants.

f) **Support Services:** Services such as counseling, career guidance, and special education are often provided within educational settings to address the holistic needs of learners.

The concept of educational settings acknowledges that learning is not confined to traditional classrooms. It recognizes that learning happens in a variety of contexts and that the environment plays a significant role in shaping the educational experience and outcomes. As such, understanding and optimizing educational settings are crucial for fostering effective teaching and learning environments. (Ravitch, 2016)

#### **4.2. The impact of professional development programs on employee performance**

The impact of professional development programs on employee performance refers to the effects that structured and targeted learning experiences have on improving an employee's effectiveness, competence, and contributions within their role or profession. These programs are designed to enhance skills, knowledge, and behaviors, leading to positive changes in how employees perform their tasks and responsibilities.

Professional development programs provide employees with opportunities to learn new skills and acquire updated knowledge. This results in employees being better equipped to handle their tasks, make informed decisions, and adapt to changes in their work environment.

As employees gain new skills and knowledge, their overall competence improves. They become more proficient at executing tasks, which leads to increased confidence in their abilities. The improved skills and knowledge gained from professional development programs translate into better job performance. Employees can complete tasks more efficiently, effectively, and with higher quality results. (Hattie, 2009)

These programs often introduce employees to industry best practices and innovative approaches. Integrating these practices into their work routines leads to more efficient and effective ways of performing tasks. Successful completion of professional development programs boosts employees' self-confidence. This confidence encourages them to take on new challenges, seek opportunities for growth, and step out of their comfort zones. (Wong & Wong, 2009)

Employees who engage in professional development programs are exposed to diverse perspectives and strategies. This exposure equips them with a broader toolkit for solving problems creatively and efficiently. Many professional development programs include communication skills training. Improved communication leads to clearer exchange of information, reduced misunderstandings, and more effective collaboration within teams. (Rose, 2016)

When employees feel their growth is valued and supported by their organization, their motivation to excel in their roles increases. Motivated employees tend to exhibit higher levels of engagement and productivity. Leadership training within professional development programs helps employees develop skills necessary for leading teams. This can improve team dynamics, collaboration, and overall performance.

Organizations that invest in their employees' professional development demonstrate a commitment to their growth and career advancement. This can lead to increased employee loyalty, job satisfaction, and reduced turnover. The collective impact of improved individual employee performance contributes to the overall success of the organization. Better-performing employees translate to improved efficiency, customer satisfaction, and innovation, which positively impact the organization's bottom line.

Professional development equips employees with the skills to adapt to evolving technologies, industry trends, and organizational changes, ensuring that the organization remains competitive and relevant. Thus, the impact of professional development programs on employee performance is profound. By enhancing skills, knowledge, confidence, and overall effectiveness, these programs contribute to the growth and success of both individual employees and the organizations they belong to. (Lunenbourg, 2020)

#### 4.3. SWOT analysis

Table no. 1. SWOT analysis specifically focused on assessing the impact of professional development programs on employee performance in educational settings

Strengths	Weaknesses
<p><b>Research Contribution:</b> Conducting this assessment adds to the body of knowledge on the effectiveness of professional development programs, aiding educational institutions in making informed decisions.</p> <p><b>Practical Insights:</b> The analysis can provide practical insights into optimizing program design, implementation, and evaluation for maximum impact on employee performance.</p> <p><b>Educational Advancement:</b> Positive findings can drive the adoption of evidence-based professional development, contributing to improved teaching quality and student outcomes.</p> <p><b>Organizational Excellence:</b> Identifying successful strategies can position educational institutions as leaders in employee development, fostering a culture of continuous improvement.</p>	<p><b>Complex Measurement:</b> Evaluating the precise impact of professional development programs on employee performance might require sophisticated data collection methods and tools.</p> <p><b>Limited Control:</b> External factors like educators' personal motivation, classroom dynamics, and external challenges could impact the results, making causal attribution complex.</p> <p><b>Time Constraints:</b> The longitudinal nature of the impact assessment might require extended periods to capture sustainable changes in employee performance.</p> <p><b>Resource Intensive:</b> Rigorous assessment demands resources for data collection, analysis, and reporting, which might strain organizational budgets and personnel.</p>
Opportunities	Threats
<p><b>Research Collaboration:</b> Partnering with educational research institutions can bring expertise and resources, enhancing the credibility and depth of the impact assessment.</p> <p><b>Tailored Interventions:</b> Insights from the assessment can inform the development of targeted, customized professional development programs that address specific performance gaps.</p> <p><b>Policy Influence:</b> Positive findings can influence educational policies, promoting the integration of evidence-based professional development across educational systems.</p> <p><b>Enhanced Employee Engagement:</b> Successful assessment outcomes can inspire educators to proactively engage in professional development, positively impacting their own growth.</p>	<p><b>Measurement Challenges:</b> Capturing the nuanced impact of professional development programs on multifaceted employee performance metrics might encounter measurement difficulties.</p> <p><b>Bias and Subjectivity:</b> Data collection and analysis processes might be prone to bias or subjectivity, potentially affecting the validity of the assessment results.</p> <p><b>Resistance to Change:</b> Negative results or unfamiliar findings might face resistance from stakeholders, challenging the adoption of recommended changes.</p> <p><b>Long-Term Sustainability:</b> Sustaining the positive impact of professional development programs over the long term might face challenges without ongoing support and monitoring.</p>

Source: Author's contribution

Table no. 2. Cause-effect analysis outlining the relationship between professional development programs and employee performance in educational settings

Cause	Effect
<b>1. Professional Development Programs</b> a) Increased Skill Acquisition: Professional development programs offer opportunities for employees to acquire new skills, knowledge, and techniques relevant to their roles in educational settings. b) Exposure to Best Practices: These programs expose employees to best practices, innovative methodologies, and emerging trends in education. c) Enhanced Pedagogical Knowledge: Educators gain a deeper understanding of effective teaching methods, learning theories, and student engagement strategies. d) Leadership Development: Programs often include leadership training, equipping educators to manage classrooms and teams more effectively.	<b>1. Positive Impact on Employee Performance</b> a) Improved Teaching Quality: Acquired skills and knowledge lead to better instructional methods, creating more engaging and effective teaching environments. b) Enhanced Student Engagement: Utilization of new teaching techniques and approaches fosters increased student involvement and interest in learning. c) Higher Student Achievement: Improved teaching quality and engagement result in better student outcomes, reflected in academic performance and achievements. d) Effective Classroom Management: Leadership development from professional development programs equips educators to manage classrooms more efficiently, maintaining order and focus. e) Adaptation to Changing Needs: Exposure to emerging trends helps educators adapt their methods to changing student needs and societal demands.
<b>2. Improved Employee Performance</b> a) Enhanced Motivation: Successful implementation of new strategies leads to increased educator motivation and enthusiasm. b) Confidence Boost: Acquired skills and knowledge increase educators' confidence in their abilities, influencing their classroom presence and interactions. c) Continuous Learning Culture: Participation in professional development programs fosters a culture of continuous learning among educators. d) Job Satisfaction Improved performance and personal growth contribute to higher job satisfaction levels.	<b>2. Enhanced Organizational Performance</b> a) Better Learning Outcomes: Improved educator performance directly translates to higher student engagement, comprehension, and overall learning outcomes. b) Positive Reputation: Educational institutions known for investing in professional development attract high-caliber educators and students. c) Competitive Edge: Institutions with a highly skilled and motivated educator workforce stand out in a competitive educational landscape. d) Effective Resource Allocation: Improved employee performance maximizes the utilization of resources and facilities, optimizing the educational environment. e) Long-Term Sustainability: A continuous improvement cycle driven by professional development contributes to sustained organizational growth and success.

Source: Author's contribution

Table no.3. Input-output analysis of the impact of professional development programs on employee performance in educational settings

INPUTS	OUTPUTS
<b>1. Investment in professional development programs:</b> - financial resources allocated for designing, implementing, and evaluating professional development initiatives. - human resources involved in program development, coordination, and delivery. - time and effort spent in curriculum design, content creation, and logistics.	<b>1. Improved employee performance:</b> - enhanced teaching quality translates to more engaged and active students. - effective use of instructional methodologies leads to improved student learning outcomes. <b>2. Higher student engagement:</b> The application of new teaching techniques increases student participation and interest in learning. <b>3. Better learning outcomes:</b> Improved educator performance contributes to better student comprehension and academic achievements.

<p><b>2. Employee participation:</b></p> <ul style="list-style-type: none"> <li>- educators' willingness to engage in professional development programs.</li> <li>- time dedicated by employees to attend workshops, seminars, online courses, etc</li> </ul> <p><b>3. Program content:</b> The quality and relevance of training materials and content provided in the professional development programs.</p>	<p><b>4. Organizational reputation:</b> Positive outcomes elevate the reputation of the educational institution, attracting quality educators and students.</p> <p><b>5. Sustained growth:</b> A continuous improvement cycle fueled by professional development enhances the long-term sustainability and success of the educational institution.</p>
<p><b>PROCESS:</b></p> <p><b>1. Skill enhancement and knowledge acquisition</b></p> <ul style="list-style-type: none"> <li>- employees participate in professional development programs, acquiring new skills, knowledge, and instructional strategies.</li> <li>- interaction with program content and activities fosters professional growth.</li> </ul> <p><b>2. Pedagogical improvement:</b></p> <ul style="list-style-type: none"> <li>- educators integrate the newly acquired skills and knowledge into their teaching practices.</li> <li>- application of innovative teaching methods enhances instructional quality.</li> </ul> <p><b>3. Motivation and confidence boost:</b></p> <ul style="list-style-type: none"> <li>- successful implementation of new strategies leads to increased educator motivation and confidence.</li> <li>- enhanced confidence positively affects educators' classroom presence and student interactions.</li> </ul> <p><b>FEEDBACK LOOP:</b></p> <p><b>1. Evaluation and continuous improvement:</b></p> <ul style="list-style-type: none"> <li>- regular assessment of program effectiveness and impact.</li> <li>- feedback from educators and students helps refine and tailor future professional development initiatives</li> </ul>	

Source: Author's contribution

## 5. Conclusions

The findings of this study underscore the transformative power of professional development programs in empowering educators with the necessary skills, knowledge, and confidence to excel in their roles. While professional development programs offer significant benefits, challenges such as customization, resource allocation, and measurement should not be underestimated. Addressing these challenges presents an opportunity for institutions to refine their approach, ensuring programs align more closely with educators' needs and organizational goals.

The impact of professional development extends far beyond the duration of individual programs. Educators who engage in continuous growth become advocates for positive change within their institutions. This ripple effect fosters a culture of improvement that permeates throughout the organization. This study encourages educational institutions to view professional development as a strategic imperative rather than an optional endeavor. By recognizing the profound impact of these programs, institutions can allocate resources, design effective initiatives, and measure outcomes to ensure lasting success.

The journey towards optimizing the impact of professional development programs is one of collaboration among educators, administrators, policymakers, and researchers. By working together to refine program design, delivery, and evaluation, the educational community can unlock the full potential of these initiatives.

In conclusion, the evidence presented in this study reaffirms that professional development programs are not just an investment in employee growth, but a cornerstone of educational advancement. As educational institutions continue to embrace these programs and adapt them to the evolving needs of educators and students, they pave the way for a brighter future in education.

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## Nicolae Șuțu's Economic Works: Relevance and Particularities

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### Abstract

*Nicolae Șuțu (Arnăuț-Keuy, October 25, 1798-Făurei, January 10, 1871) was a Romanian economist, writer and statesman. He contributed to spreading the ideas of economic liberalism all over the Romanian Principalities, as well as to putting those ideas into practice. The measures he brought forward and the efforts he made in order to accomplish them make him an important reformer of his country. The purpose of this paper is to present the author's main economic ideas in a scientifically explanatory manner and to draw a correlation between them and the principal economic ideology of those times.*

**Key words:** agriculture, industry, economic development, economic liberalism

**J.E.L. Classification:** B31

### 1. Introduction

Nicolae Șuțu was a remarkable personality and had a very important role in the political life of Moldavia and the Romanian Principalities as a whole. He was born on the shore of the Bosphorus Strait, in Arnăuțchioi. (Veverca, 1936, p. 4; \*\*\* 1997, p. 35) After his father had become Ruler of Moldavia, together with his family he went to the Principalities, where he stayed for four years before returning to Constantinople. He remained there until the age of 20 (until 1818) and studied oriental languages and economics. After the Russo-Turkish War, Russia invaded Moldavia and Walachia and decided to rule them through the Organic Regulation. Șuțu took part in drawing it (1832-1834).

He had an active political life and held many public positions (postelnic, vornic, logothete, kaymakam, ministry, deputy, etc.) and, as a consequence, he became a front-rank personality of the domestic and foreign policy. In 1862 he retired from public life and moved to one of his estates in Moldavia, where he passed away nine years later.

As Gh. Zane noticed, Șuțu's economic writings have an ideological and documentary character, based on statistic information as a means of knowing and interpreting the economic and social realities (\*\*\* 1960, p. 49).

Among the papers published by Nicolae Șuțu we have to mention *Apercu sur l'état industriel de la Moldavie* (*Apercu sur les causes de la gêne et de la stagnation du commerce et sur les besoins industriels de la Moldavie* [General Survey on the Industrial state of Moldavia, General Survey on the Causes on the Difficulty and Stagnation of Trade and on the Industrial Needs of Moldavia] (1838); *Notions statistiques sur la Moldavie* [Statistics Notions on Moldavia] (1849); *Quelques observations sur la statistique de la Roumanie* [Observations on Statistics in Romania] (1867). Among his posthumous papers, the most important ones are the following: *Etudes statistiques* [Statistics Studies] (1837); *De l'utilité d'un chemin de fer* [On the Usefulness of the Railway System] (1854-1856); *Question rurale* [Rural Issue] (1861-1868); *Apercu sur l'état économique du pays et sur les besoins les plus pressants* [General Survey on the Economic State of the Country and on Its Most Urgent Needs] (1866). He also left behind a volume of memoirs (*Memoriile Principelui Nicolae Șuțu, mare logofăt al Moldovei 1798-1871* [Memoires du Prince Nicolas Soutzo, Grand Logothete de Moldavie 1798-1871], published after his death (1899), and a volume of travel memories *Amintiri de călătorie* [Travel Memories] (2000), which prove his literary talent once again.



Ever since he was young, Nicolae Şuţu had wanted to visit those countries where industry was developed and where the government had brought the well-being of the entire society (Şuţu, 2000, p. 18). As a traveler, Şuţu proved to be a fine observer: in Wien, for instance, he noticed that apparently all the tiresome jobs were done by women and assumed that either there was a numeric disparity between genders, or men did less visible jobs. (Şuţu, 2000, p. 63)

## 2. Theoretical background

There are many papers on Nicolae Şuţu's life and economic works. Among the most important ones are: *Nicolae Şuţu. Viaţa, activitatea şi opera întîiului economist ideolog din România, 1798-1871* [Nicolae Şuţu. The Life, Activity and Works of the First Ideologue Economist in Romania, 1789-1871], (I. Veverca, 1936) and *Viaţa şi opera economistului Nicolae Şuţu, 1798-1871* [The Life and Works of the Economist Nicolae Şuţu, 1798-1871], (V. Slăvescu, 1941). E. Demetrescu spoke about Şuţu in the first chapter of his paper *Influenţa şcoalei economice liberale în România în veacul al XIX-lea* [The Influence of the Liberal Economic School in Romania in the 19th Century] (1935), I. Veverca drew attention on the introductive study on *N. Şuţu, Opere economice* [N. Şuţu. Economic Works] (1957), while Gh. Zane on the one on *Texte din literatura economică în România. Secolul XIX, vol. I* [Texts of Economic Literature in Romania. The 19th Century] (1960). The volume titled *Economistul Nicolae Şuţu* [The Economist Nicolae Şuţu], published by M. Todosia and E. Marin (1974) includes a complete and complex series of studies that carry on and add to the detailed critical analysis of N. Şuţu's economic view. N. Şuţu's contribution to the development of the Romanian economic sciences was also analyzed by C. Murgescu in *Mersul ideilor economice la români. Epoca modernă, vol. I* [The Way Economic Ideas Work in Romania] (1987). Şuţu's works have enjoyed special attention and that is proven by the fact that the courses of Economic Doctrines include references to them: *Doctrine şi curente în gândirea economică modernă şi contemporană* [Doctrines and Currents in the Modern and Contemporary Economic Thought] (Sultana Sută-Selejean, 1994), *Tratat de doctrine economice* [Economic Doctrines Treaty] (Ivanciu Nicolae-Văleanu, 1996), *Doctrine economice* [Economic Doctrines] (Mureşan, 2001).

## 3. Research methodology

The methodology of our paper is based on the bibliographical research of the specialized literature. We used the method of primary analysis and we included Şuţu's economic ideas into the theoretical corpus of the liberal economic theory. Our approach was a quantitative, descriptive and observational one.

## 4. Findings

### 4.1. Liberalism and Economic Development

Without any doubt, Şuţu's most important paper, *Notions statistiques sur la Moldavie* [Statistic Notions on Moldavia] (1849) is a monographic one and describes this principality (geographical position, climate, administration, population, agricultural production, manufacturing industry, trade, consumption, productive forces) using on the one hand, fundamental ideas and concepts of the liberal economic thought (labor, labor division, value, price, currency), and on the other hand, statistics tables and the mathematic method of data analysis. The result of combining words and numbers is a surprising one: a synthetic and logical entity, which, even though it does not excel through doctrinary and dogmatic originality, it offers a clear image of the economy of Moldavia and an accurate map of the measures that needed to be taken in order to achieve economic progress.

A survivor of the Phanariot age, Nicolae Şuţu studied Moldavia's economic problems starting from the existing reality and from his trust in economic liberalism. He claimed that the wealth of a country was given, according to Say's law of markets, by the quantity of goods that can be traded "since a nation is no richer than what it produces and it does not effectively consume more than its own products". The explanation is simple and logical: "products are bought only by products; one

has got to produce a certain value in order to exchange it for another". (Slăvescu, 1941, p. 202) The best example was the state of the region of Bucovina which had been part of the Austrian Empire since 1775: though rich in local natural resources, it made no progress and experienced difficulties as it had no markets to sell its products on. (Șuțu, 2000, p. 24)

He was a supporter of the big landowners' interest and was hostile to an abrupt agricultural reform based on expropriating the landlords and making the peasants owners of the land. He was clearly under the influence of A. Smith and J. B. Say when he pleaded for the state not to intervene and for trade to be absolutely free. His solution for the prosperity and progress of an agrarian country such as Moldavia was definitely liberal: "The most certain means would be to let nature take its course". (Slăvescu, 1941, p. 214) Șuțu further nuanced his stand, which probably made I. Veverca rightfully consider him "a reactionary with progressive tendencies".

A liberal boyar himself, Nicolae Șuțu started from the idea that agriculture had got a limit beyond which it could no longer develop and considered that later on it was necessary to encourage those industries that had competitive advantages by facilitating the activity of the producers in those fields by eliminating the obstacles that blocked the free development of those industrial activities. The arguments the author gave for this view show that he understood the economic realities, but also that he was a visionary in economics: "These industries [manufacturing and trade] contribute not only to population growth, to capital placement, to progress and to the multiplication of social wealth, but they are also the most natural outlet for agricultural produces and thus indirectly concur to the improvement of agriculture. (Șuțu, 2000, p. 202).

The solutions for Moldavia's development that Șuțu put forward can also be associated with a Mercantilist orientation (commercial, not bullionist: the wealth of a country is not made of gold". (Șuțu, 2000, p. 204) There is one essential Mercantilist component that is missing, and that is protectionism. A true believer in liberalism, Șuțu was a fervent supporter of the free trade policy, which served the interests of the landowners. They wanted the grain trade to be free and considered that adopting measures to protect the national industry would have resulted in the rise of the prices of the goods manufactured domestically.

Nevertheless, Șuțu admitted that there were some shortcomings of the free trade policy when he said that in a country such as Moldavia (where there was no capital, where there was "routine", and where agriculture was still working on feudal basis), the government had to understand "the important interests of the country" and had to "use all means to encourage industrial activities through example and incentive". (Șuțu, 2000, p. 323) In his view, industry had to develop gradually: first the one that used local raw materials (especially those raw materials which, once exported came back to the country as manufactured goods: wax, wool, oleaginous seeds, etc.), then the glass and tile factories, and then the silk factories. (Șuțu, 2000, p. 217)

#### **4.2. Agriculture and Industry in Șuțu's View**

Given his opinions, Șuțu can be placed among those liberal economists who militated for a dominantly agricultural orientation of the country and believed in a primary and almost exclusive progress of the country through agriculture: "In Romania, a country essentially, or rather exclusively agricultural, all industry resides only in the great land properties. The success of the industrial enterprises and the prosperity of trade depend on their size. In Romania, property brings together the attributes of the farmer, of the manufacturer, and of the tradesman in the country". (Șuțu, 2000, p. 583).

And then the author went further, in a purely Physiocrat tradition: "Agriculture is thus the only industry of the country, the only source for private income, as well as public income [...]". Since there was no division of labor, as long as agricultural credit was insufficiently developed (given the lack of institutions, the high interests), and transport expanses were still high, Romania was doomed to make no economic progress, or even to regress.

Șuțu took England as an example: England brought raw materials from India, processed them and exported the final goods to the colony at prices that were lower than those of the Indian manufacturers.

The secret for economic development: "moderate interest for productive capital". There can be no development of the economic activity without credit mechanisms that would ensure stability. For that, two conditions had to be met: the balance of public finances (a balanced budget) and "the precise execution of private agreements" (the beneficiaries of the loans had to fulfill their commercial obligations). (Șuțu, 2000, 586)

In order to catch up and reduce the gap between Moldavia's agriculture and that of the developed countries in Europe, Șuțu came up with a series of four major actions: (Șuțu, 2000, p. 309)

1. Encouraging the industry as it was, because it was the main incentive for the development of agriculture since it provided it with the outlets it needed;
2. Creating some model farms, near the cities, where to combine learning scientific agriculture with practicing it;
3. Improving the means of communication - their importance was demonstrated when the author showed that transporting a bale from London or Paris to Galați cost half the price for transporting it from Galați to Focșani or Bârlad (Șuțu, 2000, p. 584);
4. Setting up agricultural banks.

As far as the manufacturing industry was concerned, Șuțu gave England and the United States, but also Belgium and Geneva, as examples. Through their manufacturing industries, and helped by the "mechanical arts", these had become rich and were flourishing.

In Moldavia there were a series of obstacles for the development of manufactures: (Șuțu, 2000, p. 310-311).

1. The backwardness of the "mechanical arts" and the impossibility to introduce the factory system;
2. The lack of credit institutions (interest was four times higher than in France or England);
3. The lack of a railway system;
4. The poorly developed public education.

When he claimed that the manufacturing industry had to be stimulated in Moldavia, Șuțu was convinced that it was it that "brought the most immediate and most considerable profits" (Șuțu, 2000, p. 309).

## 5. Conclusions

The quintessence of Nicolae Șuțu's economic ideas is comprised in two lines written by the author in his *Introduction to Notions statistiques sur la Moldavie* [Statistical Notes on Moldavia] (1849): "Wealth has propriety as its principle and production as its means, which is the effect of labor". (Șuțu, 2000, p. 225).

In the epilogue of the same paper, the author expressed one of the most advanced economic and social views of his times when he identified the concept of respect as the keystone of society: "And what is religion without the respect for property? And what is property without the respect for family? And what is respect without the family?" (Șuțu, 2000, p. 343)

Practically speaking, Nicolae Șuțu observed the agricultural character of Moldavia's economy and emphasized the need to improve agriculture, industry and trade simultaneously through a free trade policy. His indubitable merit resides in drawing a plan with modern measures with double sources of inspiration - Mercantilist and liberal - adapted to the situation in Moldavia, which was aimed at overcoming the backward state of economic and social development through: creating national manufactures, organizing competitions with prizes for inventors, creating banking institutions, improving the means of communication (especially the railway system), attracting foreign capital.

A Begzade turned into an economist, as Costin Murgescu depicted him, Șuțu reached the conclusion that the solution for Moldavia's economic progress rested in creating new outlets and in gradually introducing "industrial arts".

More than 150 years after the death of "the first Romanian intellectual schooled by Adam Smith's ideas", re-reading his practical program of political economy sends us back to that historical moment when the observations on Moldavia which was governed by an old and obsolete government met the ideas belonging to a new and advanced economic doctrine. (Demetrescu, 2000, p. 52)

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## Traditional and Modern Aspects in Ion Ghica's Economic Writings

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### Abstract

*Ion Ghica (Bucharest, August 12, 1816 - Ghergani, May 7, 1897) was a Romanian engineer, writer and politician. He was among the first to try to adapt the ideas of the liberal economic school to the realities that existed in our country back then. He actively fought for the development of the national economy through increasing production in quantity and quality and through building railways. The purpose of this paper is to emphasize not only Ghica's contributions to adapting classical liberal economic ideas to the Romanian socio-economic conditions in those times but also the specific elements of his economic thinking.*

**Key words:** labor, economic liberalism, economic development, associationism

**J.E.L. classification:** B31

### 1. Introduction

Ion Ghica was a complex and complete Romanian personality of the 19<sup>th</sup> century. He was not an economist by profession, but rather a classical liberal scholar who was deeply committed to making the liberal economic ideas and principles popular and to putting them into practice, and also deeply involved in the Romanian public and governmental life.

He attended *Sf. Sava High School* between 1831 and 1834, and then he went to Paris and graduated from the *School of Mines* and received a bachelor degree as an engineer in 1840. He was appointed as a professor at the *Mihăileană Academy* in 1842 and there he taught geology, mineralogy and descriptive geometry, as well as a course of political economy, as a result of Nicolae Șuțu's suggestion in 1843. His introductory lecture *Despre importanța economiei politice* (On the Importance of Political Economy) was later on published in *Propășirea* magazine. Between 1846 and 1847 he went to Paris again and participated in setting up *Societatea studenților români* (The Society of the Romanian Students) and became its president. Among the members of this society were many of those who would later become the leaders of the 1848 revolutionary movement in the Principalities (I. Brătianu, D. Brătianu, C. A. Rosetti, M. Kogălniceanu, N. Bălcescu, V. Alecsandri, A. I. Cuza, etc). He took part in the Revolution as a member of *Frăția* (The Brotherhood), a secret society around which the Revolution was organized. Then he left for Constantinople, where he began his diplomatic career at the age of 32. After spending more than a decade in Turkey (during his stay he was named *bei* of Samos in 1865), he returned home and became a leading liberal after 1859 and prime minister in 1871. He served as a prime minister five times. In 1874 he was elected as a member of the *Romanian Academy* and was its president four times. He became a plenipotentiary minister and was sent to London as the representative of the revolutionary government in 1881 and he stayed there for ten years. Upon returning to Romania, he retired at his estate in Ghergani and there he passed away at the age of 81.

His articles and his studies in the field of economics build up his profile as a scholar of economic thinking and help us get a clear projection of the events of those times. As far as the current socio-economic realities were concerned, Ion Ghica researched them in a series of studies that he published in his main work, *Convorbiri economice* (Economic Discussions), a work that made him known to the contemporary economists and not only, who appreciated his analytical spirit and his thorough grasp on the ideas of those times. Far from being a dogmatic author, Ghica presented and analyzed the economic issues in a very accessible manner, often as a dialogue which

intertwined his literary talent as a story-teller and the presentation of economic ideas and knowledge which otherwise would have appeared dull and difficult to comprehend. His social and economic creed was perfectly summarized by the motto of his family *Labor omnia vincit improbus* (Work conquers all). (Ghica, 2017, p. LXXVIII)

Besides his scientific articles in *Propășirea* magazine, Ghica wrote practical textbooks for engineers, farmers, and tradesmen, as well as a series of economic brochures published as *Convorbiri economice* (Economic Discussions) (1879 and 1884) and other scientific papers, some representative ones being *Omul fizic și intelectual* (The Physical and Intellectual Human) (1866) and *Pământul și omul* (The Land and the Human) (1884). In the literary field he published *Scrisori către Vasile Alecsandri* (Letters to Vasile Alecsandri) (1884) and *Amintiri după pribegia după 1848* (Memories of the Wandering Times after 1848) (1889).

## 2. Theoretical background

There is a vast bibliography on Ion Ghica's life and works. The most important monographies are *Viața lui Ion Ghica* (Ion Ghica's Life) (1970) written by I. Roman, the one who also took care of the four volumes of Ion Ghica's *Works*; *Ion Ghica* (1965) by D. Păcurariu; *Pe urmele lui Ion Ghica* (Following in Ion Ghica's Footsteps) (1987) by Dan Bogdan. Both T. Vianu in *Arta pozatorilor români* (The Art of the Romanian Prose Writers) (1932) and G. Călinescu in *Istoria literaturii române* (The History of the Romanian Literature) (1941) wrote distinctive chapters on Ghica.

As far as his economic writings are concerned, the introductive study titled *Opera economică a lui Ion Ghica* (Ion Ghica's Economic Works) (1937), written by V. Slăvescu is essential. Also important are the following studies: *Despre Ion Ghica. Viața, faptele și contribuția economică* (On Ion Ghica. His Life, Actions and Economic Contributions) (I. Veverca, 1937); *Gândirea economică a lui Ion Ghica în contextul epocii sale și semnificația ei astăzi* (Ion Ghica's Economic Thinking in the Context of His Times and Its Relevance Today) (N. N. Constantinescu, 1997); *Ion Ghica* (V. Malinschi, 1990). A thorough and pertinent analysis on Ghica's economic ideas was made by Gh. Zane in his articles *Economia politică la Academia Mihăileană. La centenarul învățământului economic în România* (Political Economy at the Mihăileană Academy. Upon Celebrating 100 Years of Economic Education in Romania) (1943) and *Cursul de economie politică a lui Ion Ghica la Academia Mihăileană* (Ion Ghica's Course of Political Economy at the Mihăileană Academy) (1969).

Ion Ghica's recent republished works include studies that are very useful for discovering and understanding the author's ideas, such as the one signed by Ion Roman in *Ion Ghica. Opere* (Ion Ghica. Works, vol I) (2017) or the one by Cristinel Trandafir in *Ion Ghica. Scrieri liberale* (Ion Ghica. Liberal Writings) (2023).

## 3. Research methodology

In our study, as methods and research techniques, we used theoretical documentation, comparison and synthesis for presenting the main ideas of Ghica's economic thinking.

In order to highlight Ghica's own view on economic progress we used descriptive research. By reviewing the specialized literature we extracted several conclusions from analyzing Ghica's economic ideas and we identified original elements that set him aside from other economic thinker.

## 4. Findings

### 4.1. The Romanian nation: historical mission and economic development

Just as C. A. Rosetti pointed out, Ion Ghica had an extraordinary tenacity doubled by a fervent patriotism. For instance, just as his wife was delivering their baby, he was "taking care of his country". (Rosetti, 1969, p. 85) Economic patriotism was a major coordinate in Ion Ghica's work. (Constantinescu, 1999, p. 170)

Ion Ghica delivered his first political economy lecture at the *Mihăileană Academy* in Iași in 1842. He considered the economic science to be a positive science at the beginning of its path that was still "discovering new rules and establishing itself on good speech" (op. cit., p.42) and had as its ultimate purpose "the peace and the enhancement of the human condition" from a double perspective: a material and a moral perspective.

Ghica analyzed the situation in well developed countries (Germany, England, France, the United States of America), filtered it and compared it to the situation in the Romanian Principalities. His synthetic conclusion was as follows: progress is a sure thing as long as reaching personal material interests within a nation does not contradict moral principles; he clearly exemplified that by referring to the greatest desire for profit of the tradesmen which represented the main obstacle for the development of that trade. (Xenopol, 1967, p. 299) The basis for progress is the development of the "industry", seen as "the forerunner of freedom and independence". "When I say industry, I mean agriculture, manufactures and trade [...], but also letters and fine arts" said Ghica.

He believed that the Romanian nation had a complex historical mission structured on three perspectives:

1. An economic one: the development of the agriculture (as an „agricultural nation” we have to focus on producing raw materials „that were the most sought after” and of the highest quality, to be sent to the English and the Germans, who ”by their nature used to make and manufacture things”; (Ghica, 1937, vol. III, p. 50-51)
2. A geographical one: the development of transports (given the fact that “nowadays civilization overcomes all barriers”), especially of railroads, which also had a moral role, “to plant one nation’s ideas into another nation’s mind”; (op.cit., p. 57) Ghica pointed out the necessity of building a Danube-Black Sea Canal from Cernavodă to Constanța in 1851;
3. A political one: the Romanians felt the influence of three empires (the Austrian, the Russian and the Turkish empires) and they had the moral duty to “transform the East and rebuild it on the basis of the holy principle of justice and equality among nations”; (op.cit., p. 6-7) given the times he lived in, Ghica considered that “the best way for the Principalities to catch up with the large countries of the West went through Constantinople”. (Zane, 1980, p. 383)

Reaching these goals depended upon the common action of three separate factors: “the character and the genius” of the nation, “the nature of the land it inhabited”, as well as “its geographical position and the century it lived in”. (Ghica, 1937, vol. III, p. 3) From a social point of view, the development of a people requires liberty, justice and order.

*From a material point of view*, economic development is based on the labor of the people (more precisely on the “love for work” as the author put it) and on the loan (seen as “the soul of the industry”). Ghica supported the importance of productive labor and, from a broader perspective he considered that labor was the fundamental source of social progress which in turn was based on the progress of rationalism.

Labor is an important issue, a very important one, the most important one, an issue that comes before everything else and that rules them all: things and people, countries and governments, rulers and emperors; it is an issue that contains the entire moral and political philosophy of modern societies”. (Ghica, 2023, p. 227) Satisfying primary and social needs is impossible without labor, “without labor, man is nothing in this world”. Labor is at the origin of production, while natural factors and capital are its instruments. The size of production depends on “the power of intelligence” meaning that each individual can manage satisfying their needs in their own manner. Thus, giving up “bad habits” and certain consumption generated by “improper education”, they can save part of their income: “saving is the most powerful source of wealth”. (op. cit., p. 275)

According to the pure tradition of classical Smithian economic liberalism, Ion Ghica underlined the role of saving in increasing capital as a factor of economic progress. Even though he praised labor, Ghica nuanced his stand when he claimed that, nevertheless, “we are people, not ants”; man has to constantly try to produce more, but with lesser effort (the principle of rationality).

In the fifth part of the same article titled *Munca* (The Labor), Ion Ghica stated two other fundamental ideas in the area of classical liberal economic thinking. The first one was about the decisive role of the generalization of technological progress and machinism in increasing the

standard of living of the masses ("it made the labor [of the worker] easier and gave them the means to satisfy more of their needs with the same effort"). The second one was the fight against egalitarianism and economic populism. Ghica as a liberal was convinced that "absolute equality was not possible" since it was "against human nature", and the measures to "strike the rich have turned against the poor" as they prevented economic development (direct taxes on consumption, including luxury goods; progressive taxation; tax exemption for consumer goods; high taxes on property). Consumption stimulates economic activity ("industry" in Ghica's words) and its rise has positive effects on both the rich and the poor. There is no conflict between these two social categories, but rather a close-knit relationship: the first represent the capital, the latter the labor.

At the end of his article, Ion Ghica admitted he was a follower of economic liberalism and showed how some rich countries (England, Germany, France) have developed "through free labor, competition, associations and credit institutions". Moreover, the author proved to have had deep knowledge of the history of economic thought and concluded that both the Physiocrat School and the Mercantilist doctrine of the trade balance, as well as the economic ideology of the socialist and the communist were outdated. (op.cit., p. 302)

From a moral point of view, industry develops when "the mind subjects the matter", when the moral principle governs the working of the society. Thus, even if the industry is developed, when there is no security for the ordinary people, they are concerned about the next day. Having reached this point in his analysis, Ghica recalled some reforming ideas of certain economic thinkers (Sismondi, Saint-Simon, Fourier, Blanc) that he deemed "eccentric" and ...unfit for the situation in the Principalities because "our industry is to be agricultural for centuries to come, it has got no such difficulties". (Ghica, 1937, vol. III, p. 31) Therefore, a moderate liberal, as Gh. Zane depicted him, Ghica had a stern ideological stand and rejected the ideas related to collectivism. He was firmly convinced that utopian socialism had no viable solutions to offer for the Romanian economic problems of those times.

#### **4.2. National education and economic progress**

The development of education was one of the most important concerns of the progressist intellectuals. In an article published in 1844 in *Popășirea* magazine, Ion Ghica presented his view on the public education system of a country. He understood the role of the educational system for the development and progress of a country and considered that "knowing to read, write and calculate [...] is of the utmost importance" because these abilities decisively potentiate "man's three radical faculties": memory, judgment, and imagination [...] which provide us with history, philosophy and poetry". (Cornea, Zamfir, 1968, p. 24, 43)

By knowing the laws, the Christian moral precepts (Ghica spoke of "balancing one's actions"), as well as the basic concepts of the agricultural activity, an agricultural nation such as Romania could reach the level of development of well developed countries (such as Prussia). In his opinion, the Prussian success was based on the efficiency given by the combination between a well adapted public education system and the military organization of the country.

Practically, Ghica suggested increasing the number of schools in the countryside that were to be financed by taxes paid by landowners, as well as making education for children above the age of 5 mandatory. Being aware of the backward mentality and the poor material possibilities of the majority of the peasant families, for whom their children were nothing but labor force, Ghica was adamant in his beliefs when he said that, if parents refused to send their children to school, it could go as far as "taking the children from their care" and placing them under the care of a priest "who was to care for them and insure a proper education for them".

#### **4.3. Associationism and cooperative system**

In two of his later pieces of writing, Ghica surprises us by suggesting an associationist solution as an alternative to applying the principles of the classical liberal economics to the Romanian economy and society of his times. In *Două călătorii în vis* – Two Dream-Time Journeys (1889), Ghica used the literary antithesis to depict his vision on the ideal economic and political organization. First, he visited an imaginary country which, although rich in natural resources had



high prices for consumer goods because the majority of those goods were imported from abroad because, politically speaking, public positions were "decided upon by political parties schemes, intrigues, and favoritism". Ghica used his literary talent and he reminds us of Caragiale when he expressed his irony on the politicking in that poorly governed country by mentioning the names of certain papers such as *Retrogradul progresist* (The Progressist Retrograde), *Autoritarul liberal* (The Liberal Authoritarian), or *Cosmopolitul patriot* (The Patriot Cosmopolite).

Further on in his story, he reaches another country in which the workers share the profits of the factories because "labor must be emancipated under the tyranny of the capital" by establishing some cooperative workshops. (Ghica, 1937, vol. II, p. 269)

Ghica suggested the solution for choosing the direction Romania was to follow in its economic evolution: "the cooperative system, compared with the individual one, is just like the liberal system compared to the despotic one". (op.cit., p. 271) In order for the ideal economic system (the cooperative one) to work in a country, there has to be a parliamentary system with generally two political parties: one to "preserve or even re-establish what has been" and another "to reform and enhance". Through the balanced confrontation between conservatism and reformism, "the society evolves peacefully and smoothly". (op.cit., p. 262)

The idea of cooperation, of "mixing the interest for labor with the interest for capital", also appears in *Insula Prosta* (Prosta Island) (1885), in which Ghica stated that the workers can associate either with the owner or with the other workers. (op.cit. p. 295) In this piece of writing he showed his vast economic background and tackled a series of fundamental economic issues (cooperative banks for agriculture, the laws of the poor, protectionism, nationalization of the land) and mentioned the ideas of some economists such as J. S. Mill, H. Carey, F. Lasalle or K. Marx.

## 5. Conclusions

Ion Ghica was a remarkable representative of the 1848 movement. Nicolae Iorga depicted him as "one of the politicians [...] who do not do politics". (Iorga, 1967, p. 268) In his speech upon becoming a member of the Romanian Academy, C. I. Istrati said that Ion Ghica was the second greatest Romanian encyclopedian after Gheorghe Asachi, a precursor of the 1848 generation, as he worked in many fields: political economy, pedagogy, history, literature, physics, chemistry, mathematics, geology, anthropology. (Malinschi, 1990, p. 40)

If we are to synthesize his views, there are two major ideas: the revolution and the unification were inevitable and the Organic Regulations had to be abolished (which meant dismissing the privileges of the boyars and the improvement of the peasants' situation). Ghica was an opponent of the state's regulating the relations between landowners and peasants and he considered that such an approach infringed upon the right of property.

Ion Ghica was a classical liberal intellectual and an engineer. As such, he carefully analyzed the changes within the Romanian society and anticipated that, for centuries to come, the Romanian nation would remain mainly an agricultural nation, and yet he supported the development of the Romanian national industry: "A nation without industry cannot be considered a civilized nation". (Ghica, 2023, p. 309) He considered that industrialism, the spreading of the credit, as well as the modernization of the means of communication were essential elements in our country's new economic path. As far as capitalism was concerned, the liberal Ion Ghica believed that the association between labor and capital was the solution for the contradictions that had appeared within the system, which was viable in its form and its essence.

Often, Ghica is acknowledged as the "first professor of political economy" in Romania. We cannot oversee Gh. Zane's observation in this respect. After having analyzed the curriculum and the contents of Ghica's course taught at the *Mihăileană Academy*, he claimed that the course should have rather been titled as a history of economic thinking course. (Zane, 1980, p. 98) Also, the article *Teodor Diamant* (1883) is one of the most relevant chapters in the history of the Romanian economic thought.

Even though he was not our first economist (Nicolae Șuțu had been the first), Ion Ghica was the first to teach a course of political economy in Romanian. He paved the way for others to come, such as Ion Ionescu de la Brad, A. D. Moruzzi and I. Strat.

Ghica was concerned with a better organization of the society and that makes him a precursor of the social liberalism. (Bădescu, 2004, p. 101) His idea was that "everyone should use the combined means of all those who live in the same conditions as them, in order to obtain goods that no one can obtain individually and that can be collectively and simultaneously used". (Ghica, 1937, vol. III, p. 9)

When referring to schools, churches, "welfare institutions", roads, etc, Ion Ghica gave us a stunning *avant la lettre* definition of public goods in the final part of his article *Misiunea românilor* (The Mission of the Romanians) (1862).

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## Study on ESG Practices in Romanian Food Sector

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### Abstract

*The present paper analyses the actual state of implementation of ESG practices in the Romanian food sector. It is aimed at determining the commitment of medium and large enterprises to such practices, as imposed by European law. Environmental, social, and governance factors are assessed through a questionnaire among employees of selected companies. Findings show that there is an increasing ESG commitment in Romanian large companies, but there still are aspects that need significant improvement.*

**Key words:** ESG practices, medium and large companies, survey, food sector.

**J.E.L. classification:** D21

### 1. Introduction

ESG stands for Environmental, Social, and Governance criteria. ESG is an analysis framework that helps the stakeholders understand and quantify the measure by which a company manages risks and opportunities and operates sustainably.

Environmental Factors help stakeholders to understand an organization's impact on the environment and climate regarding greenhouse gas emissions, and the rational use of natural resources like fresh water. These factors refer to the firm's resiliency against physical climate risks such as climate change, flooding, fires, etc..

The social pillar of the ESG framework examines the organization's social impact on the communities in which it operates and offers valuable information about how well a company's leadership manages the relationships with the stakeholders. These factors refer to fair wages, employee engagement in the decision-making process, and taking accountability for the company's actions, and for the action of the supply chain partners.

Corporate governance refers to how an organization is led and managed. Healthy corporate governance is the foundation for the environmental and social pillars. The governance component of the ESG framework refers to how leadership's incentives are aligned with stakeholder expectations, how shareholder rights are honoured, and what types of internal controls exist to promote transparency and accountability on the part of leadership.

### 2. Theoretical framework

The ESG framework has evolved from other historical movements such as EHS (environment, health, and safety in the '80s), Corporate Sustainability (in the '90s), and CSR (corporate social responsibility in the early 2000s). These older frameworks took more of a philanthropic approach, implying that leadership should do "good" because it is the right thing to do. By the late 2010s, ESG emerged as a much more proactive movement, to maximize stakeholder's (employees, investors, and consumers) wealth (Chen, et. all, 2021, 13).

Companies that invest their time and effort into ESG can gain the customers' loyalty, the investors' trust, and the employees' engagement (Fenwick, et. all., 2022, p.7). Employees want to work for companies that apply the principles of the ESG framework, they wish to be involved in the decision-making process of the company, which leads to a feeling of fulfilment at the workplace. For investors, the preoccupation of the company for ESG, is crucial when taking a decision. A company that applies the ESG principles is considered a business with increased chances for long-term growth, facing much better potential risk situations. Customers are interested in purchasing goods from companies with sustainable practices. (Drempetic et. all, 2019, p. 329)

Figure no. 1 The ESG framework



Source: Own processing

The ESG (Environmental, Social, Governance) is a set of standards integrated into an organization's strategy to increase its value and benefit the company.

- ✓ Environmental refers to the impact of a company's activities on the environment.
- ✓ Social deals with the company's relationship with employees, customers, and the environment in which the company operates.
- ✓ Governance looks at the extent to which the company complies with laws, and acts guided by norms of morality and fairness.

In the short and medium term, a good ESG level helps the company in attracting funding sources (lending institutions are guided by the ESG level when deciding to grant a loan to a company), improving its image and therefore customer loyalty, lowering operational risks and therefore costs. In the long term, a good ESG level will make a significant difference to the cost-revenue equation and ensure the sustainability of the company in the face of disruptive external factors. (Aydoğmuş, et. all, 2023, p. 124)

Compliance with a set of ESG standards, for example environmental, labour relations, consumer relations, and corporate governance regulations can lead to lower risks of fines, closures or suspensions, or misunderstandings with employees, customers, or partners.

At european level, legislation regulating the ESG concept includes:

1. Taxonomy Regulation - EU Taxonomy,
2. Regulation on sustainability reporting in the financial services sector - The Sustainable Finance Disclosure – SFRD
3. Non-Financial Reporting Directive -NFRD.

The EU Taxonomy regulation is a classification system for economic activities to determine which are sustainable. To be classified as sustainable, economic activities must substantially contribute to one of the following environmental objectives: climate change mitigation, climate change adaptation, water protection, circular economy, pollution prevention, biodiversity, and ecosystems.

The Sustainable Finance Disclosure Regulation – SFRD is a European regulation which requires credit institutions and financial market participants to consider sustainability aspects in their investment decisions, defining sustainability risk as an environmental, social or governance event or condition that, if it occurs, it could cause a significant, actual, or potential negative effect on the value of the investment.

The Non-Financial Reporting Directive, otherwise known as the NFRD was adopted in 2014 by the European Union, requiring certain companies (mainly large companies with over 250 employees) to provide non-financial disclosure documents along with their annual reports regarding the sustainable and social policies of the companies. The NFRD gives potential investors, consumers, and various stakeholders the information necessary to decide if the business is worth investing in.

In Romania, the ESG reporting framework is constantly evolving. Thus, the Ministry of Public Finance has issued two Orders following the transposition of the NFRD into national legislation, namely:

- Order No. 1938/2016 amending and completing some accounting regulations.
- Order no. 3456/2018 amending and completing certain accounting regulations.

These two regulations stipulate the obligation for companies that have on average more than 500 employees and either have total assets of more than 20 million euro or net turnover of more than 40 million euro, to present in the annual report a series of information falling under the scope of ESG factors (the non-financial statement must contain, as regards environmental issues, details of the current and foreseeable impact of the entity's operations on the environment and, where relevant, on health or safety, use of renewable and non-renewable energy, greenhouse gas emissions, water use, and air pollution).

In April 2022, the Bucharest Stock Exchange published a guide on ESG reporting that provides support to companies on ESG reporting. In Romania, steps are being taken to implement the Sustainability Code and the National Strategy for the Circular Economy. This code is a reporting tool for companies, based on a German model, through which organisations can make their sustainability statement against a set of performance indicators indicated in the code.

All in all, quantification of ESG factors relevant to a particular business, reporting and auditing from an ESG perspective, and possibilities to increase ESG commitment, have become more and more prominent in companies' activities worldwide (Chen, et. all., 2021, 13).

### 3. Research methodology

In this paper we aimed to assess the current state of implementation of ESG-oriented practices in Romanian companies whose main activity is the retailing of food in specialized stores. To achieve this objective, we investigated the activity of a sample of 165 companies with the following CAEN codes:

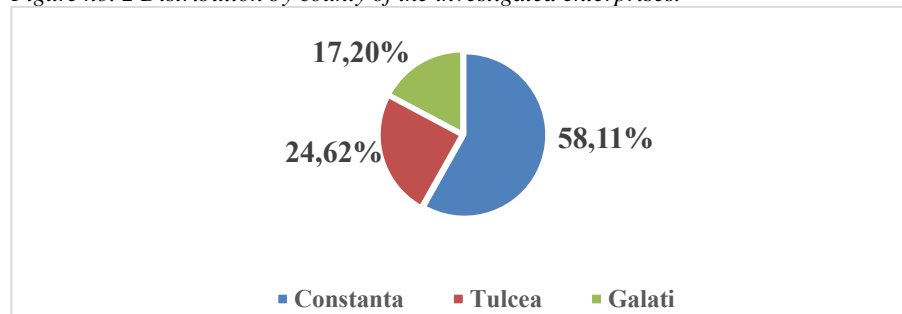
- 4721 - Retail sale of fresh fruit and vegetables in specialised stores
- 4722 - Retail sale of meat and meat products in specialised stores
- 4723 - Retail sale of fish, crustaceans, and molluscs in specialised stores
- 4724 - Retail sale of bread, pastry, cakes, confectionery, and sugar confectionery in specialised stores
- 4729 - Retail sale of other food products in specialised stores

The businesses included in this study were selected based on certain criteria. Thus, the selection criteria for the businesses retained in the sample considered were as follows:

- ✓ activities of the selected companies are the ones mentioned above;
- ✓ selected companies are medium and large companies, as only they are imposed to report such practices, according to Romanian law;
- ✓ enterprises that were suspended at the time of the survey have been eliminated.

From a location perspective, the sample investigated is shown in Figure no. 2

Figure no. 2 Distribution by county of the investigated enterprises.

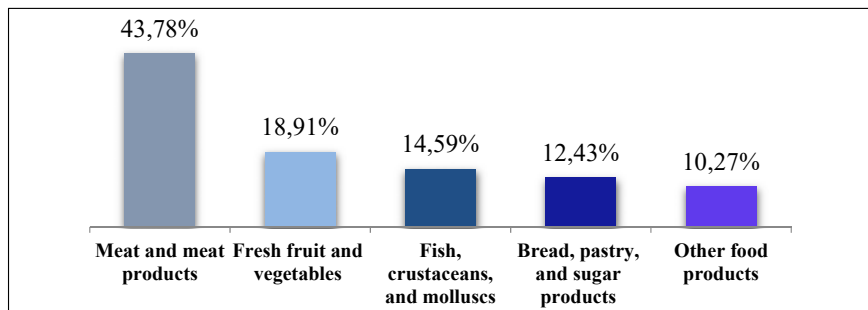


Source: Own processing

Thus, the highest number of analysed companies were located in Constanta County, i.e. 58.11%, while firms located in Tulcea County represent 24.62% of the total. The remaining number of companies are located in Galati County, i.e. 17.27%. Therefore, all three counties analysed had a significant representation in the survey.

Of the total companies, the largest share (43.78%) is represented by those whose main activity is the retail trade of meat and meat products, as can be seen in Figure no. 3. Firms retailing fresh fruit and vegetables account for 18.91% of the total sample, followed by those retailing fish, crustaceans, and molluscs - 14.59%, those trading bread, pastry, and sugar products - 12.43%, and companies trading other food products - 10.27%.

Figure no. 3 Distribution of enterprises by main activity.



Source: Own processing

To carry out this study, the method used was the survey. The instrument used was the questionnaire with closed questions (yes/no). In parallel, interviews were conducted to detail some aspects of our study. The items of the questionnaire focused on the determinants of ESG. Thus, the questionnaire was used to assess the following practices:

1. Reduction of plastics
2. Recycling actions
3. Use of renewable resources
4. Energy-saving measures
5. Actions aimed at reducing carbon dioxide emissions
6. Water-saving measures
7. Reducing food waste
8. Allocation of funds for social scopes
9. Increasing consumer awareness of ESG importance
10. Implementing strategic partnerships for supporting local communities

Following the collection of the data required for the research through the questionnaire, out of a total of 382 subjects surveyed, 298 questionnaires were complete and valid, the rest were discarded as they contained incomplete answers. The subjects investigated are employees of the companies included in this study.

#### 4. Findings

The questionnaire enhanced ten questions in order to evaluate the ten ESG practices that we have noticed above. In this section, we will provide the results obtained after the centralization of the answers.

1. *Do you implement a sustainable plastics reduction policy in your company's operational process?*

Through this question, we aimed to identify whether companies have a plastics reduction policy and whether they apply the provisions of such a policy in a sustainable way. Thus, we identified that the interviewed firms are leading significant efforts firstly towards reducing the number of plastics consumed for packaging and secondly that packaging materials come from recycled materials. According to our survey, more than 74% of the companies have implemented such measures, significantly reducing (by about 22%) their plastics consumption.

2. *Do you carry out concrete waste recycling actions?*

With this question, we wanted to find out if there are concrete actions for selective waste recycling within the surveyed companies. In most of the companies, waste recycling is carried out, therefore 92% of the respondents have successfully implemented concrete procedures in this direction.

3. *Do you use renewable energy resources?*

With the current energy crisis, a significant element of ESG policy is the use of renewable energy resources at both micro and macro levels. Thus, through this question, we found that only 56% of the companies within this sector use such resources, mainly by using the energy produced by photovoltaic panels on roofs. Indeed, the number of companies in Romania that invested in installments of such panels has increased in the last three years, because of the European Green Deals recommendations.

4. *Do you adopt measures to reduce energy consumption?*

The surveyed entrepreneurs are significant consumers of energy. With the current energy crisis, exacerbated by the military conflict between Russia and Ukraine, any measure to reduce energy consumption is important. Thus, it is important for companies to reduce the use of electricity. Measures taken include switching off lights in refrigerated display cases, or not lighting advertising panels at night. All the investigated companies switched to LED light panels to reduce energy consumption.

5. *Do you take measures to reduce carbon dioxide emissions in your business?*

Global concerns about global warming processes inevitably lead to the adoption of measures to reduce carbon dioxide emissions. Hence, companies have chosen to use a less polluting means of transportation in their activity. 82% of the companies own or use mainly electric cars for transporting their employees, as an alternative to protect the environment from CO<sub>2</sub> emissions.

6. *Do you adopt measures to reduce water consumption?*

Water is a depletable resource. If concrete measures to reduce water consumption are late, the risk is that the situation of Asian or African countries repeats, given the massive floods in Europe in recent years. As our survey highlights, 74% of the companies actively monitor water consumption. This was possible through the installation of specialized systems such as water meters or sewage meters that significantly reduce water consumption. Moreover, 12,6% of the companies said that they monitor these consumptions from long distances, by using specific apps.

7. *Do you apply measures to combat food waste by donating foods or applying reduced prices in perishable aliments?*

According to the Food Safety and Health Authority, about a third of all food produced for human consumption is wasted. In the European Union case, it is estimated that 20% of all food produced is lost or wasted.

This question is relevant to the surveyed sector as we have included in our sample chain stores where perishable products are sold. Campaigns of reducing by 50% the retail price of a product significantly reduce food waste. Hence, our survey indicates that 82% of the companies have constantly developed such campaigns. Moreover, 76,9% of them decided to donate part of their products, either for social reasons (reduce poverty and hunger) or for avoiding product expiry. All companies donated food to Romanian National Bank for Food.

8. *Do you allocate financial resources to increase social value?*

Companies have agreed on the fact that social investments have a great impact on their activity, as they increase the social value of communities. Within the investigated sample, 85% of the companies allocated funds for developments in education, environment, emergency services, and local communities. Actions in this sense included campaigns in schools, greening actions, volunteer activities of waste collecting, installing water filtration systems, and separate water collecting systems. Some of the companies preferred financing the national program aimed to increase rapid urban intervention by the use of SMURD-type motorcycles.

9. *Do you conduct an awareness-raising policy among your consumers about products with a positive environmental impact?*

The most important aspect of our study is that companies do not properly inform their customers about the importance of responsible consumer behavior. Only 36,6% of the investigated companies said that they invested in public campaigns regarding their products, benefits, and possible uses. Official sites of the companies offer customers additional information on product ingredients and

other nutritional facts, as well as recipes, tips, and tricks for a healthy and responsible lifestyle. Moreover, 10,2% of these use social networks to inform customers of their campaigns and tasting sessions. Consequently, not all groups of ages have access to such information, as the elder are less likely to be present on social networks. Lastly, only 29,5% of the companies include all information about a product on its package (source of ingredients, producer, environmental/social impact, ways of safely using the product).

10. Have you entered strategic partnerships in recent years to support the local community?

As the present study highlights, there is strong and continuous cooperation between companies in the food sector and charitable organizations. All the investigated companies have entered strategic partnerships with such organizations, mainly to support social purposes. These include preventing children from dropping out of school, being neglected, or being separated from their families, as well as discovering high school students' vocation and exploring career opportunities.

Some of the partnerships were with local communities. As a result, of the total quantity of meat, fruit, and vegetables, more than 42% came from local suppliers in the last three years. Moreover, during the peak season (June to August), about 67% of the fruits and vegetables were from domestic production.

## 5. Conclusions

Through this paper, we aimed to analyse the extent to which medium and large companies from three important counties in the South-East Region of Romania operating in the food sector, implement the ESG elements in the activity carried out. Following the conducted research based on the questionnaire and the interviews, we came to the next conclusions:

- The majority of the surveyed companies (more than 74%) have implemented a sustainable plastics reduction policy in their operational activity.
- Almost all companies participating in our study carry out concrete waste recycling actions (92% of the respondents presented their initiatives in this direction).
- Half of the investigated companies use renewable energy resources but all of them adopted measures to reduce energy consumption.
- Regarding the measures taken in order to reduce carbon dioxide emissions, 82% of the respondents own or use mainly electric cars in their activity.
- 74% of the respondents take concrete actions in order to monitor water consumption by using specialized gadgets in this direction.
- The majority of the companies apply measures to combat food waste and allocate funds to activities aimed to develop education, to protect the environment, and overall to help the local communities.
- The negative finding of our study is that only a third part of the investigated companies conduct awareness-raising policies among their consumers about products with a positive environmental impact.

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## The Juridical-Canonical Basis of the Management of Movable and Immovable Ecclesiastical Property

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### Abstract

*For the understanding of the management of the ecclesiastical goods, we have to take into consideration both the State laws and Church laws, enacted during the entire period of the two millennium. Hence the necessity to be familiarized both with Roman and Byzantine laws, and with canonical legislation, that serve as a legal-canonical basis also for the management of movable and immovable ecclesiastical assets.*

*Taking into account the most relevant aspects of the subject of our paper, we tried to help its readers to have an outlook not only about the mode in which are administrating the movable and immovable ecclesiastical goods (res), classified by Roman law in res sacrae, res religiosae and res sanctae, but also a good knowledge about the juridical-canonical basis of the management of the ecclesiastical assets.*

**Key words:** church assets, managerial activity, material goods, canonical legislation

**J.E.L. classification:** K11, K15, K19

### 1. Introduction

According to Roman law, *goods (res)* are of two types, namely „goods which are in our ownership” (in nostro patrimonio) and „others which are not in our ownership” (extra nostrum patrimonium) (*Justiniani Institutiones*, lb. II, 1, Praefatio).

The same Roman jurists affirmed that, „pursuant to the natural law (naturale jure), some things are common to all (communia sunt omnium), others are public (publica), others belong to a corporation (universitatis), and others belong to no one (nullius). But most things belong to individuals, being acquired by various titles” (*Justiniani Institutiones*, lb. II, 1, Praefatio).

Regarding the goods that belong to no one, Roman jurists were keen to specify that these ones were *sacred goods* (res sacrae), *religious goods* (res religiosae) and *holy goods* (res sanctae). The goods which are not the property of anyone (nullius in bonis est) are *subject to divine law* (divini juris) (*Justiniani Institutiones*, lb. II, 1, 7).

The first testimonies about these goods, which are not the property of anyone, can be found in *Jus papirianum* (Papyrian law), a collection of laws with an eminently religious content compiled before the year 509 BC, i.e., before the founding of the Republic.

Testimonies about this Roman religious law was left to us by the famous jurists from the classical era of the Roman law (1st-3rd centuries), as well as by the jurists of the last Roman emperor and the first Byzantine emperor, i.e. Emperor Justinian.

The three categories of goods, i.e. sacred, religious and holy goods, are also mentioned in the text of the canonical legislation of the Ecumenical Church of the first millennium (Dură, 1999, p. 287-382), which has been, in fact, the subject of a hermeneutic analysis in order to provide the readers of this research – which has an interdisciplinary content (legal, canonical-ecclesiological, historical, etc.) – with the opportunity to know not only the way in which the Church managed its immovable and movable property, but also the juridical-canonical bases of its managerial activity.

The current Romanian law mentions both church assets and the managerial activity of each Religious Cult carried out in accordance with the provisions of their own Statutes of Organization and Functioning (according to Law no. 489/2006, Art. 31, para. 3) .

The Romanian legislator, who also makes mention of the syntagm *sacred goods*, defined as the goods which are *directly and exclusively related to worship, established according to their own Statutes* (Art. 27, para. 2 Law no. 489/2006), stipulated the right of the Church (Religious Cults) to *reacquire sacred goods confiscated in an abusive manner by the state during the 1940-1989 period* (Art. 27, para. 3).

## 2. Theoretical background

In the Romanian-language literature, such a topic has never been tackled before and, as such, this is a pioneering work. For this reason, we have sought to familiarize the reader with both the canonical legislation of the Orthodox Church and the statutory and regulatory provisions of the Romanian Orthodox Church, whose principles are rooted in that canonical legislation, that, in turn, has appropriated many of the basic principles of Roman law, hence our references to *jus romanum* on *jus bonorum* (the law of property).

## 3. Research methodology

As a work with a broad interdisciplinary content, it was natural to use different research methods appropriate to each field (legal, ecclesiological, historical, etc.). As the results of our research work - concretized in the pages of this study - attest, we first of all used the method of hermeneutic analysis of the Roman, canonical and statutory legal text to show that the management of the movable and immovable property of the Romanian Orthodox Church (R.O.C.) has a legal and canonical basis, which makes the way of managing church property part of an ancient tradition of *jus papirianum*, *jus romanum civile* and *jus canonicum*.

However, the text of our work also clearly shows that we have used other methods of scientific research, such as the historical method, the comparative method the expository method etc. The use of these methods facilitated our research of the texts provided by the legislation of Roman law and canon law, as well as the statutory and regulatory provisions of the Romanian Orthodox Church.

## 4. Findings

From the text of our work, it can be easily observed that the legislation of the Romanian Orthodox Church has taken over from Roman law and canon law not only the basic principles concerning the administration of church property, but also its classification, which is provided for both in the Statute of Functioning and Organization of the Romanian Orthodox Church and in Law 489/2006 (Law on Religious Cults in Romania).

From researching the text of the canonical legislation of the Orthodox Church, we have also been able to ascertain that the bishop is the *de jure* manager of the movable and immovable property of the Church. Indeed, regarding the goods belonging to the Church, the Synod of Ancyra (314) decided that their alienation could not be done without the consent of the bishop, *since it lies in the thoughtfulness of the bishop* even to determine the price of their sale (can. 15 of Synod of Ancyra) (Floca, 1991, p. 79).

This principle provision stated in the year 314 made it so that if „during the episcopal vacation the presbyter concluded such an act (author's note: of sale) it would be declared null and void, the newly appointed bishop having the right to reclaim the property or to withhold the price” (Floca, 1991, p. 179-180).

A Synod of the Church in Proconsular Africa disposed that church assets should not be alienated, however, in case that *a great need would compel it*, only the Synod of that Church could decide on its alienation (according to can. 26 Council of Carthage) (Floca, 1991, p. 237). Therefore, the alienation of a property of the Church can only be done in the case of urgent and obvious necessity, and with the consent from its Synod.

Another Synod of the Church in Africa Proconsularis decided that before the ordination of the clerics (bishops, priests and deacons), a clear distinction should be made between the Church's property and the personal property that they possessed prior to receiving the sacrament of ordination (cf. can. 32 Carthage) (Floca, 1991, p. 239).

In accordance with the provisions of the legislation of the Eastern Orthodox Church of the first millennium, the bishop is the one who „has control over the church's goods (τῶν τῆς ἐκκλησίας πραγμάτων ἐξουσίαν)” (Rhalli and Potli, 1853, p. 168) (can. 25 Synod of Antioch). For example, the Synod convened in Antioch, in the year 341, - which reaffirmed the principle provisions stated by some apostolic canons (according to can. 35, 38, 40 and 41) - decided that the bishop is *de jure* the owner of the church property, and, ipso facto, the one who administers or manages the movable and immovable property of the Church (Dură, 2011, p. 396-400; Mititelu, 2011, p. 815-820).

In their commentary on canon 25 of the Synod of Antioch, the Byzantine canonists pointed out the fact that the bishop is not an absolute master of church assets since he also cannot do anything without „the knowledge of his clergy” (ἄνευ γνώμης τοῦ κλήρου) (Rhalli and Potli, 1853, p. 168).

The ecumenical canonical legislation of the first millennium (Dură, 1999, p. 287-382) confirms to us the fact that, although the administration of church assets was *de jure* within the sphere of duties of the bishop of every local Church, nevertheless, its management was entrusted to an *oekonomus*, whether a cleric or a layman. Since the first centuries, he was, in fact, „the general administrator of episcopal assets ... He corresponds to today's economic adviser” (Floca, 1991, p. 87). Canons 2 and 26 of the IV Ecumenical Council and canon 11 of the VII Ecumenical Council represent an eloquent testimony about this reality.

Pursuant to canon 2 of the IV Ecumenical Council, it was forbidden to acquire the position of *oekonomus* through money, and if „any bishop, ..., for money should advance (appoint, assign) an *oekonomus*”, he would be punished by deposition or defrocking (can. 2, IV Ecumenical Council).

The fourth Ecumenical Council (Chalcedon, 451) disposed that each Church should have an *economos*, because the bishops cannot administer its *goods* without an *economos*. Therefore, they established the obligation *that each and every church that has a Bishop, should also have an ekonomos selected from its own clergy to manage the ecclesiastical affairs of that particular church in accordance with the views and ideas of its own Bishop, so as to prevent the property of the same church from being wasted* (can. 26, IV Ecumenical Council).

Putting into practice the guidance provided by the Holy Apostles (according to Acts VI, 2), since the apostolic era, the Bishops appointed „... *oekonomi* from among the deacons, and this was done - stated prof. Liviu Stan - in order not to make themselves administrators of material goods, an activity which is not only unspiritual, but would also greatly hinder them in fulfilling their duties as ministers of the word and administrators of God's gift and would bring inconvenience, as well as serious damage both to themselves, personally, and to the institution which they served” (Floca, 1991, p. 87-88).

Since even after the IV Ecumenical Council there were still bishops who did not appoint *oekonomi*, as had been stipulated in the principle provision stated in canons 2 and 26 of this ecumenical synod, the Fathers of the VII Ecumenical Council (Nicaea, 787) instructed that *oekonomi* be appointed - in case of lack thereof - by the local metropolitans, by dint of their right of devolution.

According to the canonical legislation of the Eastern Orthodox Church, the property (movable and immovable) of the Church is, therefore, managed by the bishop of each Diocese, who is their *de jure* its administrator; but *de facto* its administrators are the bishop's delegates (vicars, abbots, *oekonomi*, etc.).

The Romanian Orthodox Church (R.O.C.), that is a Church of *apostolic origin and autocephalous and unitary in her organisation and pastoral, missionary and administrative work* (Art. 2, para. 1 and 2 Statutes R.O.C.), *is administrated autonomously through her own representative bodies, made up of clergy and lay, according to the Holy Canons, the provisions of the current statute, and other regulations issued by the competent ecclesiastical authority* (Art. 3, para. 2).

About the management of the movable and immovable property of the Romanian Orthodox Church, it should be mentioned that, under the country's constitutional law, *Religious Cults are autonomous from the state, and they enjoy its support* (Art. 29, para. 5, Constitution of Romania), and they are *free and organize themselves according to their own statutes* (Art. 29, para. 3).

Naturally, Law no. 489 of 2006 (republished) (The Law of Cults) (Dură, 2008, p. 37-54; Mititelu, 2010, 36-43) expressed a similar view recognizing the religious Cults as *legal entities of public utility*, which *organize themselves and operate autonomously* (Art. 8, para. 1). However, precisely this juridical-canonical status of the autonomy of the Church, stipulated in the canonical legislation of the ecumenical Church of the first millennium (according to apostolic canons 34 and 37; 4 and 6. II ec. council; 2 and 3 III ec. council), reaffirmed over the centuries in the Statutes of organization and functioning of every local Orthodox Church (Mititelu, 2016, p. 275), was the one which also defined the relations between the State and the Church since the Roman-Byzantine era (Dură and Mititelu, 2014, p. 923-930).

Regarding the assets of Cults (Dură, 2016, p. 67), Law no. 489 / 2006 stipulated: *recognized cults and their cult institutions may own and acquire, for ownership or administration, movable and immovable property, which they can make use of in accordance with their own statutes* (Art. 27, para. 1).

Church assets also include *res sacrae*, which - in accordance with the canonical norms of the ecumenical Orthodox Church - cannot be alienated. Regarding these sacred goods, Roman law expressly stipulated that they „belong to divine law (divine juris est)” (*Justiniani Institutiones*, lb. II, 1, 7).

According to Law 489/2006 (republished), *Holy assets are: those devoted directly and exclusively to the faith, as established through a denomination's own Statutes based on its traditions and practices, cannot be seized and are not subject to a statute of limitations, and can be disposed of only in accordance with the statutory provisions specific to every Cult* (Art. 27, para. 2).

The laws of the Romanian state (The Constitution of Romania and The Law of Cults) foresee that the Church can, therefore, acquire and administer movable and immovable property, including sacred goods, and, in accordance with the provisions of its canonical legislation and under the statutory conditions stated in the provisions of its own Statute of Organization and Functioning, the Church can manage its own property.

The manner of administration of this movable and immovable property is stipulated in the Statute for the Organization and Functioning of the Romanian Orthodox Church, its Regulations and the Decisions of the Holy Synod.

This right of administration or of *management* - understood in the ecclesiastical world only in the sense of organization, leadership and administration of its economic-administrative activity - „...is directly related to the property right that the Church has over its goods” (Harosa, 2011, p. 422).

As far as the administration of the movable and immovable property of the Church, the canonical legislation of the Eastern Church stipulates the obligation of the diocesan Bishop to take care of them and to manage them *as if God were watching over him* (apostolic can. 35, 41; 12 VII Ecumenical Council; 24, 25 of Synod of Antioch and 2 of St. Cyril of Alexandria).

The same canonical legislation stipulates that the *assets* of the Church must be inventoried (according to apostolic canon 40; 33 Synod of Carthage; 24 Synod of Antioch; 1 I-II Council of Constantinople, etc.), so as not to be confused with that of the clergy (according to apostolic canon 40; 24 Synod of Antioch), and administered by the Bishop with the help of a cleric (according to can. 26 IV Ecumenical Council; 11 VII Ecumenical Council), who fulfills the function of *oeconomus*. He also has the obligation to keep *unharmd the income of the widowed Church*, through the death of its former Bishop (according to can. 25 of the IV Ecumenical Council).

The canonical legislation forbids the bishop from alienating church assets without the knowledge of the Synod and its presbyters (according to canon 33 of Synod of Carthage). Moreover, the cleric who steals from the Church's assets is punished by defrocking (Dură, 1987, p. 84-135) (according to apostolic canon 25; 42 of St. John the Faster).

In order to exemplify and better understand what was stated above, we will make reference to the text of the canonical legislation interpreted in the spirit of the canonical doctrine of the Orthodox Church.

Based on apostolic canon 38, the bishop is the one who is responsible for *all ecclesiastical matters, and he has to manage them on the understanding that God is overseeing and supervising. Let him not be allowed to appropriate anything therefrom or to give God's things to his relatives. If they be indigent, let him provide for them as indigents, but let him not trade off things of the Church under this pretext* (can. 38 ap.).

The bishop has, obviously, complete freedom in terms of the administration of the movable and immovable property of the Church; however, he is not a direct administrator of the church's goods, rather he is the guide and the person responsible for this administration, since, *according to the parable of the Holy Apostles, it is not appropriate for the bishops to deal directly with the economic issues, rather to steer them through their subordinates* (Floca, 1991, p. 28).

Indeed, the apostolic canon 41 stipulated that the diocesan bishop is the one who has „... authority over the property of the Church”, and, therefore, he has the legal right to do control over the goods of the Church and to command *over the goods, so that everything is governed by his rule (authority), and those who lack thereof let them be given (granted) through presbyters and deacons* (can. 41 ap.).

The same apostolic canon attests to the fact that, at that time, the assets of the Church were destined both for the maintenance of the bishop and of the servants of the altar (cf. 1 Cor. 9, 7, 13), as well as for the travelers, those who lack (the needy) and foreign guests, for whom, *in illo tempore*, xenodochia already existed (houses for the reception of foreigners), etc.

According to the provisions of the canonical legislation of the Eastern Orthodox Church, the bishop who does not manage the episcopal assets correctly must be judged by the Synod, but, according to canon 25 of the Synod of Antioch in 341, if a bishop *have need thereof (if he should have any need) for his own necessary wants, and for those of the brethren he has under his hospitation, lets him have it. If he should not be content therewith but should convert property (of the church) to the needs of his own household and should fail to handle the revenue of the church, he shall be held accountable to the Synod of the province* (can. 25 Synod of Antioch), that – at that time – it was the supreme authority of the eparchy (cf. can. 5 I ec.).

The IV<sup>th</sup> Ecumenical Council (Chalcedon, 451) categorically forbade that, after the perishing (death) of the bishop, the goods of the Church be alienated by its clergy (according to canon 22). Moreover, according to the canonical rule imposed by the canonical custom - which has the force of *Jus positivum* - the goods of the local Church have to be managed and administered - until the election and enthronement of a new Bishop by its Metropolitan - by dint of *the oeconomys of that Church* (can. 25 IV Ecumenical Council).

The VII<sup>th</sup> Ecumenical Council (Nicaea, 787) also forbade the alienation - in whatever form it may be - of Church's goods. Thus, according to the provision of canon 12 of this Ecumenical Council, the goods of the Church must not fall into the hands of worldly rulers, i.e., of the powerful persons of the day. Moreover, the Synod forbade the Church's lands from being sold to them; however, should it be necessary, they can be alienated only to the clerics or farmers who work for a living.

Reiterating ad-litteram the text of apostolic canon 38, the VII Ecumenical Council decreed that the alienations *in the hands of a ruler* of the goods of the bishopric or monasteries should be *without force*. Furthermore, if *some bishops or some abbots ... would find fault (pretext) that the land brings trouble and is of no use, even in this way they should not give the place (the land) to the local rulers, rather to the clergy or the plowmen (farmers)* (can. 12 of the VII Ecumenical Council) (Floca, 1991, p. 162).

The same canon of the VII Ecumenical Council stipulates that such land cannot be sold by a cleric or a farmer to a (local) ruler. Such a *sale* is *without force* and, as such, the land must „be returned (restored) to the bishop or monastery, and the bishop or abbot who did this must be banished; the bishop from the bishopric, and the abbot from the monastery, like some who squander badly what they have gathered” (can. 12 VII Ecumenical Council).

The jurists also noted the fact that, according to the R.O.C. Statute, „...dioceses are the only legal heirs of the hierarchs, with the removal of all legal heirs stipulated in the state civil law; moreover, in the case of the existence of a will, the diocese has - professor Liviu Pop stated - a forced heirship consisting of half of the deceased's (de cuius) assets”, to which the „estate left by the monks” is added (Harosa, 2011, p. 17-18).

Regarding the management of movable and immovable ecclesiastical property (Braşoveanu and Lisievici, 2010, p. 379), the canonical legislation also stipulated the juridical-canonical status of the monk, who - in accordance with the provisions of this legislation can make use of his assets before entering monasticism, thus being free to legally pass it on to anyone he chooses (according to can. 22 and 81 of Council of Carthage).

The Byzantine state legislation expressed in a similar manner, for example Emperor Justinian stipulated in one of his Imperial Constitutions that the one who wishes to enter monasticism is entitled to divide his wealth among his children, and whatever remains to enter the property of the monastery (according to Novel 123).

Based on this legislation of the Byzantine State, the Constantinopolitan Council convened in the year 861 decreed that *those who desire to become monks are permitted, but, with regard to their possessions, they have to make prior arrangements and transfer their assets to whomever they wish, provided that there are no legal prohibitions. Once they become monks, the monastery has authority over all their belongings, and they are not allowed to manage or dispose of their property* (canon 6, Synod I-II Constantinople) (Floca, 1991, p. 287).

The appropriation or desecration of sacred places or goods was severely punished by the canonical legislation of the ecumenical Church of the first millennium, which is also in force at present in the Orthodox Churches. For example, the one who takes sacred objects from the Church in order to use them at home is punished by excommunication (condemnation) (according to apostolic can. 73; 10 of the I-II Council of Constantinople), whereas the one who uses them for improper purposes is defrocked (according to canon 10 of the I-II Council of Constantinople).

As far as the sacred, religious and holy goods, the same canonical legislation also proves that, since early times, the Church has developed its own canonical legislation, in which we find numerous canons regarding the administration of such church goods. In this regard, apostolic canons 38, 40 and 41 and the canons 24 and 25 of Synod of Antioch, 2 of Saint Cyril of Alexandria and 8 and 11 of Saint Theophilus of Alexandria remain as peremptory testimonies.

For example, Archbishop Cyril of Alexandria († 444) stipulated that the *sacred objects and immovable property should be kept unalienated from the Churches; moreover, the administration of the expenses which arise should be entrusted to those who, according to the times, govern the divine priesthood* (can. 2) (Floca, 1991, p. 392). In other words, the Church's sacred goods and immovable property cannot be alienated. Furthermore, the bishop was exclusively responsible for the management of the money coming from the Church's assets.

His predecessor, Saint Theophilus of Alexandria († 412), had made an express reference to the need by the *decision of the whole priesthood to appoint an oeconomus, so that ... the assets of the Church can be spent profitably* (can. 10) (Floca, 1991, p. 390). The oeconomus, therefore, had to be chosen with the unanimous consent of the priests of the diocese, and with the approval of the bishop. His duties consist in *spending the Church's goods usefully* (Floca, 1991, p. 390). This canon of Saint Theophilus of Alexandria deals with not only the act of appointing the oeconomi, but also their role in the administration of the Church's assets.

The role of the oeconomus in the life of the Church was also highlighted by the IV Ecumenical Council, since it was absolutely necessary that, during the vacancy of the Episcopal Sees, *the income of the widowed Church should be preserved unharmed by the oeconomus of that Church* (can. 25) (Floca, 1991, p. 87). Therefore, in accordance with the principle provision stated by the IV Ecumenical Council, the Church's oeconomus also had *the obligation to keep intact the goods of the vacant hierarchical Sees* (Floca, 1991, p. 87). Moreover, the IV Ecumenical Council stipulated the obligation that *each Church, which has bishops, should also have oeconomi from among its own clergy* (can. 26, IV Ecumenical Council) (Floca, 1991, p. 87).

Pursuant to canon 11 of the VII Ecumenical Council, every metropolitan must appoint an oeconomus in his Church, and the metropolitans must assign an oeconomus in each bishopric *if the bishops do not wish to do so* (can. 11 VII Ecumenical Council). In the case of the metropolitans, this was, therefore, a devolutionary intervention, i.e., one by which the „higher authority descends ... to the level of the lower authority. However, not only does the higher authority descend to the level of the lower one, but it also replaces it, fulfilling the law of the place” (Floca, 1991, p. 161).

## 5. Conclusions

From what has been presented in the pages of our research work, it has been found that both the testimonies of Roman law, and the canon law (*jus canonicum*), confirm to us the fact that we cannot speak of *jus bonorum* (the right of goods) - stipulated in *jus romanum* - without making mention about the goods which – according to *Jus papirianum* – belong to the divine law (*jus divinum*).

From the text of the New Civil Code, implemented by Law no. 171 of 2011, whose content is largely based on the Civil Code of 1864, that was primarily influenced by Napoleon's Code, which, in its turn, reproduced the norms of the Roman civil law by the agency of the Justinian Code published in 533, we find out that the goods are *corporeal and incorporeal, which constitute the subject matter of patrimonial rights* (Art. 535), and that *property is either public or private* (Art. 552), as explicitly stated in Article 136 of the Constitution of Romania.

According to the statement of some jurists who have commented on articles from Book III of the New Civil Code, entitled *On Goods*, „corporeal goods are those goods that have a material existence. Incorporeal goods are economic values that have an ideal, abstract existence” (Atanasiu et. al., 2011, p. 171).

Therefore, in the opinion of these jurists, the incorporeal goods are economic values that have an ideal and abstract existence, and not a sacred and religious one, as it is stipulated by *jus divinum* and *jus ecclesiasticum*.

Certainly, only such opinions could explain the fact that the authors of this New Civil Code didn't make any mention of goods provided by *jus divinum*, *jus romanum* and *jus canonicum*, that is *res sacrae*, *res religiosae* and *res sanctae*, and they have chosen to classify the goods in *movable and immovable* (Article 536) (Atanasiu et. al., 2011, p. 171-172).

And, yet, a Romanian law in force makes express reference also to the goods which belong to the Divine Law, i.e., to the *sacred goods*, which according to the provisions of Law no. 489 of December 28, 2006 are *those directly and exclusively related to worship*, and are *established according to their own Statutes in accordance with the tradition and practices of each Cult* (Art. 27, para. 2).

Regarding these sacred goods, Roman law stipulated that they are not the property of anyone, since „they are dedicated to God” (*Dei dedicata sunt*) by the *bishops of the Church (Pontifices)* (*Justiniani Institutiones*, lb. II, 1, 8).

The norms of *jus divinum* (divine law) regarding the right of goods, whose principle provisions were reaffirmed by *jus naturale*, were expressed in the conceptual terms of Roman law, i.e., of *jus bonorum*, whose norms were also a source of inspiration and legal basis for the canon law of the ecumenical Church of the first millennium.

The fact that *jus romanum* was a *fons*, i.e. a source also for canon law, is also confirmed by the fact that, in the legislation of the Eastern Orthodox Church, we find numerous provisions of principle stated by Roman patrimonial law, which makes it possible for the ecclesiastical management of movable and immovable property to also claim a legal basis.

The text of this research, with an interdisciplinary content, also shows the fact that the management of ecclesiastical property, movable and immovable, has its juridical-canonical grounds in the text of the legislation of Roman law (religious and civil) and in the canonical legislation of the Ecumenical Church of the first millennium, which, in turn, served as a source and grounds for the statutory and regulatory provisions of the local Orthodox Churches, including for the Romanian Orthodox Church, in which we find express provisions regarding the assets consisting of all the goods which are owned by the Church.

Both the *acquisition, alienation, encumbrance and administration of church assets*, and the *control and administrative verification* of these goods, are carried out in the Romanian Orthodox Church in accordance with the *statutory and regulatory provisions in force* (according to Art. 179, para. 1, Statute R.O.C.). Thus, *legal acts which have as their object the goods from the church's property, concluded in violation of the provisions of this statute, are struck by absolute nullity* (Art. 179, para. 2).

These statutory and regulatory provisions are based on the principles stated, *in the holy canons of the Orthodox Church* (Art. 204, para. 1, Statute R.O.C.), which attest to the fact that the management of movable and immovable ecclesiastical property has its canonical grounds in the text of the ecumenical canon legislation.

Hence the necessity for the jurists and economists of our days to go *ad fontes*, i.e., to the sources, which are none other than the documentary sources of Roman law and of *Jus canonum*, since only in this way we can know the evolutionary process of the sacred patrimonial right, whose origins go back to *jus papirianum*, and which, regarding the right of goods, it was and it remained the main source for the Christian law of Europe, i.e. for the canon Law, whose *father* was one of our



forefathers, namely Dionysius Exiguus († 545) (Dură, 1993, p. 279; Dură, 2010, p. 33), born and educated in the Roman province Scythia Minor (Romanian Dobruja of our days).

And, lastly, we could say that grace to the Collection of canons made up by Dionysius Exiguus at the request of the Roman Pontiffs, *jus canonicum* remained the main juridical and canonical source of the Western Europe also for the management of movable and immovable goods. In fact, in his quality of an outstanding expert both in Roman law and in Canon law, Dionysius Exiguus contributed to the development of a Christian European law, which has had a decisive impact over the *jus bonorum* of the *Christian Republic* of the first millennium, hence his influence on contemporary European law (Brașoveanu, 2012, p. 25; Lisievici and Brașoveanu, 2010, p. 432) as well.

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## The Managerial Activity of the Central Executive Organisms of the Romanian Orthodox Church

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### Abstract

*In our paper we intended to offer to the readers the possibility to be acquainted with the managerial activity of the central executive organisms of the Romanian Orthodox Church, which has not only its own specificity, but also a long history. Indeed, the historical and juridical testimonies attested that the ecclesiastical management activity has two millennium of history, hence the importance of the knowledge of the process of its development, with its own typical particularities.*

*Pursuant to our aim to help our readers to be acquainted both with the specific managerial activity of the central executive organisms of the Romanian Orthodox Church, as well as with its juridical and canonical doctrine about the administration of the goods (res), we offered to them a real scientific contribution by an interdisciplinary approach (juridical, historical and theological).*

**Key words:** ecclesiastical management, religious Cults, administration of goods, international and national legislation

**J.E.L. classification:** K10, K11, K19.

### 1. Introduction

According to certain prestigious jurists of our days, Religion is neither „a matter of doctrine or grammar” (Durham, 2006, p. 34), nor one of the philosophy of Religions, but rather one of legal nature, since it has its legal basis in its religious - moral norms (Dură, 2003, p. 15-24), which proved to have the force of *jus cogens*, and in the old Religious Law, which for the Romans was represented by *Jus papirianum*, drawn up before the year 509 BC, when the Roman Republic came into being. Hence the need not to ignore or conceal the fact that the jurisprudence of the European Court also makes express reference to the right to freedom of Religion (Mititelu, 2022, p. 168).

The fact that the activities of the central and executive bodies of the Romanian Orthodox Church are regulated by legal norms, is confirmed both by the norms of the state’s legislation (according to the *Constitution of Romania*, Art. 29, para. 3 and 5 and *Law no. 489/2006 republished* (the Law of Cults), Art. 26, para. 1), and by those of its canonical legislation, on the basis of which the statutory and regulatory provisions were made also regarding the managerial activity of its bodies (central and local).

Since throughout the pages of this research - with an interdisciplinary content - we have also presented the results of the hermeneutic analysis which we have carried out of the legal, canonical and statutory text regarding the managerial activity of the central executive bodies of the Romanian Orthodox Church (R.O.C.), we need to point out - starting from the text of these Preliminaries - that the right of the Church to exercise a managerial activity stems from its status of autonomy, which had been granted to the Religious Cults since the Antiquity, and continues to be granted to them nowadays, including in Romania’s case.

This right of the religious Cults to autonomy was stipulated both in *jus divinum* and in *jus naturale*, as well as in *jus papirianum*, i.e., Roman religious law (6<sup>th</sup> century BC), whose principle provisions expressed in the provisions of *jus romanum* (Old and New (Byzantine) are also reaffirmed

by international law (according to Art. 18 of the *Universal Declaration of Human Rights*), including European law (according to Art. 9 of the *European Convention on Human Rights*) from our days.

The Church's right to exercise its managerial activity - through its central and local bodies - stems from its own autonomy, recognized by the State. Therefore, the right of autonomy of the religious Cults - from which stems their legal right to own and administer their own church patrimony - should not be related to and conditioned by the sovereignty of the state, the type of relations between the Religious Cults and the State (Dură and Mititelu, 2014, p. 923) or the way in which the right to freedom of Religion (Dură and Mititelu, 2014a, p. 813) is expressed and respected by the State, but from the legal status of the autonomy of the two basic institutions of human society, the State and the Church (Religious Cults), as it is expressed and recognized through their legislation (the Constitution, the Law of Cults, the Statutes and Regulations of the Cults) (Dură, 2007, p. 22).

We needed to provide these brief clarifications in order to help readers better understand the guiding idea of the authors' conceptual thinking in terms of tackling such a topic, whose interdisciplinary content (legal, theological, historical, sociological, etc.) offers to those interested not only a documented, primary source material, but also the possibility of familiarizing themselves with a field which is, perhaps, less known to them.

## 2. Theoretical background

In the Romanian-language literature, this paper has a pioneering character, since this topic has not been tackled and presented so far, even though about the managerial activity of the Romanian Orthodox Church the authors of the present work have made some tangential references in various previously published works, which are mentioned in the bibliography of the present work.

## 3. Research methodology

From the text of the work, the reader will see that we have used several research methods, including the method of hermeneutic interpretation of the text provided by the legal sources, the analytical method, the historical method, the comparative method, the expository method, etc. All these research methods have been of real use not only in researching the sources and literature, but also in the process of formulating and revealing contributions in our research fields (legal, canonical, ecclesiological, etc.). Thanks to these research methods we have been able to offer the reader the possibility to understand and evaluate more easily the way in which the central bodies of the Romanian Orthodox Church exercise their managerial activity.

## 4. Findings

From the careful research of the legislative and statutory text it emerged that the management of the movable and immovable property of the Romanian Orthodox Church has both an ecclesiological and a juridical nature, hence the need to make express references both to the text of *jus papirianum*, *jus civile romanum*, the Romanian Constitution and the Romanian Civil Code, and to the Statute and Regulations of the Romanian Orthodox Church.

A second findings that the informed reader can draw from the text of our work is that the Church is a distinct statutory legal institution (cf. Law 489/2006, art. 2, para. 2). The *sui-generis* character of this divine-human institution obliged us to examine and assess not only its legislation, but also state legislation, which goes up from *jus civile romanum* to Romanian civil law.

Another finding resulting from the examination of the sources and specialized legislation in the fields researched (law, ecclesiology, history, etc.) lies in the fact that *res sacrae* (sacred goods), provided for by Roman law, are expressly mentioned both in the canonical legislation of the Orthodox Church and its the statutory and regulatory legislation, as well as in the Law on Cults of 2006.

From the text of the literature, we have found that it is absolutely necessary to make some notional clarifications so that the reader can better understand some notions of administrative law, economic law and canon law. To this regard we have made also some notional and legal doctrine clarifications regarding the managerial activity of the central executive bodies of the Romanian Orthodox Church.

The English word *management* - also appropriated into the vocabulary of the Romanian language - refers to two realities, namely: *the activity, the art of leading* and „the science of organizing and managing a profitable institution by developing systems, programs, methods, techniques, etc.”, which are meant to *increase competitiveness* (Noul Dicționar Universal, 2009, p. 867).

Managerial activity therefore implies an act of *management, administration, supervision* of an economic-financial activity, which requires a *sustained ability* (Noul Dicționar Universal, 2009, p. 867) to increase this competitiveness, hence the word *manager*, meaning *director, leader, administrator, supervisor* (Noul Dicționar Universal, 2009, p. 867).

This terminological reality is also found in the case of the central executive bodies of the Romanian Orthodox Church, which have both an individual and a collective management, and whose duties also include managerial, patrimonial, and economic-financial activity.

Regarding the administration of goods, the reader will be able to note that the Romanian Orthodox Church reaffirmed - in its legislation - the principle provisions stated in Roman law, i.e., *jus bonorum* (the right of goods), according to which they were classified into *res sacrae* (sacred goods), *res religiosae* (religious goods) and *res sanctae* (holy goods), hence the need to return *ad fontes* (to the sources), i.e., to Roman patrimonial law (Dură, 2016, p. 67).

The first testimonies about the roman patrimonial law - a branch of civil law - stem from *The Law of the Twelve Tables* and from the *Jus papirianum*, whose texts had a pronounced religious character, given the fact that their authors reaffirmed the principle provisions stipulated in the *jus divinum*, based on which *goods (res)* were classified by the Roman law into three categories: sacred, religious, and holy goods.

We have to take also into consideration the fact that the modernity of European Law stems from the reconstruction of medieval law from disparate elements of Roman law, that is in fact the „source of the modern legal system” (Villey, 2023, p. 4).

In *Jus romanum* - that includes also *Jus romanum Novum* (New Roman law), known as Byzantine law, - the goods are classified into public goods and private goods. Both classifications - made by the *Old Roman law* and the *New Roman law* - were also affirmed in the canon Law of the Eastern Church from the first millennium, hence the adoption of these classifications of goods into the Statutes of the local orthodox Churches, including in the Statute for the organization and functioning of the Romanian Orthodox Church.

The legal regime of Church's autonomy (Mititelu, 2016, p. 276) - pursuant to which any local Church can autonomously exercise also its managerial activity - has its origins in *jus papirianum*, i.e. in the Old Roman law, whose principle provisions were adopted not only by Byzantine law and Canon law, but also by the international and national legislation.

The fact that, at national level, these principle provisions of the Old Roman religious law have also been adopted nowadays is confirmed by the Constitution of Romania, according to which *all religions shall be free and organized in accordance with their own statutes, under the terms laid down by law* (Art. 29, para. 3), and that these, i.e. the Religious Cults, are *autonomous from the State and shall enjoy support from it* (Art. 29, para. 5), that is from the Romanian State.

From this status of autonomy of Religious Cults towards the State results in fact the right to freedom of religion (Mititelu, 2020, p. 453), that is expressly affirmed by the Romanian constitutional law, which also makes reference about the *freedom of religious beliefs*, a freedom which cannot be limited *in any form whatever* (Art. 29, para. 1, *Constitution of Romania*), and, therefore, in this case neither freedom of expression (Brașoveanu, 2012, p. 139).

The Romanian legislator expressed itself along the same lines through Law no. 489/2006, republished, according to which Religious Cults are entitled to have their own legislation, i.e., Statutes and Regulations, to implement the provisions of their canonical norms (the case of the Romanian Orthodox Church, the Roman Catholic Church and the Greek Catholic Church), and to administer their own patrimony (movable and immovable property).

Indeed, according to the provisions of Law 489/2006, religious Cults have *distinct legal entity status* (cf. Art. 5, para. 2) and are recognized as *public-utility legal entities* (Art. 8, para. 1), and, as such, *they shall be organized and shall operate under the Constitution and under this Law, autonomously, according to their own Statutes, or canonic Codes* (Art. 8, para. 1).

The statement according to which the Religious Cults can draw up their own legislation and exercise managerial activity over their patrimony only based on a so-called „authorization” (Chiş, 2014, p. 64-105) from the State, therefore, has no historical and legal basis. Moreover, not only the religious law – stipulated in *jus papirianum* based on the principles stated by *jus divinum* and *jus naturale* (Villey, 2023, p. 69-70) -, but also the New Roman law (the Byzantine law) and the international and national law have expressly stated the principle of external autonomy as the basis for the relations between the State and the Church, hence the natural finding that they, i.e., the Religious Cults, are fully entitled to affirm their autonomy from the State also in relation to exercising their managerial activity.

Obviously, the jurists who promote the statement according to which the „concept of autonomy of Religious Cults” (Toader and Safta, 2015, p. 145) was also born as a result of the „separation between the State and the Church” (Chiş, 2014, p. 39) must not ignore or hide the fact that, in reality, such a separation cannot exist, and that it manifests only through a separation of the fields, i.e., the telluric field and the religious one.

The same Romanian jurists, of these days, who prove to have no knowledge both of *jus papirianum*, and of the jurisprudence of the famous Roman jurisconsults, - whose names were mentioned in *Lex citationem* of the year 426 as an authority in terms of ruling of any court decision, - as well as in relation to Byzantine and international law (according to the two *International Covenants* promulgated in New York in the year 1966) (Dură and Mititelu, 2013, p. 130), recognize the fact that, „in its jurisprudence, the European Court of Human Rights ruled that the autonomous existence of religious communities is indispensable in a democratic society and that it represents an essential issue in the protection of religious freedom guaranteed by the provisions of Art. 9 of the Convention for the Protection of Human Rights and Fundamental Freedoms” (Toader and Safta, 2015, p. 145-146).

In fact, the autonomous existence of the religious communities is imposed also by the European and international protection on human rights (Braşoveanu, 2012a, p. 136; Braşoveanu, 2015, p. 27), among which the rights to religion are the main one.

In the Romanian-language specialized literature, the statement according to which „the separation of the State from the Church ... is the model adopted by the Romanian State” (Chiş, 2014, p. 39) is disseminated although the constitutional text does not make any reference to such a reality, on the contrary, in Romania *Religious Cults shall be autonomous from the State and shall enjoy support from it* (Art. 29, para. 5, *Constitution of Romania*).

The 2006 Law on Religious Cults stipulates that the *State is neutral towards any religious persuasion or atheistic ideology* (Art. 9, para. 1), however, it is not a matter of neutrality from the State towards religious denominations, but rather neutrality towards any religious belief and atheistic ideology.

Regarding the Central Executive Bodies of the Romanian Orthodox Church, we noticed that, according to the provisions of the current Statute for the organization and functioning of the Romanian Orthodox Church (Statute R.O.C.) - which „continues the previous Statute” (Statute R.O.C., 2008, p. 9) – the Romanian Orthodox Church is administrated autonomously through her own representative bodies, *made up of clergy and lay, in accordance with the Holy Canons, the provisions of the current Statute, and other provisions of the competent ecclesiastical authority* (Art. 3, para. 2).

The same Statute provides that, for the organization and functioning of the Romanian Orthodox Church, three types or categories of *bodies* exist at the central level, namely: a) central deliberative bodies; b) central executive bodies; c) central administrative bodies, and that, within the category of central executive bodies, there are three organs, namely: 1. The Patriarch; 2. The National Church Council; 3. The Permanence of the National Church Council.

Pursuant to the provisions outlined in the Statute of the Romanian Orthodox Church, the goods belonging to the parishes, sketes, monasteries deaneries, vicarages, dioceses, archdioceses, metropolitan sees and to the patriarchy *make up the church patrimony which belongs to the Romanian Orthodox Church* (Art. 172, para. 1, Statute R.O.C.).

The same Statute states that the *ecclesiastical patrimony includes sacred goods and common goods* (Art. 173, para. 1). Regarding the *sacred goods*, they are defined as those that, *through consecration or blessing, are intended for divine worship* (Art. 173, para. 3), and they are *inalienable, immune from seizure, and imprescriptible* (Art. 173, para. 2).

Regarding the common goods, the Statute of the Romanian Orthodox Church states that they are those intended for the maintenance of the churches, its clergy, cultural works, *charitable activities, social and medical assistance, as well as for fulfilling other purposes of the Church* (Art. 173, para. 5).

The fact that the managerial activity of the deliberative and executive bodies of the Church must be carried out according to the statutory and regulatory provisions is, obviously, another peremptory testimony that Religious Cults in Romania also enjoy the status of autonomy regarding their forms of organization and functioning.

The Romanian Patriarchate manages, controls and administers its profitable and patrimonial activity *autonomously* (Art. 3, para. 2, Statute R.O.C.), based on and in accordance with the principle provisions stipulated in the holy canons of the Orthodox Church. In addition, since the sum of the canonical principles (Stan, 2012, p. 5-23) stipulated in this legislation defines and expresses its canonical doctrine, we can say that, by observing and implementing these statutory provisions, the Romanian Orthodox Church proved to be within of the area of its canonicity also in relation to the managerial activity of its deliberative and executive (central and local) bodies.

With regard to the Patriarch and his managerial duties, we underline the fact that, in the Church, the judicial-canonical institution of the Patriarch appeared in the era of the Fourth Ecumenical Council (Chalcedon, 451), and from then until nowadays he is the Primate of any Orthodox, autocephalous Church, organized in the form of a Patriarchate (Dură, 2011, p. 21-51), hence the obligation of the hierarchs to „mention his name, as it is decided and ordained in the divine liturgical service ...” (can. 15, I-II Council of Constantinople) (Floca, 1991, p. 292), i.e., at the Liturgy of the Holy Eucharist (Dură, 1979, p. 791).

Therefore, according to the provisions of the holy canons, the Patriarch is both the president of the Holy Synod of the Romanian Orthodox Church, as of the central deliberative and executive church bodies.

In the Regulation concerning the duties of the Patriarch and the functioning of the central deliberative, administrative and executive bodies of the Romanian Orthodox Patriarchate - voted by the National Church Assembly in the meeting of February 26, 1950 and approved by the Minister of Cults by Decision no. 28,133 of August 18, 1950 - it was stated regarding the National Church Council that it is *the supreme administrative body for the affairs of the entire Orthodox Church within the Romanian Patriarchate and, at the same time, the executive body of the Holy Synod and the National Church Assembly* (Art. 111).

Among these duties, the National Church Council drafts the annual report concerning *the general budgetary account and the financial balance sheet of the Patriarchal Administration, and decides upon the way of administering the real estate and movable goods of the Patriarchal Administration* (cf. Art. 30, para. 1-11, Statute R.O.C.).

The enumeration of these duties of the National Church Council points out to the fact that this supreme administrative body of R.O.C. draws up the general budget, the budget execution account, and the financial-accounting balance sheet of the central church institutions, which also takes into account the accounting regulations regarding the financial-accounting activity of the Cult institutions (Mititelu, 2011, p. 815-820).

The Permanence of the National Church Council, which operates *between the meetings of the Church National Council as central executive body* (Art. 31, para. 1, Statute R.O.C.), is composed of the *Patriarch, as president, of the Assistant Bishops to the Patriarch, Patriarchal Administrative Vicar, patriarchal counsellors and of the church general inspector, as members, and takes valid decrees through the consensus of all the members present* (Art. 31, para. 2).

During the period between the meetings of the National Church Council, the Permanence of the National Church Council exercises the duties of the National Church Council (cf. Art. 32, Statute R.O.C.), that is, this one does not prepare the general budget of the central ecclesiastical institutions with a missionary purpose.

In addition to these responsibilities, according to stipulations of the Statute for the organization and functioning of R.O.C., the Permanence of the National Church Council examines *economical-financial issue within the debates of the central deliberative and executive bodies* and makes statutory proposals and analyses and *submits proposals to the Church National Council* concerning the administration of the real estate and movable goods of the central church institutions and of the central church foundations (cf. Art. 32 Statute).

As one can notice, as a central executive body, the Permanence of the National Church Council - made up of hierarchs and clerics of the Romanian Patriarchate - fulfills the duties of the National Church Council *between the meetings of the National Church Council* (Art. 31, para. 1, Statute R.O.C.), including the managerial activity of the Romanian Orthodox Church, apart from drawing up the general budget of the central church institutions with a missionary purpose.

In view of a better managerial activity, the Church borrowed from the (Roman-Byzantine) (Mititelu, 2014, p. 33) state legislation a general principle of Roman Law, namely the principle of devolution, which is a right of supervision and control of the higher administrative-territorial authority when the lower bodies do not fulfill their legal duties (due to ignorance, negligence, abuse, etc.).

Over the centuries, the principle of devolution - which was also stipulated by Emperor Justinian in one of his Novels, namely in Novel 123, ch. 1, published in the year 546 - represented one of the basic tools in church administration.

According to canon 11 of the Seventh Ecumenical Council, if the bishops do not want to appoint a manager (*oekonomus*) in their Churches, this must be done by their Metropolitans.

At the level of the Orthodox Church, the principle of devolution was and continues to be considered both „a permanent guarantor and guardian of canonicity”, i.e. of the legality in the life of the Church, and an „auxiliary of synodality” (Pîrvu, 1954, p. 397).

Following the model of the Imperial Court, the Patriarch of Constantinople organized the dignitaries and officials of his Court into pentads. The first dignity of this Court was „ὁ μέγας οἰκονόμος” (the great *oekonomus*) (Walter, 1840, p. 214), whose first duty was to manage the assets of the Church.

The Patriarch of Constantinople can exercise this right of hierarchical devolution - a right inherent to any hierarchically organized administration - only in his jurisdictional area, i.e., in the geographical area of his Patriarchate. He cannot, therefore, intervene in the jurisdictional area of the other administrative-territorial ecclesiastical institutions, of the same kind, of the Ecumenical Orthodox Church, i.e. in the other Patriarchates of the Orthodox Church, since they have an equal canonical status, i.e., they are also organized in the form of Patriarchates (Dură, 2005, p. 414-432), or in those that have the status of autocephaly (Dură, 2010, 113), even if they only have a metropolitan or archiepiscopal type of organization.

Moreover, the jurisdictional prerogatives granted to the Patriarchal See of Constantinople by canon 28 of the IV Ecumenical Council (Chalcedon, 451) also do not entitle him to exercise jurisdiction over the other patriarchal Churches (Larchet, 2012, p. 105-106), but only in the geographical ecclesiastical area of his Patriarchate.

In terms of the canonical position which the Patriarchal See of Constantinople has in the hierarchical order of the Patriarchal Sees in Christian oecumenicity based on canon 28 of the IV Ecumenical Council (Chalcedon 451) - a Council which had an important role in „consolidating the organization of the Church and the collaboration between the Christian Church and the Byzantine State” (Stan, 2012a, p. 5) - this one was due only to the fact that, in *illo tempore*, Constantinople was the capital of the Eastern Roman Empire, and not to any superior gracious state that defined the position of the hierarchical steps or the jurisdictional relations between them.

Apart from the *oekonomus*, i.e. the manager of church goods, in the Eastern Orthodox Church there was also another type of administrator of church goods, called *paramonar*, who had „... in his care especially the social assistance units of the Church, such as the xenodochies, the hospitals etc.” (Floca, 1991, p. 87). These old social care institutions - established and organized by the Church - were managed through this administrator, whether a cleric or a layman.

## 5. Conclusions

From our paper concerning the managerial activity of the central executive bodies of the Romanian Orthodox Church, the reader can find out that the *Church of the Romanian nation* (Art. 5, para. 2, Statute R.O.C.), that it is a *National Church*, with an *apostolic antiquity*, has had a special contribution *to the life and culture* of the Romanian people (Art. 5, para. 2, Statute R.O.C.), and, in our days, it carries out a fruitful managerial activity in accordance with the canonical norms of the Eastern Orthodox Church and with its statutory and regulatory provisions.

From the text of our research, one can also note the fact that, based on the rules of Roman Law, *sacred goods (res sacrae)* belong to the *Divine Law (divini Juris)* and, as such, they are not the property of anyone, as it is stated also in the legislation and canonical doctrine of the Orthodox Church, and expressly underlined in the text of the Statute regarding the organization and functioning of the Romanian Orthodox Church.

Those who want to know also others aspects of the managerial activity of the Church, - whether they are jurists, economists, sociologists, etc. - must also take into account the fact that a familiarization, even if it is only of an introductory nature, with the ecclesiological field, Roman Law (Old and New) and Canon Law is inherent, because ignoring or not knowing their content does not allow them to understand not only the organizational and administrative structure, but also the managerial activity of the Church's bodies, and, consequently, even less so, the legal status of its autonomy, without which one cannot gain knowledge and a holistic view of the managerial activity of the central executive organisms of the Romanian Orthodox Church.

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## A Snapshot of Where We Are. A Gross Domestic Product Analysis Related to Household Energy Price Index in the European Union

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### Abstract

*This is one of the few articles that investigate the relation between GDP and electricity and gas evolution, especially given the events in the last three years.*

*The evolution of GDP related to the Household Energy Price Index in the European Union (27 countries) is analyzed with the help of VAR model and the variance decomposition, historical variance decomposition and Granger Causality test under VAR which provide proof that HEPI for electricity has a more significant contribution to GDP than HEPI for gas.*

**Key words:** GDP, HEPI, COVID-19, war, VAR model

**J.E.L. classification:** B21, B22, B23, C19, E01, N74

### 1. Introduction

The worldwide economy has faced several shocks in the last three years starting with a medical crisis caused by the COVID-19 virus when on 31<sup>st</sup> of December several cases of pneumonia were reported in Wuhan, China and continued with Russia's aggression on Ukraine since 24<sup>th</sup> February 2022. These events have caused tensions in the economy and affected in first several industries, employment, household income, electricity and gas prices and many others as a result of the measures taken by governments in order to avoid the spread of the COVID-19 virus and as well help contain it and second supply chain disruptions for electricity, gas and food due to the war in Ukraine.

Given that the Gross Domestic Product (GDP) is one of the indicators that provides an overall picture of the economic situation, as well as considering the fact that I have not identified in the literature articles that analyze the relationship between GDP and electricity and gas prices especially since 2020, at which point the world economy has suffered among the biggest shocks since the economic crisis of 2007-2009, I have it as an opportunity to analyze the GDP evolution related to the Household Energy Price Index (HEPI) in EU27 in order to determine how much did the HEPI for electricity and gas evolution contributed to the GDP volatility.

### 2. Literature review

Pandemics and wars are part of our history and their effects have been analyzed on several occasions. Two studies by Chankova and Daly (2021) and Buelens and Zdarek (2022) found that wars tend to result in higher inflation. Chankova and Daly (2021) analyzed inflation after wars and pandemics and found that while wars lead to higher inflation and bond yields, pandemics do not, although inflation tends to remain weak after significant pandemics, while Buelens and Zdarek (2022) suggested that supply disruptions caused by pandemics could also lead to high inflation volatility and might reappear due to the war in Ukraine.

Gagnon et al. (2023) used in their study a panel data regression to investigate the quarterly growth of real GDP in 90 countries between Q1 2020 - Q4 2021 relative to the COVID-19 pandemic. They found that COVID-19 deaths had a minimal effect on GDP, while the stringency of government-imposed lockdown measures to limit the spread of the virus had a significant influence on economic activity. The impact of the pandemic differed between rich and poor countries, with COVID-19

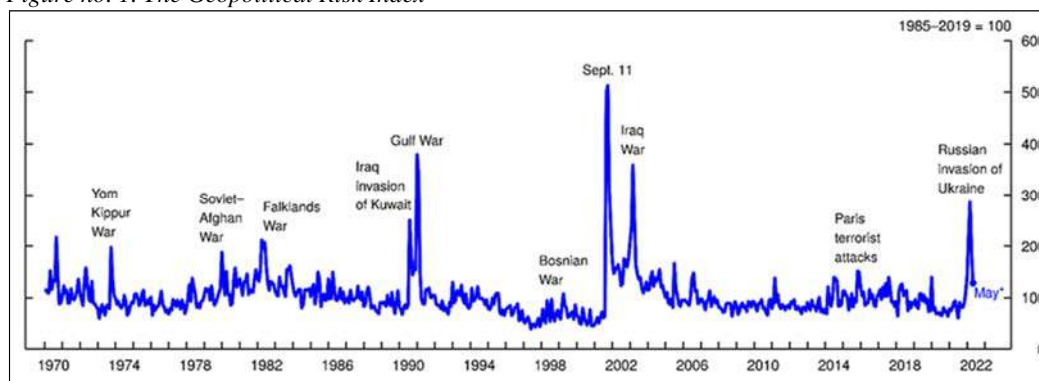
deaths having a slightly greater effect on GDP in advanced economies, but with no statistical significance, while in contrast, lockdown restrictions had a more detrimental effect on the economic activity of emerging and developing economies.

In his 2022 paper, Stefanski examines the impact of pandemics on GDP per capita over time and across 33 different countries by looking at the effects of wars and weather conditions, using a dataset dating back to the thirteenth century. His findings reveal that the effects of pandemics vary depending on their scale and timing, as well as the country in question and positive effects on income following the Black Death and Spanish Flu pandemics, particularly in Northern Europe. This suggests that only the largest and most unexpected pandemics have a positive impact on income. While Escosura and Rodríguez-Caballero (2022) analyzed the GDP and population growth of six European countries between 1270-1870 using the long memory approach and structural breaks, regimes, persistence and concluded that the most enduring shocks happened during the Black Death and the two world wars of the twentieth century.

Liu, Gao (2022) analyzed something similar by turning their attention to GDP growth in USA and found that the World Uncertainty Index (WUI) is a good predictor in the COVID-19 pandemic period.

The Caldara-Iacoviello geopolitical risk (GPR) index is a measurement of geopolitical tensions based on the newspaper articles published related to news of wars, risks of war, and major terrorist events and it can be noticed in *Figure no. 1* that the spike recorded by the Russians aggression on Ukraine is among the highest values recorded in the last 50 year, being surpassed only by the Gulf and Iraq Wars, respectively the 11<sup>th</sup> September terrorist attack, tensions which can be expected to spill out in the economy.

*Figure no. 1. The Geopolitical Risk Index*



Source: (Caldara, Dario, Sarah C., Matteo I., Maddie P., 2022).

Kuik *et al.* (2022) and Adolfsen *et al.* (2022) discuss the impact of the Russian invasion of Ukraine on energy prices and markets. Kuik *et al.* (2022) mention that the invasion worsened supply-side issues, leading to a price rally that started in 2021. Adolfsen *et al.* (2022) focus on the war in Ukraine and its impact on energy prices and volatility, highlighting concerns price fluctuations in the energy sector due to disruptions to energy supplies and sanctions applied to Russian.

Bida and Ruda (2022) utilized forecast analysis to estimate the GDP in Ukraine and observed that the losses from the 2022 war range from 35% to 50% of the GDP. The optimistic estimates suggest that it may take some time for Ukraine to recover and reach its pre-war GDP level.

A summary of other relevant articles can be found in *Table no. 1* below.

Table no. 1 Brief review of early studies

Author(s)	Period, Geographical Region and Quantitative Methods	Outcomes
Kaufmann (2023)	-Q1M42020-Q12022. -Switzerland. -forecast, bayesian analysis.	-yearly GDP growth forecasts serve as a good estimator, in particular at the outbreak of the pandemic. -starting September the projections of the Covid-19 outbreak is expected to have a lasting negative impact on GDP, while, the projections starting in December suggest a rapid return to pre-crisis levels of GDP.
Abosedra <i>et al.</i> (2020)	-1960–2017. -120 countries of the World. -VAR models and variance decompositions.	-countries with high-income growth are net transmitters of GDP growth volatility, while countries with low-income growth are net recipients. -low-income growth countries require several years to absorb global GDP growth shocks.
Alfarra and Hagag (2022)	-1960-2019. -USA, China. -forecasting, time series analysis, ARIMA model.	-both USA and China experienced GDP growth rates of around 6% and 10% for 2020 and 2021, respectively. -the COVID-19 pandemic appears to have minimal impact on countries that rely heavily on technology and the digital economy.
Habibi <i>el at.</i> (2022)	-January 2019 to December 2020. -China. -regression.	-the existence of COVID-19 within China has consequences that extend beyond its borders and have a global impact.
Peña and García (2023)	-2006-2022. -Mexico. -DSGE model.	-during the Global Financial Crisis (GFC), approximately 49.0% of the output gap contraction was caused by financial shocks, whereas during the COVID-19 pandemic, the demand shock was approximately 45.1%, financial shocks 32.2%, and productivity shock 22.3%, all severely impacted the dynamic of GDP. -the main drivers of Mexico's recent economic contraction were not only more diverse but also larger in absolute terms compared to those observed during the GFC.
Jena <i>et al.</i> (2021)	-April–June 2020 -USA, Mexico, Germany, Italy, Spain, France, India, and Japan. -artificial neural network forecaster.	- significant drops in GDP accross all countries were found. -the impact is even more significant when considering the annualized GDP growth, with most countries expected to have double-digit negative growth rates.

Source: (Authors' work based on the literature review.)

### 3. Research methodology

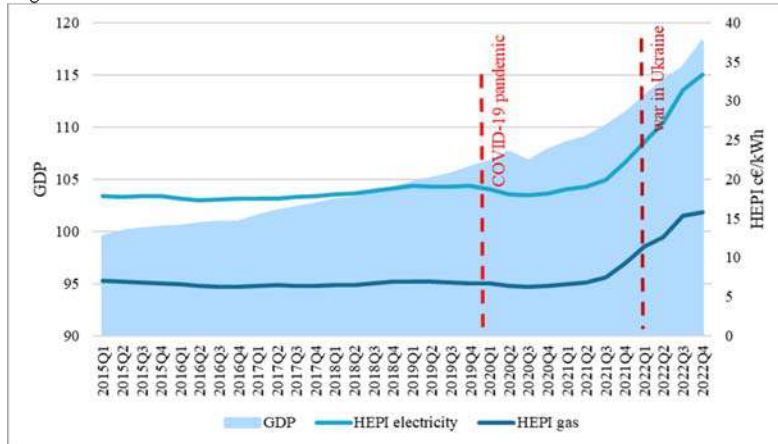
The data consists of quarterly observations, for the period Q1 2015 – Q4 2022 and a graphical representation can be seen in *Figure no. 2* below. The data source for the HEPI indicator is the Energy Price Index website and it is expressed in c€/kwh, and for GDP (seasonally and calendar adjusted) the data source is Eurostat website.

Given that the GDP is the total economic output for each year it is fair to assume that an increase in HEPI (electricity and gas) will in turn lead to a rise in GDP. The increase in GDP had a constant growth between 0,01% and 0.66% up to Q4 2019 related to the previous quarter, while with the start of the pandemic the GDP increase recorded a more accelerated growth related to the previous quarter between 0,46% and 1,17% for Q1 2020-Q4 2021 period with exception of Q3 2020 when a decrease of 0,83% was recorded which might be related to the vaccination campaign for COVID-19, overall the growth recorded in Q4 2020 related to Q3 2019 was 4,90% while for HEPI electricity 15,44%,

respectively for HEPI gas 36,13%.

Since the start of the war in Ukraine in Q1 2022 the GDP the growth slope is steeper and for Q4 2022 a 11,35% increase is recorded related to Q4 2019, respectively 6,14% related to Q42021, while for HEPI electricity a 74,08% increase is recorded related to Q4 2019, respectively 50,81% related to Q42021 and HEPI gas a 134,04% increase is recorded related to Q4 2019, respectively 71,93% related to Q42021.

Figure no. 2. GDP and HEPI evolution in EU 27



Source: (Authors' own work).

For the empirical analysis I used EVIEWS 10 program and applied a log-transformation to GDP and HEPI in order to stabilize the model.

I employed the VAR model for the data series selected, including impulse response, variance decomposition and historical decomposition to determine the dependance of GDP relative to HEPI for electricity and gas in EU27.

For the Granger Causality test under VAR, I have established two hypotheses

- **Hypothesis 1 (H1)** - An increase in HEPI leads to an increase in GDP for a level of significance greater than 5% and
- **Hypothesis 2 (H2)** - The HEPI evolution adversely influences the GDP for a greater than for a level of significance below 5%.

#### 4. Findings

Firstly, I ran the common sample statistics and given the results for all the selected indices and the:

- a) skewness indicator that measures the symmetry of the data is
  - lower than 1 (positive skewed) for GDP meaning that the data is slightly skewed,
  - greater than 1 for HEPI electricity and gas (positive skewed) meaning that the data is extremely skewed,
- b) kurtosis indicator which refers to the tailedness of the series (how often the outliers occur) is
  - under 3 for GDP meaning that the series is platykurtic (lower tail) reflecting that most data points are present in high proximity to the mean,
  - over 3 for HEPI electricity and gas meaning that HEPI electricity and gas data series are leptokurtic (heavy tailed distribution) which can account for more changes for outliers.

Table no. 2 Common sample

Date: 05/12/23 Time: 20:19			
Sample: 2015Q1 2022Q4			
	LOG GDP EU27	LOG HEPI EU27 ELECTRICITY	LOG HEPI EU27 GAS
Mean	4.657505	2.966438	1.989723
Median	4.648352	2.901238	1.902852
Maximum	4.772167	3.508057	2.754934
Minimum	4.599766	2.853016	1.828306
Std. Dev.	0.046286	0.166607	0.253709
Skewness	0.807880	2.202270	2.150815
Kurtosis	2.801796	6.786209	6.242533
Jarque-Bera	3.533284	44.98047	38.69073
Probability	0.170906	0.000000	0.000000
Sum	149.0402	94.92601	63.67113
Sum Sq. ...	0.066413	0.860497	1.995423
Observations	32	32	32

Source: (Authors' own research).

Based on the results obtained for the statistical tests under the VAR Lag order selection criteria as presented in Table no. 3 I selected a number of four lags for the VAR model and the results from Figure no. 3 provide insight on the models' stability (the majority of the roots are lying inside the unit circle).

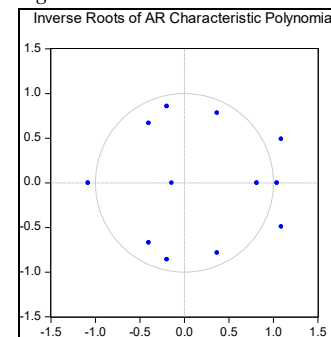
Table no. 3 VAR Lag Order Selection

VAR Lag Order Selection Criteria						
Endogenous variables: LOG GDP EU27 LOG HEPI EU27 ELECTRICITY LOG HEPI EU27 GAS						
Exogenous variables: C						
Date: 05/12/23 Time: 20:19						
Sample: 2015Q1 2022Q4						
Included observations: 28						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	135.8318	NA	1.52e-08	-9.487988	-9.345252	-9.444352
1	255.7756	205.6179	5.53e-12	-17.41255	-16.84160	-17.23800
2	277.6509	32.81295	2.27e-12	-18.33221	<b>-17.33306*</b>	-18.02676
3	287.7521	12.98727	2.24e-12	-18.41087	-16.98351	-17.97451
4	304.5710	<b>18.02016*</b>	<b>1.46e-12*</b>	<b>-18.96935*</b>	-17.11378	<b>-18.40209*</b>

\* indicates lag order selected by the criterion  
LR: sequential modified LR test statistic (each test at 5% level)  
FPE: Final prediction error  
AIC: Akaike information criterion  
SC: Schwarz information criterion  
HQ: Hannan-Quinn information criterion

Source: (Authors' own research).

Figure no. 3. Inverse Roots Graph

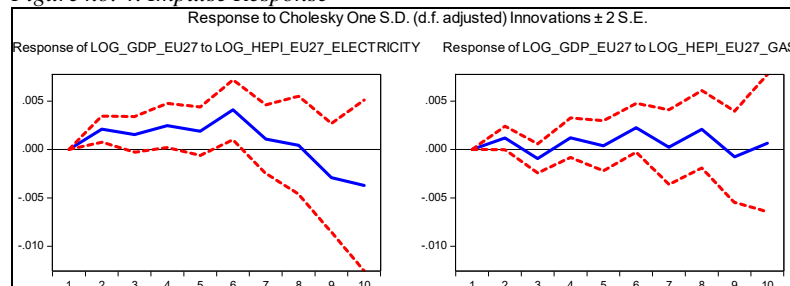


Source: (Authors' own research).

In order to determine the direction and magnitude of the effects of a shock on GDP over time, I deployed the impulse response by analyzing the (a) increase or decrease of the variable after the shock, (b) slope of the lines and (c) persistence of the effects of the shock on each variable.

It can be noticed in Figure no. 4 that overall, the GDP follows the same trend as the HEPI for electricity and gas, an increase, respectively a decrease of HEPI leading to an evolution of GDP in line with them, however the slope is greater and more abrupt related to HEPI for electricity than to gas as well as the persistence, nevertheless the volatility of GDP is higher related to HEPI for gas.

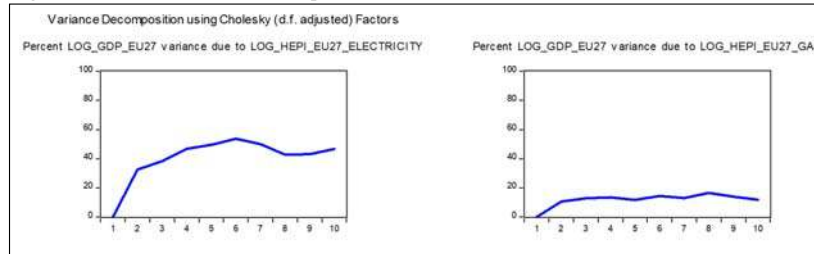
Figure no. 4. Impulse Response



Source: (Authors' own research).

In order to determine how much of the variation in GDP can be attributed to HEPI electricity and gas over time I deployed the variance decomposition for which the results are presented in *Figure no. 5*. The GDP variation is explained by the HEPI electricity up to 60%, respectively by the HEPI gas up to 20%, which adding on the results obtained previously for the impulse response it can be said that HEPI for electricity has a greater influence on the evolution of the GDP, which can be correlated as well to the higher prices for electricity than gas.

*Figure no. 5. Variance Decomposition*

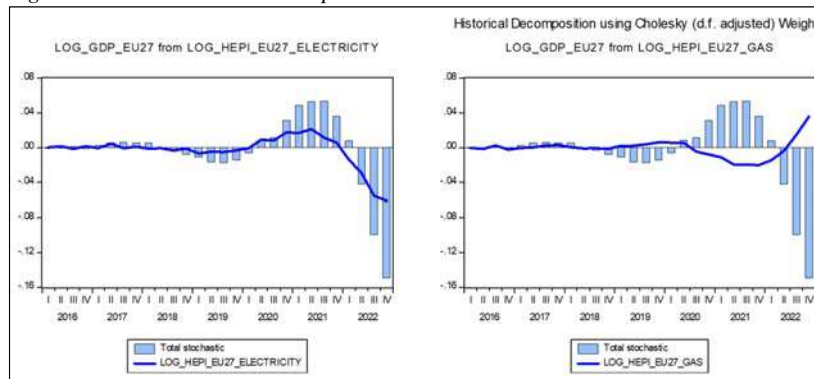


Source: (Authors' own research).

The historical variance decomposition graph will allow me to observe the contribution of HEPI for electricity, respectively gas to the total variation in GDP and how it has changed over the analyzed period of time.

According to the historical decomposition variation the contribution of HEPI electricity to the total variation in the GDP starts to become noticeable with the year 2019 and a greater variation is noticed starting with Q4 2020 when a significant increase in the number of people infected with COVID-19 virus was registered. The biggest variance is recorded starting with Q2 2022 when a negative total stochastic and descending trend for GDP is noticed, which would indicate that the forecast error variance of the GDP model has decreased over time, as well the fact that this could mean that the variable is becoming less important over time or that it is influencing the other variables in the model less strongly as time goes on which does not reflect the reality give that the electricity prices have continues to increase and will need further future analysis.

*Figure no. 6. Historical Decomposition*



Source: (Authors' own research).

On the other hand, the contribution of HEPI gas to the total variation in the GDP the total stochastic and HEPI gas variable have opposed trends which could be justified by the fact that an increase in the gas prices lead to a decrease in consumption and vice-versa, however this as well is to be further researched.

Based on the two hypotheses establishes at the beginning, it can be noticed in Table no. 4 below that a causality relation is found for GDP related to HEPI for a 33,11% level of significance meaning that an increase in electricity prices will in turn lead to an increase in GDP.



On the other hand, although the level of significance related to HEPI gas is under the level of significance it is very close, registering a value of 4,89% which means that the evolution of gas prices should not be neglected in future analysis of the evolution of variables that are dependent on gas consumptions.

Table no. 4 VAR Granger Causality

VAR Granger Causality/Block Exogeneity Wald Tests			
Date: 05/12/23 Time: 20:24			
Sample: 2015Q1 2022Q4			
Included observations: 28			
Dependent variable: LOG GDP EU27			
Excluded	Chi-sq	df	Prob.
LOG HEPI EU27 ELECTRICITY	4.597505	4	<b>0.3311</b>
LOG HEPI EU27 GAS	9.543707	4	0.0489
All	40.65765	8	0.0000

Source: (Authors' own research).

## 5. Conclusions

The purpose of this article was to analyze the evolution of GDP given the tensions that the economy has faced lately from an energy perspective since the start of the COVID-19 pandemic, respectively since Russia's aggression on Ukraine.

The impulse response results provide proof of a positive correlation of the GDP with HEPI electricity and gas, an increase or decrease in the electricity and/or gas prices leading to an evolution of GDP in the same direction, however a stronger reaction of GDP was noticed related to HEPI for electricity than gas even though the HEPI for gas lead to higher volatility of GDP.

Important insights are provided by the variance decomposition results, the HEPI for electricity has a greater contribution to the increase in GDP than the HEPI for gas, explaining up to 60%, respectively 20% of GDP evolution. Similar findings were noted by Buelens and Zdarek (2022) whom concluded that supply disruptions caused by the pandemics lead to high inflation volatility which is reflected in the household consumption a component of GDP, phenomenon that according to the authors is likely to reappear as a result of the Russian's aggression on Ukraine.

Given the historical variance decomposition results obtained, it can be said that HEPI for electricity started to have a noticeable contribution to the GDP variation even since the first year of pandemic and constantly increased in the second year of the pandemics, while after the war in Ukraine began does not reflect the reality which means that the current model deployed has limitations and future analysis is needed.

Regarding future research directions I will extend this current research in order to address the current limitations identified by adding in the analysis the GDP components household consumption, government spending, investment and the trade output (exports minus imports) as well as inflation in order to better capture the evolution of the economic output related to the evolution of other independent variables.

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## Is Climate Policy Effectiveness Important for Country's Competitiveness Among EU Member States?

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### Abstract

*This study examines the level of relationships between the competitiveness position of the EU countries and the climate and sustainable finance policy effectiveness. In this research we utilized panel data analysis, where the level and direction of connectedness between World Competitiveness Index (WCI) and climate policy effectiveness and green finance regulatory frameworks were empirically analyzed. It was found that the level of relationships between a country's competitiveness index and level of climate policy regulations is positive and significant among the EU member states. Moreover, we are among the first who analyze the relationship between the level of a country's competitiveness and green finance regulatory framework which represents the cornerstone for the implementation of the EU sustainability strategy. The paper and the empirical results provide solid grounds for the policymakers to continue developing the climate and sustainable finance regulatory ecosystem needed to achieve the Eurozone climate targets by 2030 and become fully climate neutral by 2050.*

**Key words:** sustainability, competitiveness, climate policies, green finance regulatory frameworks

**J.E.L. classification:** G38, Q43, Q56, P28

### 1. Introduction

The Paris agreement was a trigger point for humanity to change its direction for development in the next century. Each signatory party defined its time calendar to achieve the climate targets and sustainable development objectives. In the context of the Paris agreement, it was decided to set-up the global timescale to achieve the climate targets, and it was evident that some countries achieved them in advance (e.g., EU member states) while some other nations set-up these targets with a certain delay (e.g., China).

The main objective of the research is to reveal the contribution of climate policies to an increase in a country's competitive position and the role of green finance in achieving the climate targets at the EU level.

In the context of the UN Climate Change Conference (COP21) in Paris, which took place on December 12th, 2015, the climate targets were set and agreed by 196 nations and include "the decreasing in the global average temperature to well below 2°C above pre-industrial levels" (United Nation, Paris Agreement, 2015) and to maintain the temperature increase to "1.5°C above pre-industrial levels" (United Nation, Paris Agreement, 2015). The member states agreed that to achieve the target of 1.5°C the greenhouse gas emissions should reach the maximum level by latest 2025 and afterward's the emissions should be reduced by about 43% by 2030. The timeline targets were adapted by different countries and regions. For example, the EU strategy for climate change regulates that by 2030 the greenhouse gas emissions should be reduced by at least 55% and by 2050 EU should

become fully climate neutral (European Commission, 2023) . Comparing with EU targets China established to reach its maximum level of emissions by 2030 and become climate neutral by 2060 (Chen and Lin, 2021; Jia and Lin, 2021).

Considering the climate targets set by different nations at the EU level, the development of the regulatory streams evolved differently at each country level. Zheng et al. (2023) in their research found that CO<sub>2</sub> emissions reductions can be achieved only with an outstanding and solid climate regulatory system. A detailed analysis of relationships between competitiveness and sustainability policies was undertaken by Cohen and Tubb, (2018) from the perspective of academic contribution. In most of the research, outstanding climate legislation positively impacts the positive dynamics of country's competitiveness at macro level and organizational productivity at micro level. Essentially, the identified results validate the main research hypothesis which Porter and van der Linde raised since 1995; they stated that one important source of organizational competitiveness is achieved through sustainability.

In the research we employed multivariate data analysis and found positive and significant relationships between a country's World competitiveness index (WCI) and level of effectiveness of climate policies. Moreover, we are among the first to identify the extent to which the level of development of sustainable finance regulatory framework impacts the country's competitiveness position among EU member states. The paper and the empirical results provide solid grounds for the policymakers to continue developing the climate and sustainable finance regulatory ecosystem needed to achieve the Eurozone climate targets by 2030 and become fully climate neutral by 2050. The rest of the paper is organized as follows: Section 2 provides evidence about current literature perspective and the research gaps; Section 3 reveals the methodology and hypothesis development; findings of the empirical research will be presented in Section 4 and conclusions are presented in Section 5.

## 2. Literature review

The academic analysis of the level of connectedness and the impact of corporate sustainable development "attitude" is not new. The academic interest in corporate sustainable development started in the early 1980's when in 1983 at the level of United Nations it was decided to undertake initiatives and actions to recalibrate the economic model existing at that time. Thus, they created the World Commission on Environment and Development to reveal and understand the liaison between ecological health, economic development, and social capital. Throughout time both academic and professional community understood that in a world with scarce resources, it is only possible to achieve competitiveness through sustainable development which was the main consideration for our research direction (Balkyte et al, 2010; Bucher, 2018; Hoang et al, 2020).

Taušová et al. (2022) found that the key regulatory frames that should prevail at the EU level should refer to the resource utilization and efficiency (water, soil, energy etc.) to achieve competitiveness and a prominent level of productivity. They concluded that such regulatory streams would enable the EU to achieve its target level for a circular economy. Also, they showed that the Visegrad's countries are less efficient in managing the efficiency of the resource utilization compared to the EU average. In fact, the idea was first launched by Porter in 1995; countries' competitiveness (higher productivity indexes of resource utilization) can be achieved through sustainability (especially achieved through innovations) (Porter and van der Linde, 1995). In their research, Zheng et al. (2023) analyze an indirect approach of Porter's perspective; they show the effectiveness of the climate policy on CO<sub>2</sub> emissions as an indirect factor representing the efficiency of resource utilization. They found a significant and negative relationship between CO<sub>2</sub> emissions and the global climate policy effectiveness evaluation and compared the results with the leading countries for CO<sub>2</sub> emissions. It was revealed that China shows the best results in terms of effectiveness of climate policies and reduction of CO<sub>2</sub> emissions. Still, at the global level the best regulatory mechanisms did not achieve to manage efficiently the tradeoff between level of CO<sub>2</sub> emissions and effectiveness of the climate policies. For example, Bak et al. (2017) through their research propose a policy package which balances the trade-off between the CO<sub>2</sub> emissions reduction and increasing the sustainable infrastructure, by mobilizing sustainable finance through adoption of carbon pricing mechanisms thus, creating the prerequisite to increase the competitiveness. Another important aspect of the

relationship analysis between climate policies and competitiveness is driven by the negative effects of inefficiency in implementing the climate policies at country level. Sokołowski and Heffron, (2022) in their research analyze the circumstances for failure of policy creation and implementation by central authority as follows: unfeasible policy instrument selected, country's economy specifics were neglected, low public awareness about the environmental protection, low political support etc. The specifics and challenges mentioned above create academic dispute in revealing the level of connectedness between climate policy regulation and country's level of competitiveness.

Cohen and Tubb, (2018) did a meta-analysis of the literature analyzing the impact of sustainability (through the lenses of environmental regulation) on the competitiveness and productivity at both micro and macroeconomic levels. They found that among the researchers the consensus about the level of connectedness between competitiveness and sustainability is still not achieved, neither at country levels nor at company levels. From the analyzed papers about 54% of the studies reveal negative relationship between environment policies and company's productivity or profitability while 46% show negative relationship between climate policies and regional or country's competitiveness. Cohen and Tubb, (2018) identified about 37% of the analyzed sample considered solely US market and only 25 articles (24%) referred to the EU countries. Due to this reason our research will enrich the current literature on the impact of climate policy and sustainable finance regulatory efficiency on the competitiveness of the EU member states.

There are few research mechanisms used to determine the relationships between level competitiveness and efficiency of the climate policies because of the complexity of the researched topic. In the literature, there were many attempts to analyze climate policies' effectiveness by using quantitative and qualitative methods. For example, it is worth to mention in qualitative methods the description analysis of the evolution of the solar photovoltaic (PV) feed-in tariff in Spain, and implication of the energy policies (Mir-Artigues and Ri'o, 2014), or the analysis of the efficacy of energy regulation in Indonesia in the context of green and renewable energy transitions (Santika et al, 2020). Some other authors used statistical and econometric analysis to reveal the effectiveness of the climate policies on different micro and macroeconomic vectors more precisely. Thus, Kersey et al. (2021) and Liu et al. (2019) used the panel data analysis to show the effectiveness and the effect of the renewable energy policies on the country level development.

Cohen and Tubb, (2018) identified different approaches to represent the level of development of climate policy as proxies for empirical analysis, important to mention the number or types of regulatory policies which are not the only ones used by the research (Brunel and Levinson, 2016). It is also worth mentioning the pollution control expenditures or measures of regulatory stringency (e.g., Environmental policy stringency index developed by the World Bank).

From the existent literature we can depict the importance of current research considering the multiple perspective aspects. Firstly, a solid climate policy set-up for a country represents the baseline to achieve the climate targets and increase the competitiveness of the country through sustainability. Secondly, it is important to harmonize the design and implementation of the climate regulatory framework in a way that encompasses all the country's realities (e.g., economic, politic, financial etc.). Thirdly, the EU climate policy design should consider and if possible, internalize legal provisions that mitigate the adverse effects on country's competitiveness that arise from leakage of unilateral climate policy adoption.

### **3. Research methodology**

To achieve our research objective, the research hypothesis must be defined. Referring to the ideas discussed by Porter in his paper, the level of competitiveness to be achieved through sustainability is a complex process and embeds corporate strategies which should be addressed in the medium and long term. The main structural component of Porter's hypothesis is that competitiveness can be achieved through sustainability only if it is implemented through innovations. Jaffe and Palmer (1997) identified several facets of the Porter Hypothesis: the weak version where climate policies will stimulate only several types of innovations which means the implementation costs will exceed the benefits; the strong version where the innovations undertakings will determine higher value from benefits rather than cost of compliance; narrow version which should be well designed, flexible and create good incentives for companies to innovate through sustainability and increase the

competitiveness of the company. Considering the baseline of the Porter's Hypothesis we presume the following research hypothesis:

- *H1. The level of climate regulatory development positively impacts the country's competitiveness in the EU region.*
- *H2. The level of sustainable finance regulatory development positively impacts the country's competitiveness in the EU region.*

Zheng et al., (2023) found that climate policy effectiveness represented through the number of regulatory frameworks positively influences the level of CO2 emissions, which is an indirect component and performance indicator of corporate productivity and country competitiveness achieved through sustainability.

#### *Empirical specifications*

Consistent with the approach used by other research (Cohen and Tubb, 2018; Du and Li, 2020; Ma et al., 2019) regarding the analysis of the relationship between competitiveness and sustainability, and the extent to which the latter impacts the level of competitiveness through innovation we employed panel data analysis. To deal with endogeneity issues in the model we included regulatory effectiveness variables as lagged measures one year, to capture the full realization of the climate and sustainable finance policy implementation. Furthermore, to capture the yearly regulatory specific trends and impact, also including some of the specific economic trends in the results (e.g., COVID 19 effects) we consider in the model the year dummies. Thus, to assess the relationships between country competitiveness and climate and sustainable finance policy effectiveness set-up at country level we employ the following multivariate regression model:

$$WC_{it} = \beta_0 + \beta_1 * CPE_{it-1} + \beta_2 * GFPE_{it-1} + \beta_3 * X_{it} + TimeEffect_t + \varepsilon_{it} \quad (1)$$

where the subscripts *it* indicates the *i* country-level characteristics, in the period *t*. WCI stands for world competitiveness index issued by International Institute for Management Development (IMD), CPE denotes the climate policy effectiveness lagged one year, GFPE represents the green finance policy effectiveness, also lagged one year and *X<sub>it</sub>* stands for control variables. The year fixed effects and the *ε<sub>it</sub>* which represent the error terms were included in the model. To assess hypothesis 1 and 2 we employed separate analysis for climate policies and green finance policies. Moreover, we test which panel data analysis model is more suitable for the empirics, either fixed-effects panel data analysis (FE) or random-effects analysis (RE). Additionally, we intend to include the ordinary least square (OLS) regression in the research, for robustness check purposes.

#### *Data and Variables*

The sample data for this research was built from various sources. First, the information about climate policies was extracted from the Climate Policy Database, which manages the issued climate policies from around the world. The selected climate policies were referring to the EU member states that were "in force" since 2009 and onwards. In the sample data we did not consider those climate policies that were regulated at the eurozone level, especially representing the EU directives regulated by EU Commission. It is worth mentioning that we have chosen 2009, one year after the first commitment period defined through Kyoto protocol (e.g. 2008-2012) to ensure that it was enough time for regulatory bodies to internalize the new regulatory framework undertakings. In the analysis the sustainable finance regulatory frameworks were also included considering they represent a vital component in the implementation of the sustainability strategy both at country level and among the players from the financial markets. For this purpose, the sustainable finance regulatory policies issued by countries from 2009, which were in force as of 30<sup>th</sup> of April 2023 were considered in the analysis. Data about sustainable finance policies was extracted from the specialized platform whose mission is to monitor the global green finance regulatory dynamics called Green Finance Platform. To quantify the level of competitiveness at the country level, the IMD competitiveness index was chosen, and extracted from the database of International Institute for Management Development. To obtain more relevant results we have considered data from 10 years (the period 2012-2021) for all the EU member states as of 30<sup>th</sup> of April 2023 (which does not include the UK) and excludes Malta for lack of data. There are many approaches and methodologies to quantify the country competitiveness index issued by organizations such as: the World Economic forum, EU Commission etc. The IMD competitiveness index is one of the oldest representations for country's

competitiveness position calculated by Institute for Management Development since 1989. Because this is the oldest representation which has the most complex view about competitiveness position calculated at country level, it will be considered in our empirical analysis as a *dependent variable*. The IMD world competitiveness index encompasses the following structural components to be quantified: Economic Performance, Governance Efficiency, Business Efficiency, and Infrastructure – the latest includes the sustainability components in it.

To empirically test the research hypothesis, in the panel analysis the independent variables are represented by the climate policy effectiveness measure and sustainable finance regulatory frameworks. The climate policy effectiveness variable follows the approach of (Zheng et al., 2023) which include the following characteristics: the national distribution of the policies, temporal dynamics over time and regulatory areas. To embed it in the model, the variable was calculated as the active number of policies issued each year in every country (EU region) in a cumulative manner. This approach was considered because there are cumulative and complementary effects of active climate policies on the economy. For this reason, we expect to see the improvement of the competitiveness position at country level over time through the strengthening of the country's environment regulatory framework. Analyzing the database of the climate policies at EU level we have obtained the following policy distribution themes: energy efficiency; renewables; energy service demand reduction and resource efficiency; other low-carbon technologies and fuel switch; other related climate policies; non-energy use having the distribution as indicated in the Table 1.

*Table no. 1 Distribution of climate policies in force at the level of EU member states.*

Climate policy's themes	Number of policies issued
Energy efficiency	168
Renewables	94
Energy service demand reduction and resource efficiency	90
Other low-carbon technologies and fuel switch	74
Other related climate policies	18
Non-energy use	14
<b>Total climate policies for EU countries</b>	<b>458</b>

*Source:* (Climate policy database)

It is worth mentioning that the dominant areas of the climate regulatory policies at the level of EU refers to the: energy efficiency and renewable which should significantly impact the level of competitiveness across the EU countries considering that it refers to the energy sector.

Sustainable finance regulatory policies set at EU level is structured considering the following regulatory themes: Environmental, Social and Governance (ESG); Climate Change; Sustainable, Green, and Social Bonds; Standards and Regulations etc. (details are provided in the Table 2). As these types of regulatory policies are prerequisites for stimulating the flow of green finance investments in a country, which is an important accelerator for sustainable investment projects, a positive relationship between competitiveness index and the development of sustainable finance regulatory process was expected.

*Table no. 2 Distribution of sustainable finance regulatory themes in force among EU member states.*

Sustainable finance regulatory themes	Number of policies issued
Environmental, Social and Governance (ESG)	37
Climate Change	30
Sustainable, Green, and Social Bonds	20
Standards and Regulations	14
Other sustainable finance	7
Stock Markets and Regulators	5
Stewardship	4
Risk and Resilience	2
Impact Investment	1
Indicators and Measurement	1

Infrastructure	1
Natural Capital	1
Total sustainable finance policies for EU countries	123

Source: (Green finance platform)

Consistent with (Hurduzeu et al., 2022; Zhang and Zhao, 2019) the following control variables were included in the model as an important explanatory factor that can impact the competitiveness of the country: total country expenditure on research and development; scientific research legislation; equal employment opportunity; GDP (PPP) per capita; government budget surplus-deficit; image abroad or branding. The selected control variables refer directly to the competitiveness index as these factors are considered in the realization of the indicator as well. In Table 3 we describe in a detailed manner the structure of the variables which will be considered in the model.

Table no. 3 Research variable included in the empirical model.

Variable name	Description	Source
Overall World Competitiveness Index (O_WCI)	Competitiveness index calculated based on the IMD methodology	IMD Website: <a href="https://www.imd.org/">https://www.imd.org/</a>
Climate policies Effectiveness (CPE)	Distribution of climate policies calculated cumulatively every year	Climate Policies Database: <a href="https://climatepolicydatabase.org/">https://climatepolicydatabase.org/</a>
Green finance policies Effectiveness (GFPE)	Distribution of green finance policies calculated cumulatively every year	Green finance platform: <a href="https://www.greenfinanceplatform.org/">https://www.greenfinanceplatform.org/</a>
Total expenditure on Research and Development (TE_R&D)	Percentage of GDP	The World Bank data: <a href="https://data.worldbank.org/">https://data.worldbank.org/</a>
Scientific research legislation (SRL)	Laws relating to scientific research do encourage innovation	IMD Website: <a href="https://www.imd.org/">https://www.imd.org/</a>
Equal opportunity for employment (EOE)	Equal opportunity legislation in the economy encourages economic development	IMD Website: <a href="https://www.imd.org/">https://www.imd.org/</a>
GDP PPP per capita	US\$ GDP per capita at purchasing power parity	The World Bank data: <a href="https://data.worldbank.org/">https://data.worldbank.org/</a>
Government budget surplus deficit (GB_SD)	Percentage of GDP	European central bank database: <a href="https://sdw.ecb.europa.eu/browse.do?node=9693760">https://sdw.ecb.europa.eu/browse.do?node=9693760</a>
Country Image abroad or branding (C_IAB)	The image abroad of your country encourages business development	IMD Website: <a href="https://www.imd.org/">https://www.imd.org/</a>

Source: (author's own contribution)

#### 4. Findings

Table 4 provides summary statistics of the variables used in the model calculations. Using Stata software, we found that the empirical analysis panel data is strongly balanced, including data of yearly time variables for 2012-2022. The data sample consists of 280 yearly observations analyzed at country level, members of the EU area as of 30<sup>th</sup> of April 2023 (e.g., excluding the UK) and excluding Malta, for which data was not identified in the analysis. The variable used in the model has different quantitative representations (e.g., index, percentage, gross USD value etc.) which is the most complex structure represented by the IMD country competitiveness index. TE\_R&D and GDP PPP per capita present a lower number of observations used in the model because of the missing data from 2022 and 2012, therefore the model calculation will limit the empirical analysis to this number of observations. Having strongly balanced panel data will allow us to test different models considering the structure of sample variables (e.g., OLS, panel regression with fixed effects, with random effects etc.).

Table no. 4 Summary statistics

VARIABLES	(1) N	(2) mean	(3) sd.	(4) min	(5) max
O WCI	280	71.52	14.13	38.97	100
CPE	286	12.43	16.54	0	78
GFPF	286	1.752	3.382	0	29
TE R&D	234	1.663	0.877	0.382	3.525
SRL	280	5.532	1.449	2.080	8.100
EOE	280	6.057	1.113	2.785	8.476
GDP PPP per capita	260	41,867	20,294	7,432	131,875
GB SD	260	-2.376	3.004	-14.58	4.064
C IAB	280	5.973	1.708	1.067	9.083

Source: (author's own contribution)

The results obtained from equation (1) partially validate our research hypothesis and are indicated in Table 5. In the empirical analysis we test the hypothesis by using two approaches, first, the time fixed effects for multivariate regression were considered in the model, and the hypothesis was tested without time fixed effects. In both cases the results differ and are presented in Table 5 and Table 6. Climate policy effectiveness is a strong instrument to measure the country's competitiveness index and position. Moreover, this relationship was first introduced by Porter and van der Linde in 1995 with focus on innovation as a liaison mechanism of the relationships between sustainability and competitiveness. Considering that in the model we do not control time fixed effects, we found a positive relationship between country competitiveness and climate policy effectiveness set at country level for all EU member states. These results are consistent in both OLS regression and panel data analysis with fixed and random effects. Both hypotheses are validated for climate policies and green finance regulatory framework adopted and implemented across the EU. The results show a positive relationship between regulatory frameworks and competitiveness index which indicates that highly regulated areas, that refer to the sustainable development will impact positively the level of country competitiveness and productivity, thus the Porter's hypothesis also has been validated. Moreover, we found the results to be positive and significant at 5% across OLS and panel data regressions which shows that countries' strategy directions for each EU member state should be oriented towards sustainability through the lenses of a solid climate and sustainable finance regulatory frameworks. The results found by using this methodological approach is consisted to the research conclusions achieved by (Cohen and Tubb, 2018) and (Zheng et al., 2023), the latter analyzed the effectiveness of the climate regulatory effectiveness from the perspective of the CO2 emission as an indirect proxy for competitiveness and productivity.

To strengthen the concept developed by Porter and van der Linde the following was indicated in the model as control variables: the level of R&D expenditures as % of GDP and number of scientific research legislation. The identified results show the following: negative relationships between level of R&D expenditures and competitiveness index indicates that higher expenditure will not necessarily ensure the expected results, meaning that higher sustainability will trigger innovation and will impact the higher competitiveness. Moreover, it might be possible that R&D expenditures are not undertaken exclusively to achieve the sustainability scope of the country therefore, higher cost for R&D is a negative sign for uncertainty of the expected results. The level of relationships is negative but not significant. On the other hand, we have the number of scientific research legislation as proxy for measuring innovation – again regulatory proxy to analyze the behavior of the competitiveness index through sustainability. In fact, as indicated by Porter, the scientific vector of the national economy is a crucial factor for its competitiveness and a proxy for sustainable development. In the research we found that the relationships between the number of scientific research legislation and competitiveness index is positive and significant at 1 % across all the models controlled and not for time fixed effects.

In the models where we control for time fixed effects in both OLS and panel data analysis, different results were found in the sense that the nature of relationships between climate and green finance regulatory effectiveness and the level of competitiveness are both positive and negative depending on the employed model. In the OLS regression the level of relationships between climate policies and competitiveness is positively and significantly correlated at 1% while the green finance



regulatory efficiency the relationship is positive and non-significant. Furthermore, if we run the model considering only the green finance regulatory proxy, we see the level of relationships becomes slightly negatively and non-significantly correlated which does not support the research hypothesis. The panel data analysis controlled for time fixed effects shows negative relationships between climate regulatory effectiveness and country competitiveness which is inconsistent with the defined hypothesis in our research. Further analysis is needed to identify the sources of discrepancies with other models and papers. Moreover, it is required to employ a detailed analysis of the structural components of world competitiveness index (e.g., economic performance, government efficiency, business efficiency and infrastructure) and the level of relationships with the climate policy effectiveness.

The identified results are important for policymakers as they provide insights into the impact of regulatory frameworks and their efficiency on a country's competitiveness performance. Moreover, climate policies and green finance regulatory frameworks set at country level are two complementary regulatory instruments that will support the implementation of the country's sustainability development initiatives with visible results on medium and long term. This also will help countries to set-up climate targets through efficient climate policies and will help to achieve these targets by investing sustainable financial resources obtained through a robust regulatory platform for green finance.

## 5. Conclusions

Although Porter and van der Linde authored their paper in 1995 the problematics of sustainability impact on the organizational and country competitiveness is much more popular today than before. The level of complexity and the magnitude of the research topic reached the global level with the Paris Agreement. This research area, including our paper, has a multidisciplinary character as it combines elements from climate-technical, legal, economics, finance. Considering its novelty character, the current literature shows discrepancies in the achieved results as it was indicated through the meta-analysis undertaken by Cohen and Tubb, (2018). Zheng et al. 2023 found consistent and indirect implications of the climate policies effectiveness on the level of CO<sub>2</sub> emissions which ultimately impacts the level of country competitiveness.

We employed the panel analysis to reveal the level of relationship between country's competitiveness index and climate policy and sustainable finance effectiveness and found that the relationship is positive and significant for both types of regulatory framework. Our findings validate the idea the competitiveness can also be achieved through sustainability. For this reason, policymakers should invest more effort in development and consolidation of the sustainable development regulatory ecosystem in a harmonized manner. This is because a strong climate policy ecosystem cannot survive in a country where there is no, or there is a weak sustainable finance regulatory ecosystem. This is the main reason the European Union is acting in a multidisciplinary manner to achieve its climate targets and redesign its macroeconomic development model towards sustainability. In addition to the regulatory drivers which impact on the level of a country's competitiveness should not be neglected, also the other economic drivers for competitiveness that we considered in the model as control variables. For example, it was found that the level of GDP, government surplus or deficit significantly and positively determines the level of country's level of competitiveness. The social facet of the economy represented in our model through the equal opportunity for employment together with the indicator for country image abroad or branding are qualitative characteristics of the economy which was found in our research to play an important role for the country's competitiveness level.

Our research has limitations from the perspective of endogeneity, and this limitation has partially solved by lagging the independent variables, still further investigation is needed with instrumental variable analysis. Moreover, we must consider a further dimensional analysis of the IMD world competitiveness index as it is built, considering over 330 criteria measuring different facets of competitiveness. We expect that further structural detailed analysis will bring more accurate results in revealing the influence of climate policy on the country's competitiveness.

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## Appendix

Table no. 5 Multivariate Data analysis results (no time fixed effects)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
VARIAB.	OLS	OLS	OLS	FE	FE	FE	RE	RE	RE
CPE	0.116*** (0.022)	0.116*** (0.022)		0.033 (0.033)	0.036 (0.033)		0.075** (0.031)	0.083*** (0.031)	
GFPF	0.112 (0.123)		0.122 (0.130)	0.334** (0.148)		0.338** (0.144)	0.273** (0.134)		0.315** (0.136)
TE R&D	-0.378 (0.563)	-0.418 (0.561)	0.741 (0.551)	-2.437 (1.623)	-1.948 (1.574)	-2.177 (1.656)	-0.015 (0.822)	-0.146 (0.812)	0.298 (0.872)
SRL	3.840*** (0.512)	3.891*** (0.509)	3.500*** (0.538)	2.523*** (0.466)	2.704*** (0.481)	2.567*** (0.470)	2.947*** (0.560)	3.092*** (0.559)	2.865*** (0.570)
EOE	1.550*** (0.543)	1.547*** (0.543)	1.429** (0.574)	1.808** (0.718)	1.975*** (0.691)	1.824** (0.710)	1.881*** (0.579)	1.889*** (0.582)	1.797*** (0.587)
GDP PPP per capita	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
GB SD	0.899*** (0.108)	0.904*** (0.108)	0.829*** (0.113)	0.764*** (0.099)	0.751*** (0.094)	0.768*** (0.099)	0.846*** (0.100)	0.838*** (0.100)	0.835*** (0.100)
C IAB	2.491*** (0.307)	2.497*** (0.306)	2.464*** (0.324)	2.138*** (0.508)	2.105*** (0.483)	2.187*** (0.532)	2.303*** (0.427)	2.333*** (0.425)	2.321*** (0.448)
Constant	24.35*** (1.870)	24.35*** (1.869)	25.62*** (1.961)	29.53*** (5.851)	25.99*** (5.332)	28.54*** (5.804)	25.16*** (2.678)	24.56*** (2.644)	25.37*** (2.894)
Obs.	228	228	228	228	228	228	228	228	228
R-squared	0.902	0.902	0.890	0.633	0.625	0.632			
Number of country ID				26	26	26	26	26	26
Year FE	NO	NO	NO	NO	NO	NO	NO	NO	NO

Source: (author's own contribution); Standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Table no. 6 Multivariate Data analysis results (fixed effects included)

	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9
VARIAB.	OLS	OLS	OLS	FE	FE	FE	RE	RE	RE
CPE	0.1*** (0.019)	0.1*** (0.019)		-0.049* (0.029)	-0.053* (0.029)		-0.008 (0.026)	-0.011 (0.026)	
GFPF	0.046 (0.110)		-0.006 (0.116)	0.108 (0.102)		0.131 (0.102)	0.133 (0.101)		0.139 (0.100)
TE R&D	-0.144 (0.475)	-0.136 (0.473)	0.936** (0.451)	-1.590 (1.078)	-1.594 (1.079)	-1.757 (1.079)	0.865 (0.695)	0.933 (0.690)	0.633 (0.710)
SRL	3.96*** (0.431)	3.96*** (0.430)	3.53*** (0.448)	2.31*** (0.432)	2.28*** (0.431)	2.37*** (0.433)	2.90*** (0.396)	2.89*** (0.397)	2.87*** (0.394)
EOE	1.43*** (0.451)	1.45*** (0.449)	1.50*** (0.478)	1.65*** (0.396)	1.70*** (0.393)	1.63*** (0.397)	1.85*** (0.389)	1.92*** (0.387)	1.84*** (0.385)
GDP PPP per capita	0.00*** (0.000)	0.00*** (0.000)	0.00*** (0.000)	0.000* (0.000)	0.000* (0.000)	0.000** (0.000)	0.00*** (0.000)	0.00*** (0.000)	0.00*** (0.000)
GB SD	0.70*** (0.120)	0.70*** (0.119)	0.58*** (0.125)	0.39*** (0.093)	0.39*** (0.093)	0.40*** (0.094)	0.45*** (0.094)	0.46*** (0.094)	0.45*** (0.092)
C IAB	2.51*** (0.254)	2.50*** (0.253)	2.46*** (0.269)	1.76*** (0.341)	1.73*** (0.340)	1.73*** (0.342)	1.94*** (0.315)	1.91*** (0.315)	1.89*** (0.318)
Constant	24.6*** (1.784)	24.6*** (1.780)	24.5*** (1.889)	37.6*** (3.980)	37.8*** (3.978)	37.3*** (3.996)	26.6*** (2.331)	26.4*** (2.316)	27.3*** (2.480)
Observations	228	228	228	228	228	228	228	228	228
R-squared	0.939	0.939	0.932	0.875	0.874	0.873			
Number of country ID				26	26	26	26	26	26
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Source: (author's own contribution); Standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## The Influence of Respondents' Residence on their Perception of Sustainable Tourism Issues

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### Abstract

*In the dynamic field of sustainable tourism, numerous factors play a crucial role in shaping public perception and behavior. This study aims to delve into a nuanced aspect of this subject - the impact of respondents' place of residence on their perception of sustainable tourism, with a specific focus on accommodation facilities.*

*The primary objective of this research is to gain insight into how the domicile of respondents influences their perception of various aspects related to sustainable tourism. To achieve this, the study has set specific objectives to assess the availability and awareness of different tourism facilities such as guesthouses, hotels, and restaurants in the immediate vicinity of the respondents.*

*By comparing the responses of participants from different localities, the study aims to examine how respondents' place of residence influences their perceptions.*

**Key words:** accommodation facilities, sustainable tourism, social responsibility, respondents' residence, respondents' perception

**J.E.L. classification:** M10, O18, Q59

### 1. Introduction

In the rapidly evolving realm of sustainable tourism, a myriad of factors contributes to the public's perception and behavior. This study aims to scrutinize a nuanced dimension of this topic – the role of respondents' residence in shaping their perception of sustainable tourism, focusing on critical elements such as accommodation facilities.

At the core of sustainable tourism lies the concept of accommodation facilities, one of the essential services impacting tourists' experience and overall satisfaction (Väisänen et al., 2023).

Establishments that prioritize sustainability in their operations not only contribute to conserving the environment and supporting local economies but also send a compelling message to tourists. However, this message's interpretation and impact may differ depending on the respondents' residence, yielding a rich tapestry of perspectives on sustainable accommodation facilities.

To analyze this diversity, it is crucial to define 'sustainable tourism'. It encompasses not just the preservation of the environment but also takes into consideration the social and economic dimensions of tourism activities (Blasi et al., 2022). By its very nature, tourism is a geographical activity, spanning across different cultural and social contexts. It would be a gross oversight to presume that perceptions about sustainability remain constant across these myriad contexts. Respondents' residence provides an essential clue about the social and cultural milieu influencing their perceptions, thereby offering invaluable insights about promoting sustainable tourism in a culturally sensitive manner.

The concept of social responsibility, while a relatively new addition to the tourism discourse, has been swiftly gaining prominence. It emphasizes the role of individual and institutional actions in fostering a sustainable tourism ecosystem (Braşoveanu, 2016). However, the interpretation of social responsibility, like most aspects of sustainable tourism, is not culturally neutral.

The role of respondents' residence becomes crucial in understanding the varying interpretations of social responsibility and their subsequent impacts on tourism behavior. Moreover, the dynamic, transformative power of unprecedented global events like pandemics further reshapes these perceptions and behaviors related to sustainable tourism (Miloş, 2022). The COVID-19 pandemic, for instance, has brought a paradigm shift, altering the way individuals view travel and tourism.

As a result, the role of respondents' residence in shaping the perception of sustainable tourism has become even more critical.

To conclude, this study emphasizes the importance of respondents' residence in shaping their perception of sustainable tourism. The variables of interest, namely accommodation facilities, are observed through the lens of this geographical and cultural variable. It is an attempt to go beyond the surface and understand the myriad perceptions related to sustainable tourism in a culturally sensitive and nuanced manner. Future research should continue to delve deeper into these aspects, with a keen eye on evolving global circumstances that further transform these perceptions.

## 2. Literature review

Sustainable tourism has received significant scholarly attention due to its potential as a remedy for the adverse effects of conventional tourism on the environment and society (Budeanu, 2007). A variety of factors, such as the domicile of respondents, can influence perceptions of sustainable tourism. This review examines the literature on this subject using references from various articles.

Aivaz and Micu (2021) found that the COVID-19 pandemic drastically affected the number of tourists visiting Romania. However, it's not explicit how domicile could affect perception of the impact of such an event.

Similarly, Aivaz, Stan and Ionişiu (2021) looked at coastal tourism in Romania without addressing the question of respondents' domicile and its influence on perceptions of sustainable tourism. While domicile isn't the main focus in Aivaz and Vancea's (2009) study, they highlighted the efficiency of Black Sea tourism companies and indirectly suggested the potential role that stakeholders' location might have on views regarding sustainable tourism. As a majority of these companies are local, their perceptions could be influenced by their unique geographical and cultural experiences.

Budeanu (2007) stressed the need for change in tourist behavior to ensure sustainable tourism. Although domicile was not directly discussed, one can infer that a respondent's residence could influence their behavior and perception towards sustainable tourism, given that local customs and environmental norms often reflect geographical variations.

Carballo and León (2018) proposed an interesting perspective on how artificially recreated nature influences tourism destination images. This research underscores the role of cultural nuances in sustainable tourism, pointing out that residence-related cultural values could shape sustainable tourism perceptions.

The relationship between domicile and sustainable tourism is further underlined by Chandra, Aditya and Nimit (2022) study. They suggested that a transformation in tourist accommodation could influence sustainability and competitiveness in the hospitality industry. The authors, however, didn't explicitly relate the influence of domicile to this transformation.

Hutárová et al. (2021) looked at tourism development options in marginal and less-favored regions, indirectly suggesting that residents from such areas may perceive sustainable tourism differently.

Studies such as that by Kurt Konakoglu et al. (2019) evaluated the sustainable development of tourism in selected cities in Turkey, Poland, and Macau, respectively. Although the influence of domicile wasn't explicitly analyzed, it's suggested that perceptions of sustainable tourism are inherently influenced by an individual's locale and experiences within it. Ghoochani et al. (2020) proposed a composite index for sustainable tourism development performance in wetland areas, indirectly inferring the influence of residence on perceptions of sustainable tourism.

Perceptions of sustainable tourism can be strongly influenced by a multitude of factors, and the respondents' domicile is no exception. In analysing perceptions of sustainable tourism, the geographical location of participants can have a significant impact on their understanding and appreciation of environmental, social and economic issues (Hübel (Anghel), Stan, Taseşte, 2023a; 2023b; 2023c).

Aivaz, K.A. and Căpățână, A. (2021) noted in their study of HORECA companies in Constanta County that location may play a role in how these organizations perceive and respond to shocks such as the COVID-19 pandemic. This suggests that location and local circumstances can influence perspectives on sustainable tourism, even in the business sector.

The same argument can be extrapolated to perceptions of sustainable tourism. Munteanu and Aivaz (2017) analysed factor correspondences in tourism services offered to the Romanian population, demonstrating how different factors, including location, can influence interactions with tourism. Similarly, research by Aivaz, K.A., Stan, M.I., Ionitiu, I., (2021) showed that location can have a significant impact on perceptions of underwater tourism and environmental protection, two key components of sustainable tourism.

Also, Stan M.I., Aivaz K.A., Vintilă D.F., Ionițu I. (2021) examined stakeholder perceptions of the environmental impact of coastal tourism in Romania's Black Sea littoral zone, highlighting how location and local experience can influence attitudes towards sustainable tourism. Respondents' residence may significantly influence their perception of sustainable tourism issues.

Aivaz's (2018a) study, which delineated the tourism profile of EU countries in terms of length of stay using the factor correspondence analysis method, can provide a basis for understanding how domicile influences perceptions. If a respondent's country of residence shows a tendency for longer stays, they may perceive sustainable tourism issues differently compared to someone from a country with shorter stays. For those who stay longer in a tourist location, sustainability issues may become more obvious or relevant. Aivaz (2018b) also conducted a study on the distribution of the number of domestic trips made to EU countries in terms of length of stay.

The results of this study may show differences in perceptions of sustainable tourism depending on the country of residence. For example, respondents who travel frequently to their home country might be more aware of sustainable tourism issues.

The study by Stanciu, Condrea and Racocanu (2013) on aspects of the implementation of quality management systems in the hospitality industry in the context of sustainable development can provide a concrete example of how sustainability standards are perceived and applied. Indeed, food safety is an important aspect of sustainable tourism and therefore perceptions of these practices may be influenced by the respondent's domicile.

Thus, respondents' domicile may play a key role in how they understand and value different aspects of sustainable tourism, including length of stay, number of domestic trips and food safety. Understanding these dynamics can help develop more effective and sustainable tourism strategies.

In conclusion, the literature implicitly suggests that an individual's domicile could shape their perception of sustainable tourism. However, there is a notable dearth of research explicitly investigating this relationship. As sustainable tourism continues to grow as a field, so should research into the myriad factors influencing its perception, including the significant role domicile appears to play.

### **3. Research methodology**

The general objective of this research is to understand how the domicile of respondents influences their perception of aspects related to sustainable tourism.

The Specific Objectives is to gauge the availability and awareness of various tourism facilities (guesthouses, hotels and restaurants) in the immediate vicinity of the respondents.

The research will primarily rely on a questionnaire as the main tool for gathering data.

The survey included questions on the existence and number of various tourism facilities in the respondents' locality or immediate vicinity. The response options, to specifying of such facilities, were as follows: "I don't know", "None exist", "Yes, but I don't know how many", "Yes, there is one", "Yes, there are two", "Yes, there are three" and "Yes, there are more than three".

The collected data, from 187 respondents, will then be analyzed using Chi-Square test and Likelihood Ratio to fulfill the research objectives. The influence of respondents' domicile on their perceptions will be studied by comparing the responses of participants from different localities.

#### 4. Findings

The table 1 presents data from a survey conducted across various localities asking respondents about the presence of tourist guesthouses in or near their localities. Here is an interpretation of the results:

- In the locality of Casimcea, 32.14% of respondents said they did not know whether there were any tourist guesthouses, while another 32.14% stated that none exist. 14.29% affirmed the presence of guesthouses but were unsure about the number, and so on.

- Most respondents either did not know whether tourist guesthouses exist in their localities (26.20%) or stated that none exist (30.48%). Some confirmed the presence of guesthouses but were unsure about the quantity (25.13%). Fewer respondents could specify the number of guesthouses, with 5.35% saying there is one, 2.14% confirming two, 1.07% indicating three, and 9.63% stating there are more than three.

- From the data, it can be inferred that awareness about the presence and number of tourist guesthouses is quite varied among respondents, possibly due to factors like the actual presence of guesthouses, the respondents' level of engagement with local tourism, and the effectiveness of communication about local tourist amenities. It is notable that in some localities like Seimeni, a significant percentage of respondents (36.36%) confirmed the presence of one guesthouse, suggesting a stronger awareness or a dominant guesthouse in these areas.

- These survey results regarding the presence of tourist guesthouses in various localities may be influenced by several factors:

- Lack of Awareness or Knowledge: The respondents who said "I don't know" may not be aware of the presence of tourist guesthouses in their locality. This could be due to the lack of proper communication or marketing about these establishments in the area, or the respondents themselves may not be engaged with the local tourism sector.

- Absence of Tourist Guesthouses: Many respondents indicated that tourist guesthouses do not exist in their localities. This could be because these areas may not be popular tourist destinations or might lack the infrastructure or attractions that would support such businesses. Uncertainty about the Quantity: Several respondents confirmed the presence of guesthouses but were unsure about the number. This could be due to the respondents not keeping track of the number of guesthouses in their locality, particularly if new ones open frequently or if they don't make use of these facilities themselves.

- Differences in Local Tourism Development: The survey results varied across different localities. For example, in Seimeni, a significant portion of respondents confirmed the presence of one guesthouse, while in Horia, most respondents stated that none exist. These differences could be due to variations in the level of tourism development and activity across these localities.

- Presence of Dominant Guesthouse(s): In some localities where a significant percentage of respondents were able to confirm the presence of one or more guesthouses, this could suggest that there are one or more dominant or well-known guesthouses in those areas.

- Lower Rates of Direct Engagement: The relatively lower percentages of respondents confirming the existence of two or three guesthouses might suggest lower rates of direct engagement with the local tourism industry among the respondents.

To gain a clearer understanding of these results, it might be helpful to obtain more information about the demographics of the respondents, the level of tourism activity and development in each locality, and the communication and marketing efforts of local tourist guesthouses.

Table no. 1 Are there any guesthouses in your locality or in the immediate vicinity?

Localities	I don't know	None exist	Yes, but I don't know how many	Yes, there is one	Yes, there are two	Yes, there are three	Yes, there are more than three	Total
Casimcea	32.14%	32.14%	14.29%	7.14%	3.57%	3.57%	7.14%	100.00%
Ciocârlia	33.33%	25.00%	33.33%		8.33%			100.00%
Crucea	36.36%	54.55%	9.09%					100.00%
Horia		83.33%	16.67%					100.00%

Negru Vodă	40.00%	20.00%	33.33%				6.67%	100.00%
Peștera	23.08%	15.38%	53.85%				7.69%	100.00%
Rasova	37.50%	37.50%	12.50%				12.50%	100.00%
Saligny	60.00%	30.00%	10.00%					100.00%
Saraiu	14.29%	42.86%	42.86%					100.00%
Seimeni	18.18%	18.18%	27.27%	36.36%				100.00%
Tortoman	40.00%	30.00%	20.00%	10.00%				100.00%
Other locality than above	12.50%	26.79%	26.79%	5.36%	3.57%	1.79%	23.21%	100.00%
Total	26.20%	30.48%	25.13%	5.35%	2.14%	1.07%	9.63%	100.00%

Source: Authors' work

In table 2 we have the value of the Pearson Chi-Square statistic (84.777), with 66 degrees of freedom (df). The associated p-value (Asymptotic Significance) is 0.060. Since this value is greater than the typical alpha level of 0.05, we fail to reject the null hypothesis, suggesting that we do not have enough evidence to say that there is a significant association between the two variables in question. The Likelihood Ratio is another statistic for testing the independence of the two variables. In this case, the value is 81.518 with 66 degrees of freedom, and the associated p-value is 0.094. This also suggests a lack of statistical evidence to reject the null hypothesis of independence. In summary, these statistics suggest that there is no significant association between the two categorical variables in question (according to the Pearson Chi-Square and Likelihood Ratio tests), but there is a significant linear trend in the data.

Table no. 2 Pearson Chi-Square and Likelihood Ratio for guesthouses

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	84,777 <sup>a</sup>	66	0.060
Likelihood Ratio	81.518	66	0.094
Linear-by-Linear Association	10.318	1	0.001
N of Valid Cases	187		

Source: Authors' work

Table 3 presents data collected from a survey asking respondents whether there are hotels in or near their localities. In Casimcea, 25% of respondents said they did not know whether there were any hotels, while 50% stated that none exist. 10.71% confirmed the existence of hotels but were unsure about the number, and 14.29% affirmed there were more than three hotels. In the aggregate data from all localities (last row), most respondents either did not know whether hotels existed in their localities (18.18%) or stated that none exist (44.92%). Some confirmed the presence of hotels but were uncertain about the number (15.51%), while smaller percentages could specify the number of hotels, with 6.42% saying there is one, 1.07% confirming two, 1.07% indicating three, and 12.83% stating there are more than three.

Table no. 3 Are there any hotels in your locality or in the immediate vicinity?

Localities	I don't know	None exist	Yes, but I don't know how many	Yes, there is one	Yes, there are two	Yes, there are three	Yes, there are more than three	Total
Casimcea	25.00%	50.00%	10.71%				14.29%	100.00%
Ciocârlia	16.67%	58.33%	25.00%					100.00%
Crucea	27.27%	54.55%	9.09%	9.09%				100.00%
Horia		100.00%						100.00%
Negru Vodă	53.33%	33.33%	13.33%					100.00%
Peștera	38.46%	46.15%	15.38%					100.00%
Rasova	12.50%	87.50%						100.00%
Saligny	40.00%	50.00%	10.00%					100.00%
Saraiu	14.29%	85.71%						100.00%



Seimeni	9.09%	18.18%	45.45%	27.27%				100.00%
Tortoman	20.00%	70.00%	10.00%					100.00%
Other locality than above		23.21%	19.64%	14.29%	3.57%	3.57%	35.71%	100.00%
Total	18.18%	44.92%	15.51%	6.42%	1.07%	1.07%	12.83%	100.00%

Source: Authors' work

The responses indicate a varied level of awareness about the presence and number of hotels among respondents, which could be influenced by the actual existence of hotels, the respondents' involvement with local tourism, or the level of communication about local tourism facilities. Of note, in certain localities like Seimeni, a substantial percentage of respondents (45.45%) confirmed the presence of hotels but did not specify the number, and 27.27% stated there is one hotel. This could suggest a higher level of engagement with or awareness of the local hotel industry in these areas. Conversely, in Horia, all respondents indicated that no hotels exist, possibly implying a lack of tourism infrastructure or activity in this locality.

A significant percentage of respondents indicated "I don't know" in their responses. This could suggest that there's a gap in communication or information about the presence of hotels in these localities. It could also mean that these respondents may not be closely involved with or attentive to the local tourism industry. In many localities, a substantial percentage of respondents stated that no hotels exist. This could reflect the actual absence of such facilities, perhaps because these areas are not popular tourist destinations, or they might lack the necessary infrastructure, attractions, or investment to support hotels. In several localities, a noteworthy portion of respondents confirmed the existence of hotels but were unsure about the number. This may reflect a lack of engagement or familiarity with the local hotel industry. It could also suggest that the number of hotels in these areas may fluctuate, or that some establishments may not be widely known or recognized as hotels. There is a considerable variation in the survey responses across different localities. For example, Seimeni had a high percentage of respondents confirming the existence of hotels (either without specifying the number or stating there's one), while all respondents in Horia indicated that no hotels exist. These differences could be related to factors such as the level of tourism development, the prevalence and visibility of hotels, and the degree of community engagement with tourism in each locality. In localities where respondents were able to specify the number of hotels, this might suggest the presence of one or more prominent hotels that are well-known among residents. In the "other localities" category, a relatively high percentage of respondents indicated that there are more than three hotels. This could reflect a greater prevalence of hotels in these areas, or it could potentially indicate an overestimation by respondents, particularly if these localities include larger towns or cities where hotels are more likely to be numerous and visible.

To obtain a clearer understanding of these results, further investigation might be helpful, such as gathering more detailed data on the number and visibility of hotels in each locality, the level of tourism activity, and the extent of residents' engagement with local tourism.

Table no. 4 Pearson Chi-Square and Likelihood Ratio for hotels

	Value	df	Asymptotic Significance (2-sided)
Person Chi-Square	126.770 <sup>a</sup>	66	0.000
Likelihood Ratio	141.612	66	0.000
Linear-by-Linear Association	32.363	1	0.000
N of Valid Cases	187		

Source: Authors' work

The Pearson Chi-square value of 126.770 from table 4, with a df (degrees of freedom) of 66 and a two-sided asymptotic significance (p-value) of 0.000 indicates that there is a statistically significant association between the two categorical variables being tested (respondents' residence and visibility of hotels). The p-value of less than 0.05 (often the threshold for statistical significance) suggests that we can reject the null hypothesis that the two variables are independent. The Likelihood Ratio test result is similar to the Pearson Chi-square test. It also suggests a significant relationship between the two variables (with a Chi-square value of 141.612 and a p-value of 0.000). Linear-by-Linear

Association is used to determine if there is a linear trend in the data. A significant result ( $p=0.000$ ) indicates that there is a significant linear relationship between the variables.

In conclusion, all of these tests provide strong evidence to reject the null hypothesis of independence, suggesting that there is a significant association between the two categorical variables (respondents residence and visibility of hotels).

The conclusions from table 5, which represent the respondents' answers to the question of whether there are restaurants in their locality or in the immediate vicinity, are as follows:

- In general, a significant number of respondents (33.69%) confirmed that there are restaurants in their locality or in the immediate vicinity, but they do not know how many.
- There appears to be a lack of knowledge or uncertainty regarding the existence of restaurants in some localities, as a relatively high percentage of respondents (16.04%) indicated that they do not know if there are restaurants in their locality or nearby.
- The locality of Peștera stands out as having the highest percentage of respondents (69.23%) who confirmed the existence of restaurants but do not know how many.
- Horia and Saraiu stand out in that most respondents confirm the existence of restaurants and also know how many there are.
- There is a significant percentage of respondents (18.72%) from "another locality than the ones above" who indicated that there are more than three restaurants in their locality or nearby.
- Compared to other localities, Rasova and Saligny have the highest percentage of respondents who do not know whether there are restaurants in their locality or nearby.

There is considerable variation in the existence of restaurants across different localities, suggesting that access to restaurants may be influenced by geographical, economic, or cultural factors. These conclusions suggest that while the existence of restaurants is confirmed in many localities, the level of knowledge and awareness of the exact number of restaurants can vary significantly.

Table no. 5 Are there any restaurants in your locality or in the immediate vicinity?

Localities:	I don't know	None exist	Yes, but I don't know how many	Yes, there is one	Yes, there are two	Yes, there are three	Yes, there are more than three	Total
Casimcea	17.86%	10.71%	17.86%	14.29%	14.29%		25.00%	100.00%
Ciocârlia	16.67%	16.67%	58.33%				8.33%	100.00%
Crucea	45.45%	18.18%	18.18%	18.18%				100.00%
Horia		66.67%	16.67%	16.67%				100.00%
Negru Vodă	26.67%	13.33%	46.67%			6.67%	6.67%	100.00%
Peștera	15.38%		69.23%			7.69%	7.69%	100.00%
Rasova	25.00%	37.50%	12.50%	25.00%				100.00%
Saligny	50.00%	20.00%	20.00%			10.00%		100.00%
Saraiu		28.57%	71.43%					100.00%
Seimeni	9.09%	9.09%	54.55%	27.27%				100.00%
Tortoman	30.00%	30.00%	30.00%	10.00%				100.00%
Other locality than above	1.79%	10.71%	26.79%	7.14%	3.57%	5.36%	44.64%	100.00%
Total	16.04%	16.04%	33.69%	9.09%	3.21%	3.21%	18.72%	100.00%

Source: Authors' work

The Pearson chi-square value is 130.946 (table 6). The degrees of freedom (df), which is calculated based on the number of categories in each variable, is 66. The asymptotic significance (2-sided p-value) is less than 0.001, indicating that the results are statistically significant at the 0.05 level. Therefore, there is a statistically significant association between the localities and the presence of restaurants. The likelihood ratio chi-square is another measure used to determine the significance of the association. In this case, its value is 137.988. The corresponding p-value is also less than 0.001, again indicating a significant association between the localities and the presence of restaurants.

The linear-by-linear association value is 10.632, and the corresponding p-value is 0.001. This suggests a significant linear trend in the data.

*Table no. 6 Pearson Chi-Square and Likelihood Ratio for restaurants*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	130,946 <sup>a</sup>	66	0.000
Likelihood Ratio	137.988	66	0.000
Linear-by-Linear Association	10.632	1	0.001
N of Valid Cases	187		

*Source:* Authors' work

So, based on these statistics, we can conclude that there is a significant relationship between the locality and the existence of restaurants. In other words, the probability of having (or not having) restaurants in a locality is not the same across all localities.

## 5. Conclusions

In conclusion, this study has shed light on the influence of respondents' place of residence on their perception of sustainable tourism, with a specific emphasis on accommodation facilities. By examining the availability and awareness of tourism facilities in the immediate vicinity of the participants, the research has provided valuable insights into how respondents' domicile affects their perceptions.

The findings indicate that the place of residence does indeed play a significant role in shaping individuals' attitudes towards sustainable tourism. The varying characteristics and preferences of different regions contribute to distinct perceptions and behaviors related to sustainable tourism practices. This knowledge can be instrumental in developing targeted strategies to promote sustainable tourism in specific localities. Tourism authorities and stakeholders can utilize the insights from this study to tailor their initiatives and campaigns to the needs and expectations of local communities and visitors. By understanding the specific influences of respondents' place of residence, it becomes possible to design and implement sustainable tourism practices that align with the cultural, environmental, and social dynamics of each region. Furthermore, the research underscores the importance of raising awareness and providing information about sustainable tourism facilities in different localities. By enhancing the availability and accessibility of such facilities, individuals are more likely to engage in sustainable tourism practices.

In conclusion, this study contributes to the broader field of sustainable tourism by highlighting the significance of respondents' domicile in shaping their perceptions and behaviors. The knowledge gained from this research can serve as a foundation for fostering sustainable tourism practices that are tailored to specific regions, benefiting both local communities and visitors while preserving the natural and cultural heritage of the destinations (Rus, 2010).

Further research can be conducted to evaluate how the level of education and access to information influence perceptions and behaviors related to sustainable tourism (Rus, 2013). This could provide additional insights into the factors shaping perceptions and contribute to the development of effective awareness and education programs in the field of sustainable tourism. Research could delve further into the specific perceptions and priorities of local communities regarding sustainable tourism. This could involve direct collaboration with local communities and considering their perspectives in the development of policies and strategies for sustainable tourism. Subsequent studies could closely analyze the actual behaviors of tourists and their impact on the environment and local communities. Using behavioral data and monitoring techniques could provide a more concrete perspective on how sustainable tourism can be promoted and implemented in practice. These future research directions could add new information and understanding in the field of sustainable tourism, contributing to the development of more efficient practices and policies in this domain.

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## Age and Perception: Exploring the Influence on Sustainable Tourism

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### Abstract

*We live in an ever-evolving world where technology is making huge strides and humanity is faced with major global challenges such as the Covid-19 pandemic and climate change. In this dynamic world, it becomes essential to understand how different age groups interpret and adapt to everyday life. This is particularly relevant in the sphere of sustainable tourism and social responsibility, where understanding how age influences individuals' perceptions of various aspects of daily life can provide valuable insights.*

*The aim of this analysis is to explore how different age groups perceive key issues such as the quality of their daily lives, how they compare life today with before the Covid-19 pandemic, and how they predict the future. Understanding these perceptions across age groups can help shape policy and practice in areas such as sustainable tourism and social responsibility.*

**Key words:** Daily Life Perception, age, sustainable tourism, social responsibility

**J.E.L. classification:** M10, O18, Q59

### 1. Introduction

In a rapidly changing world, where technology is advancing rapidly and society is facing global challenges such as the Covid-19 pandemic and climate change, it is essential to understand how different generations perceive and relate to everyday life. In particular, in the context of sustainable tourism and social responsibility, it is important to consider how respondents' age influences their perception of a range of issues related to everyday life.

This analysis aims to explore how different age groups rate aspects such as the quality of everyday life, comparisons with pre-Pandemic Covid-19 and predictions about the future. By assessing these issues in the context of sustainable tourism and social responsibility, we will be able to better understand the needs and attitudes of different age groups in terms of how they live their daily lives.

A key issue in this context is the definition of the term 'sustainable tourism'. Sustainable tourism refers to travel and tourism practices that are environmentally friendly, socially and economically responsible. It involves reducing environmental impacts, supporting local communities and promoting sustainable economic development. Social responsibility in tourism also refers to the commitment to act in an ethical way and to have a positive impact on society through tourism activities.

In this study, we will consider four key issues related to everyday life and sustainable tourism and social responsibility, namely: appreciation of everyday life, comparison with the period before the Covid-19 pandemic and predictions for the future.

Starting with appreciation of everyday life, this is a measure of respondents' satisfaction and satisfaction with their everyday experiences. We will explore how different age groups value the quality of their everyday life and to what extent this may be influenced by involvement in sustainable tourism and social responsibility.

Another important aspect is the comparison with the period before the Covid-19 pandemic. The pandemic had a significant impact on people's daily lives, affecting routines, freedoms and financial stability (Braşoveanu, 2016). We will explore how different age groups perceive and compare their daily lives in the context of the pandemic and how this may influence their willingness and involvement in sustainable tourism and social responsibility.

Future prospects and the financial stability of families is another key issue in this analysis. We will investigate how different age groups perceive and expect to live in a year's time, taking into account aspects such as career, financial security and personal development opportunities. We will also examine how these perceptions may affect respondents' interest and involvement in sustainable tourism and social responsibility.

In conclusion, this article examines how respondents' age influences their perceptions of their appreciation of everyday life, comparisons with the pre-Covid-19 pandemic, predictions for the future and the financial stability of families, and sources of food supplies for daily consumption in the context of sustainable tourism and social responsibility. By understanding these issues, we will be able to identify differences and similarities between different age groups and develop more effective strategies tailored to the needs and values of each group to promote sustainable and socially responsible tourism.

## **2. Literature review**

Social responsibility plays a key role in the context of respondents' perceptions of everyday life in sustainable tourism and social responsibility. Social responsibility refers to the commitment of companies and individuals to consider their impact on society and to act ethically and responsibly towards the community in which they operate (Rus, 2013).

In terms of sustainable tourism, social responsibility is essential to ensure that tourism development and promotion are in harmony with the needs and values of local communities. Social responsibility in tourism involves considering the economic, social and cultural impacts of tourism activities and taking the necessary steps to minimise negative impacts and maximise benefits to communities (Rus, 2020).

An important aspect of social responsibility in tourism is promoting the engagement and involvement of local communities in the decision-making processes and economic benefits generated by tourism. This ensures that local communities are key partners in the development and management of tourism destinations and that they are involved in decisions that directly affect them. Social responsibility in tourism also includes promoting respect for and protection of cultural heritage and values of local communities. Responsible companies and tourists must take steps to preserve and protect the cultural heritage of tourist destinations, support authentic cultural practices and avoid exploiting or distorting them for commercial interests (Stanciu et Condrea, 2018).

Another aspect of social responsibility in tourism is the promotion of positive interaction between tourists and local communities (Condrea, Stanciu, Aivaz, 2012). Responsible companies and tourists should respect local customs and traditions, encourage authentic cultural exchanges and avoid behaviours or practices that could negatively affect local communities. Social responsibility in tourism also extends to environmental issues. Responsible companies and tourists should adopt practices and policies that conserve the environment, reduce consumption of natural resources, minimise waste production and protect fragile ecosystems. Choosing more sustainable travel options, such as using public transport or cycling, promoting renewable energy and avoiding activities that have a negative impact on the environment are some examples of measures that can be taken.

By promoting social responsibility in tourism, a sustainable development of the tourism industry can be ensured that is beneficial for all stakeholders. Local communities can benefit from economic and social opportunities, tourists can experience and learn about different cultures in a respectful and authentic way, and the environment can be protected for future generations.

The literature in the field of sustainable tourism and corporate social responsibility has raised various issues, including their impact on quality of life, individual perceptions and expectations for the future.

Firstly, a direct link can be observed between corporate social responsibility (CSR) and sustainable tourism development (Babazadeh et al., 2020; Chiu et al., 2014; Hutnaleontina & Setiawina, 2023; Kasemsap, 2018; Oliveira, 2019). Babazadeh et al. (2020) point out that resident support for tourism development is closely linked to CSR. In addition, Hutnaleontina and Setiawina (2023) argue that community-based tourism plays an important role in destination social responsibility and sustainable tourism development. Thus, CSR proves to be a crucial element for the progress of sustainable tourism, being correlated with firm reputation and performance (González-Rodríguez et al., 2019; Moneva et al., 2020).

However, there is a consensus that responsibility is not limited to corporations. Chilufya et al. (2019) discuss the concept of tourist social responsibility, emphasizing that in addition to organizations, tourists themselves have a significant role in community development. This view is supported by Lee et al. (2021) and Miller et al. (2015), who highlight pro-environmental visitor behaviour as a determinant of sustainable urban tourism. Some new directions within this intersection of CSR and sustainable tourism are also highlighted. Kurnaz, Ön and Yüksel (2022) discuss the digital age in tour guiding and its link to sustainability and focus on travel agents' attitudes towards CSR.

On the other hand, Bagdadi's (2023) study shows how CSR practices are implemented within Accor Hotels, a major company in the hotel industry, highlighting the direct link between CSR and sustainable tourism. Similarly, Ibarnia, Garay, and Guevara (2020) discuss CSR in the tourism supply chain. Related to the impact on daily life and quality of life, Tang et al.'s (2023) study explores the link between internal CSR and customer-oriented behavior of organizations, emphasizing the medium role of job satisfaction and work-family facilitation.

The study on the impact of age on respondents' perceptions of a range of quality of daily life issues, comparisons with the pre-Covid-19 pandemic period, predictions for the future and financial stability of their families, and sources of food for daily consumption in the context of sustainable tourism and social responsibility, brought together research from a variety of sources.

An important research was conducted by Aivaz (2021a, 2021b), which examined the impact of information and communication technologies on education and living standards. In this study, it focused on the case of Constanta County in Romania, assessing the influence of digitisation on society. In another study, Aivaz and Căpăţană (2021) analysed the financial performance of HORECA companies in Constanta County in the context of recovery from the impact of the Covid-19 pandemic.

The research by Hübel (Anghel), Stan and Taseñte (2023a, 2023b, 2023c) examined the role of social responsibility in sustainable local development and analysed how respondents' age influences their perceptions of socio-economic issues. They found that gender plays an important role in shaping perceptions of socio-economic issues in the context of sustainable local development.

Aivaz and Micu (2021) analysed the impact of the Covid-19 pandemic on the number of tourists arriving in Romania. The study identified certain factors contributing to the changes in tourist arrivals. In the context of tourism, Munteanu and Aivaz (2017) used factor correspondences to analyse the tourism services offered to the Romanian population.

Stan, et al (2021a) assessed stakeholder perceptions of the impact of coastal tourism on the environment in the Black Sea coastal area of Romania. In addition, Stan et al (2021b) provided a synergetic perspective on regulations oriented towards the development of Romanian coastal tourism in the context of maritime spatial planning.

As we can see, the reviewed literature provides a solid basis for understanding the impact of age on perceptions of quality of life and other social and economic aspects in the context of sustainable development and social responsibility. However, more research is needed to deepen our understanding of these complex issues.

### **3. Research methodology**

We conducted this research to gain a deeper understanding of participants' perceptions of different aspects of their daily lives, their experiences during the pandemic and their expectations for the future. The aim was to gain a deeper understanding of their overall quality of life and attitudes towards sustainable tourism.



The main purpose of this analysis is to explore how different age groups evaluate aspects such as quality of daily life, comparison with the pre-pandemic period of Covid-19, expectations for the future, financial stability of their families and sources of food supplies needed for daily consumption.

For data collection, we used a structured questionnaire as the main instrument. The questionnaire included questions covering the main areas of interest, providing a range of responses to accurately capture the nuances of participants' perceptions. For many questions, we used Likert scales to allow for more nuanced responses and to examine variations in the intensity of perceptions.

The study population consisted of 216 participants. Their ages were divided into six groups: 16-24 years, 25-34 years, 35-44 years, 45-54 years, 55-65 years, and over 65 years. The age groups with the highest representation were 35-44 and 45-54, while the over 65 group had the lowest representation.

We analysed the questionnaire data using various statistical techniques. For each question, frequency distributions were generated and the Pearson Chi-Square test was used to assess associations between variables. In addition, we calculated the Likelihood Ratio and established a Linear-to-Linear Association to determine correlations between variables.

Results are presented as percentages of responses within each question category, further subdivided by age group. The main findings were discussed in relation to the research objectives, contributing to a comprehensive understanding of participants' perceptions and experiences in the given context.

#### 4. Findings

Table 1 contains the answers to the question "How do you rate your daily life?" according to the different age categories. As can be seen, in all age groups, the majority of respondents consider their daily life either "good" or "neither good nor bad". This suggests that, in general, respondents have a fairly positive or neutral perception of their everyday life. However, it is important to note that perceptions can vary significantly depending on individual circumstances and socio-economic background.

*Table no. 1 How do you value your daily life?*

<b>Your age:</b>	<b>I don't know</b>	<b>Very bad</b>	<b>Bad</b>	<b>No good nor bad</b>	<b>Good</b>	<b>Very good</b>	<b>Total</b>
16 - 24	13.33%		6.67%	6.67%	60.00%	13.33%	100.00%
25 - 34		4.26%	8.51%	34.04%	44.68%	8.51%	100.00%
35 - 44			7.69%	29.23%	52.31%	10.77%	100.00%
45 - 54			3.17%	31.75%	57.14%	7.94%	100.00%
55 - 65		5.26%	5.26%	31.58%	47.37%	10.53%	100.00%
peste 65 ani				100.00%			100.00%
Total	0.93%	1.39%	6.02%	31.94%	50.46%	9.26%	100.00%

*Source:* Authors' work

Younger age groups (16-24 and 25-34) may have a more balanced or positive outlook on their daily lives, possibly due to a natural optimism associated with youth or because they are at the beginning of their careers and adult lives. The 35-54 age groups show a tendency towards valuing everyday life as 'good'. This could be due to the financial, family or professional stability that often comes with this stage of life. As for the 55-65 age group, there are quite large variations. This group could reflect a variety of experiences, including retirement, health changes or other significant life events. This could explain the variation in responses in this group. All respondents over 65 rated their daily life as "neither good nor bad". This could indicate an acceptance or resignation to age, a balance between the joys and challenges of old age, or may reflect a certain apathy or disinterest.

Economic status, access to health and education services, social status and other socio-economic factors can significantly influence how individuals evaluate their daily lives.

Ultimately, these results suggest that perceptions of everyday life can vary significantly depending on an individual's life stage, as well as their individual circumstances and broader context.

Table no. 2 Pearson Chi-Square

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	55,175 <sup>a</sup>	25	0.000
Likelihood Ratio	41.661	25	0.020
Linear-by-Linear Association	0.119	1	0.730
N of Valid Cases	216		

Source: Authors' work

The Person chi-square value, read in Table 2, of 55.175 with 25 degrees of freedom is significant ( $p < 0.001$ ). This suggests that there is a significant difference between the age groups in their appreciation of everyday life. Likelihood Ratio, similar to the Pearson chi-square test, provides a measure of the relationship between categorical variables. The value of 41.661 with 25 degrees of freedom is significant ( $p = 0.02$ ), which also indicates a relationship between age and appreciation of everyday life. Linear-by-Linear Association is used to check for a linear trend in the data. With a p-value of 0.73, it is not significant, suggesting that there is no clear linear trend between age and appreciation of everyday life.

In conclusion, the data indicate a significant difference between age groups in appreciation of everyday life. However, there is no clear linear trend between the two variables. This may suggest that age influences how people value their everyday life, but the relationship is not necessarily one of linear increase or decrease.

Table 3 shows the responses to the question "How do you rate your life compared to before the pandemic?" by different age categories.

Person's chi-square value, shown in Table 2, of 55.175 with 25 degrees of freedom, is significant ( $p < 0.001$ ). This suggests that there is a significant difference between the age groups in their appreciation of daily life. The likelihood ratio, similar to the Pearson chi-square test, provides a measure of the relationship between categorical variables. The value of 41.661 with 25 degrees of freedom is significant ( $p = 0.02$ ), which also indicates a relationship between age and appreciation of daily life. Linear association by line is used to check for a linear trend in the data. With a p-value of 0.73, this is not significant, suggesting that there is no clear linear trend between age and appreciation of daily life.

In conclusion, the data indicate a significant difference between age groups in appreciation of everyday life. However, there is no clear linear trend between the two variables. This may suggest that age influences how people value their everyday life, but the relationship is not necessarily one of linear increase or decrease.

Table 3 shows the responses to the question "How do you value your life compared to before the pandemic?" by different age categories.

Table no. 3 How do you rate your life compared to before the pandemic?

Your age:	I don't know	Worse	About the same	Better	Total
16 - 24		6.67%	86.67%	6.67%	100.00%
25 - 34	2.17%	30.43%	58.70%	8.70%	100.00%
35 - 44	1.56%	21.88%	62.50%	14.06%	100.00%
45 - 54	1.56%	15.63%	70.31%	12.50%	100.00%
55 - 65		15.79%	78.95%	5.26%	100.00%
peste 65 ani		14.29%	71.43%	14.29%	100.00%
Total	1.40%	20.00%	67.44%	11.16%	100.00%

Source: Authors' work

The Pearson Chi-Square in Table 4 has a value of 40.094, with 33 degrees of freedom, has an asymptotic significance (p-value) of 0.185. This suggests that, at the usual significance level of 0.05, there is no significant difference between the age groups in how they value their lives compared to before the pandemic. In other words, we cannot reject the null hypothesis that there is no relationship between the two variables. The Likelihood Ratio of 44.637 with 33 degrees of freedom has an asymptotic significance of 0.085, which means that at a significance level of 0.05, we cannot reject the null hypothesis that there is no relationship between the two variables. With an asymptotic

significance of 0.017, the Linear-by-Linear Association test is significant at a level of 0.05, suggesting that there is a linear trend between age and life expectancy compared to the pre-pandemic period.

*Table no. 4 Pearson Chi-Square test*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	40,094 <sup>a</sup>	33	0.185
Likelihood Ratio	44.637	33	0.085
Linear-by-Linear Association	5.694	1	0.017
N of Valid Cases	215		

*Source:* Authors' work

In conclusion, although there is no significant difference between age groups in how they rate their lives compared to pre-pandemic, there is a linear trend between the two variables. This may suggest that, as age increases, the appreciation of life compared to the pre-pandemic period changes in a predictable manner. Without further information, it is difficult to say what exactly this trend means.

Table 5 shows the responses to the question "How do you think you will live in a year's time?" by different age categories. Overall, the majority of respondents (44.86%) expect their lives to be about the same in one year. However, there is a significant proportion who expect their life to be worse (18.22%) or better (22.43%).

These results can be explained by several factors. For example, young people (aged 16-24) may be uncertain or pessimistic about their future due to the impact of pandemic restrictions on education and job opportunities.

*Table no. 5 How do you think you will live in a year's time?*

Your age:	I don't know	Worse	About the same	Better	Total
16 - 24		6.67%	46.67%	46.67%	100.00%
25 - 34	8.70%	26.09%	43.48%	21.74%	100.00%
35 - 44	14.06%	15.63%	45.31%	25.00%	100.00%
45 - 54	19.05%	15.87%	41.27%	23.81%	100.00%
55 - 65	15.79%	26.32%	57.89%		100.00%
peste 65 ani	42.86%	14.29%	42.86%		100.00%
Total	14.49%	18.22%	44.86%	22.43%	100.00%

*Source:* Authors' work

Also, those over 65 may be more pessimistic or uncertain about the future because of age-related health problems or the impact of the pandemic on their health and well-being. However, these are just speculations and further research would be needed to truly understand the reasons behind these results.

*Table no. 6 Person Chi-Square*

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	22,845 <sup>a</sup>	15	0.087
Likelihood Ratio	28.700	15	0.018
Linear-by-Linear Association	9.993	1	0.002
N of Valid Cases	214		

*Source:* Authors' work

• The results in Table 6 represent statistics associated with a chi-square test and associated tests used to examine the relationship between age and expectations of living one year from now. Here is what these statistics tell us:

- Pearson Chi-Square: This value of 22.845, with 15 degrees of freedom, has an asymptotic significance (p-value) of 0.087. This suggests that, at the usual significance level of 0.05, we cannot reject the null hypothesis that there is no significant difference between age groups in their expectations for the future. In other words, there is not enough evidence to say that there is a significant relationship between age and expectations of life one year from now.

- Likelihood Ratio: This test provides a measure of the relationship between categorical variables. The value of 28.700 with 15 degrees of freedom has an asymptotic significance of 0.018, meaning that at a significance level of 0.05, there is sufficient evidence to reject the null hypothesis that there is no relationship between the two variables. This suggests that there is a significant relationship between age and expectations of life in one year.

- Linear-by-Linear Association: This test examines whether there is a linear trend in the data. With an asymptotic significance of 0.002, this test is significant at the 0.05 level, suggesting that there is a significant linear trend between age and expectations of life in one year.

In conclusion, although the Pearson Chi-Square test did not find a significant relationship between age and expectations of life in one year, both the Likelihood Ratio and Linear-by-Linear Association tests suggest that there is a significant trend. This could indicate that perceptions of the future are influenced by age, with a trend that could be explored further in future research.

## 5. Conclusions

The results of our study show that dynamic society and contemporary global challenges such as climate change and the Covid-19 pandemic, together with rapid technological progress, are having a significant impact on how different age groups perceive and adapt to everyday life. This perspective is crucial, particularly in the context of sustainable tourism and social responsibility, where the interactions between age and perception of everyday life are particularly relevant.

From our analysis, significant diversity in perceptions of everyday life between age groups emerged. Although the majority of respondents consider their lives to be similar to their pre-pandemic lives, a considerable proportion see their daily lives as worse. This suggests that the impact of the pandemic on daily life has varied significantly by age, with the young and older likely to have the most negative perceptions.

On the other hand, in terms of expectations for the future, most respondents expect their lives to be about the same in a year's time. However, there are significant differences in the responses given by different age groups, with younger and older people being less optimistic or more uncertain.

These results suggest that age plays an important role in influencing attitudes and perceptions towards everyday life and expectations for the future. However, this relationship is not straightforward and could be influenced by a number of different factors, such as health status, economic situation, social support network and other aspects of an individual's life.

In conclusion, understanding how age influences individual perceptions and expectations can contribute to the development of more effective strategies for social responsibility and sustainable tourism. These strategies should take into account the diversity of needs and expectations according to age, in order to provide tailored solutions that have sustainable benefits for all stakeholders.

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## Romania's Tourism Market. Trends and Influencing Factors

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### Abstract

*The tourism market is the economic space in which all transactions in the form of tourism consumption and production take place.*

*Although competition is the main instrument that defines a free market economy, nevertheless in the tourism market it is necessary for the state to intervene by establishing certain regulations concerning the provision of tourism services by hoteliers and tourism intermediaries in order to ensure the protection of tourists as consumers of tourism services.*

*The tourist market is a complex and dynamic market, which is constantly subject to both endogenous and exogenous factors, such as economic, political, social, legislative, psychological, natural, geographical, military and health factors.*

*In Romania, the tourism market has shown trends of decline, stagnation or growth under the influence of factors specific to the Romanian economy, the aim of this paper being to highlight these aspects.*

**Key words:** tourism market, tourism demand, tourism supply

**J.E.L. classification:** L80, L83

### 1. Introduction

Touristic demand and supply are essential in defining the tourism market. Tourism demand is primordial for tourism service providers, and for tourism consumption to take place it implies a movement of tourists from their area of residence to a tourist destination.

### 2. Theoretical background

The tourism market can be defined as "the economic sphere of interference, in which the tourism product appears in the form of tourism supply and tourism consumption needs in the form of tourism demand" (Snak *et al*, 2001, p.148). We note that the tourism market has the two component elements that define any market, namely tourism supply and tourism demand. Of course, in a market economy, tourism demand is the essential element and therefore tourism service providers must bear in mind that the tourist is the carrier of tourism demand and must constantly adapt their offer to his needs.

Tourist demand is formed at the tourist's place of residence, and tourist consumption takes place within the tourist supply basin (Cristureanu, C., 1992, p. 106). In other words, the tourist has to travel to a tourist destination in order to benefit from the elements that constitute the tourist supply, namely: tourist resources and attractions, tourist infrastructure, tourist services and facilities offered by tourist service providers. Therefore, in satisfying tourism demand, tourism service providers must bear in mind that tourism demand is characterized by a high degree of elasticity, while supply is rigid and closely linked to the natural and artificial tourism resources around which tourism supply has developed.

In this context, the tourist offer includes all the elements that contribute to the tourist product, namely: the natural and anthropic potential, the labour force, the technical-material base of tourism and the marketing conditions (Cosmescu, I., 1998, p.115). The material base of tourism is an essential component of the tourism product, but tourist movement is also strongly influenced by the general technical and social infrastructure of a tourist destination (Snak *et al*, 2001, p.197). In other words,

the general infrastructure of a country is a determining factor for the manifestation of tourism demand, especially in the case of international tourism, but also in the mobility of domestic tourism.

In conclusion, the tourism market has a complex and fragmented character, thus generating a multitude of forms of tourism, but it also has an opaque character because there are many uncertainties generated by the cumbersome circulation of information and that tourism services are immaterial and invisible activities (Minciu, R., 2001, p.132-133). As such, in practice, it is difficult to achieve a balance between tourism supply and demand, especially as the tourism market is also a more regulated market than the market for material goods.

### 3. Research methodology

The tourist demand, materialized in tourist consumption, and the tourist supply, materialized in tourist production, are shown by the number of tourists and by the use of existing accommodation capacities in Romania.

Therefore, the use of statistical methods of data analysis reflecting these indicators are the main research tools, in order to highlight the quantitative, structural and qualitative influences of the different factors on the tourism market in Romania.

### 4. Findings

The tourist offer is determined by a number of components such as:

- the technical and material base specific to tourism, comprising accommodation establishments and the amenities necessary for the provision of tourist services, food service establishments, leisure and entertainment establishments, and treatment centres
- the labour force specialised in the provision of tourism services, which has a quantitative, qualitative and structural influence on the tourism services included in the tourism offer, thus generating a positive or negative impact on the tourism market.

Therefore, the analysis of accommodation units expressed in terms of existing tourist accommodation capacity in Romania provides important information on the tourist market in Romania.

Thus, according to the data in Table 1, the following trends can be seen concerning the accommodation capacity expressed in number of beds in Romania:

- there is a continuous increase in the number of beds in accommodation establishments in Romania in the period 2015-2022, both in total and for spas and the Danube Delta
- in 2022 compared to 2015, accommodation capacity in Romania increased by 28.5%, indicating a positive development
- even though the tourism market was affected by the Covid 19 pandemic, accommodation capacity in Romania has continuously increased, as shown in Figure 1.

*Table no. 1. Tourist accommodation capacity in Romania, in spas and in the Danube Delta, in 2015-2022*

Year	Total		Spas		The Danube Delta	
	Number of beds	%	Number of beds	%	Number of beds	%
2015	328313	100	35342	10.76	3907	1.19
2019	356562	100	35643	9.99	7205	2.02
2020	358119	100	36554	10.2	7593	2.12
2021	410291	100	36362	8.86	8177	1.99
2022	422114	100	39940	9.46	9532	2.26

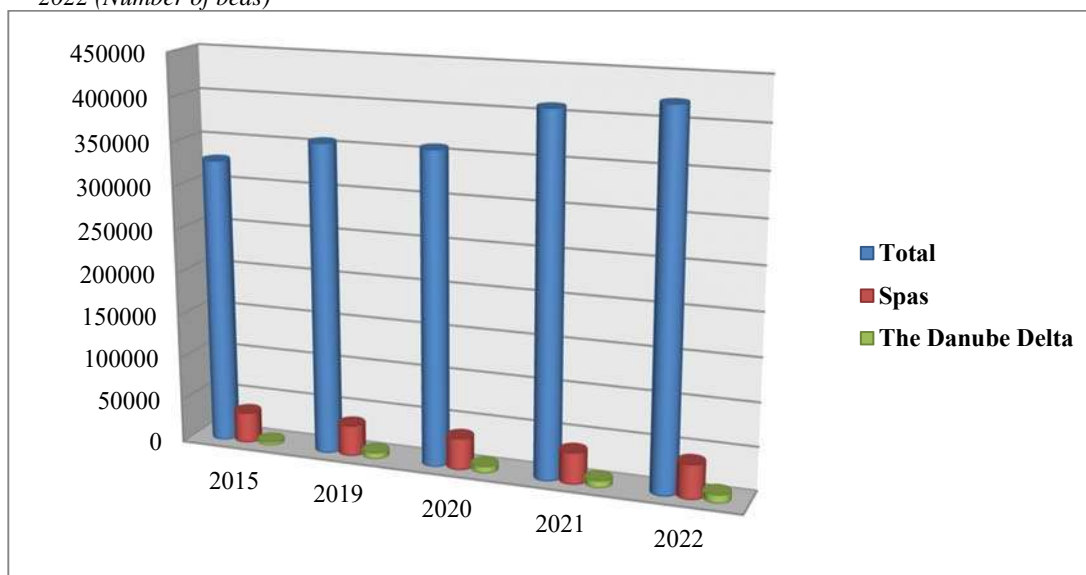
*Sources:* (National Institute of Statistics in Romania, [www.insse.ro](http://www.insse.ro))

Because, the Romanian balneal resorts and the Danube Delta are two tourist segments with a high potential for the Romanian tourist market, the analysis of the data in Table 1 shows the following aspects:



- accommodation capacity in spas expressed in number of beds, although it has increased from 35342 beds in 2015 to 39940 beds, i.e. by 13%, it is noted that the share of the total number of beds is maintained at around 10%, but has seen a decrease of 1.3% (from 10.76% in 2015 to 9.46% in 2022)
- in the case of the Danube Delta, the accommodation capacity expressed in number of beds has increased from 3907 in 2015 to 9532 (2.4 times) which highlights the importance of this segment of the tourist offer
- although this increase has been recorded, the analysis of the data in table number 1 and figure number 1 shows a low percentage of accommodation capacity in the Danube Delta, between 1.19% and 2.26% of the total existing accommodation capacity in Romania.

Figure no. 1. Tourist accommodation capacity in Romania, in spas and in the Danube Delta, in 2015-2022 (Number of beds)



Source: Table no.1, National Institute of Statistics, [www.insse.ro](http://www.insse.ro)

However, in 2022 compared to 2015 there was almost a doubling of accommodation capacity in the Danube Delta, which indicates a positive trend in the tourist offer, from the point of view of the technical-material base with specific tourism.

Table no. 2. Tourist overnight stays in tourist accommodation establishments in Romania, in 2015-2022

Year	Total overnight stays		Of which			
	Number (thousands)	%	Romanian tourists' overnight stays		Foreign tourists' overnight stays	
			Number (thousands)	%	Number (thousands)	%
2015	23519	100	19047	80.9	4471	19.1
2019	30086	100	24795	82.4	5290	17.6
2020	14579	100	13581	93.1	997	6.9
2021	22747	100	20823	91.5	1924	8.5
2022	27044	100	23377	86.4	3666	13.6

Source: (National Institute of Statistics in Romania, [www.insse.ro](http://www.insse.ro))

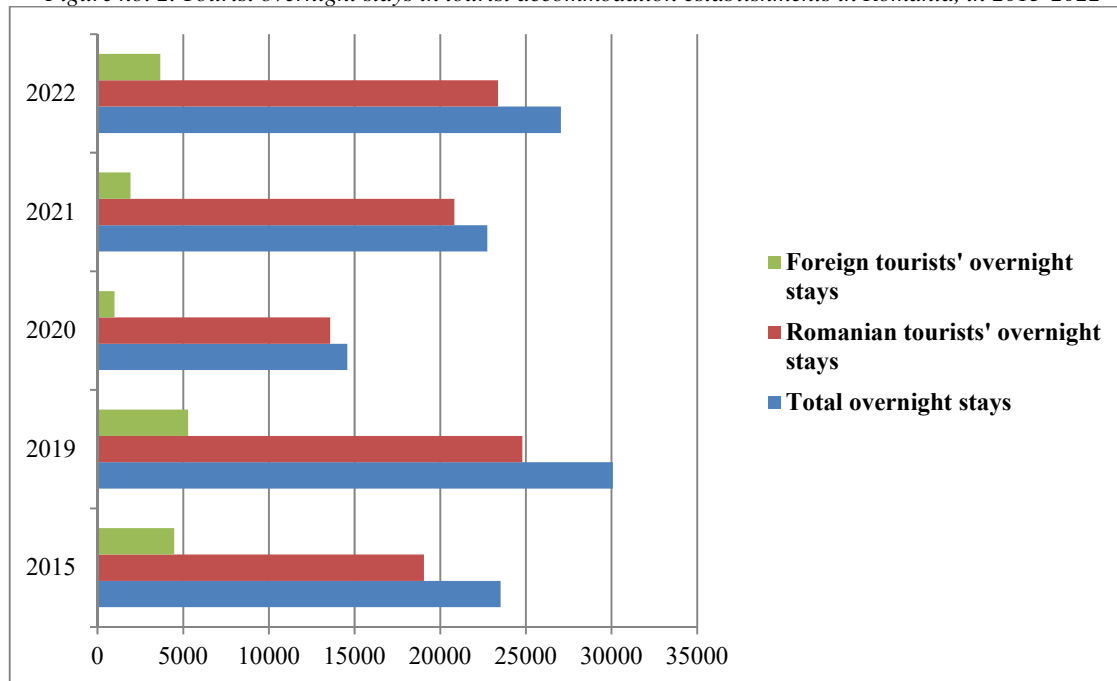
The second component of the tourism market in Romania (tourism demand) is examined in terms of overnight stays both in total and by tourist category.

Thus:

- there is an undulating trend in total overnight stays, as in 2019 compared to 2015 the number of overnight stays increased by 27%, then after 2019 there is a drastic decrease of 52% in 2020 compared to 2019, due to the restrictions generated by COVID

- although an upward trend is observed in 2021 and continued in 2022 (from 14579 in 2020 to 27044 in 2022), this increase is still below the value recorded in 2019, before the start of the COVID pandemic (see also figure number 2)
- the same trend of increase, decrease and then increase can be observed for Romanian tourists, with the addition that in 2020, although the largest decrease in the number of overnight stays was recorded (the value recorded was 13581, the share of overnight stays by Romanian tourists is the highest 93.1%, due to the decrease in the share of overnight stays by foreign tourists in Romania to a minimum of 6.9%, as an effect of the limitation of international movement based on sanitary restrictions
- in 2022 compared to 2015, there was a quantitative increase in the number of overnight stays of Romanian tourists, by 22%, but also in the share of Romanian tourists in total overnight stays (from 80.9% to 86.4%)
- in the case of foreign tourists staying in Romania, there is a decrease in the number of overnight stays from 4471 in 2015 to 3666 in 2022 and a decrease in the share of foreign tourists in total overnight stays in Romania.

Figure no. 2. Tourist overnight stays in tourist accommodation establishments in Romania, in 2015-2022



Source: Table no.2, National Institute of Statistics, [www.insse.ro](http://www.insse.ro)

These trends in tourism supply and demand, as an actual expression of the tourism market in Romania, have been influenced by certain factors, such as:

- the sanitary crisis generated by the Covid pandemic
- the decrease in revenue due to the economic instability generated by Covid and the military conflict in Ukraine, which led to a decrease in tourism demand and disrupted the tourism supply
- shortage of skilled labour in the tourism sector
- the inadequacy of road and motorway networks to generate comfort, operability and safety in tourism consumption in Romania
- the high prices of tourist services and their disproportion to the quality of services provided on the Romanian tourist market
- ineffective controls by the Ministry of Tourism to prevent the negative effects of tourism intermediaries and some direct providers of tourism services, which have a negative impact on the Romanian tourism market
- competition from foreign tourism markets

## 5. Conclusions

Tourism market in Romania is constantly changing under the influence of highly complex factors, factors that cause changes in the behavior of consumers of tourism services, but also among the providers of tourism services.

All this leads to an underutilisation of tourist accommodation capacities and an insufficient tourist demand for the different forms of tourism existing on the Romanian tourist market.

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## Importance and Impact of Tourist Resources and Attractions on Tourist Destinations

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### Abstract

*A destination generates tourism flows and monetary flows if there are resources and attractions that can be exploited for tourism. Tourism potential plays a determining role in the development of a tourist destination and the forms of tourism that occur in that destination.*

*Tourism resources and attractions determine the emergence of the technical and material basis for tourism, the emergence and development of tourist services and facilities needed to exploit these tourism resources. The image of a tourist destination plays an important role in attracting tourists and in generating tourist demand.*

*In Romania, the analysis of tourist resources and attractions provides important information on tourist and monetary flows, the number of tourists and the forms of tourism practiced by exploiting these resources and tourist attractions. Therefore, this paper aims to highlight the importance of tourism resources and attractions for Romania as a tourist destination.*

**Key words:** tourist resources, tourist attractions, tourist destinations

**J.E.L. classification:** L80, L83

### 1. Introduction

Whatever form tourism resources and attractions take, they play a determining role for a tourist destination. Tourist motivation is what makes tourists travel from their place of residence to consume the tourist resources and attractions of a tourist destination. However, it should be borne in mind that in reality tourist services and facilities are consumed as a result of the introduction into the tourist circuit of these resources which have become tourist attractions.

### 2. Theoretical background

In order to define a tourist destination, the notions of tourist resources and attractions must first be addressed. The term tourist resource includes, in addition to the tourist attractions that can be visited, the natural and man-made elements that can be directly exploited in tourist activity (Neacsu *et al*, 2011, p.21). In *Lexicon of Tourism Terms*, tourism resources are "the set of natural and man-made elements that can be exploited in tourism activity, but also include other categories of resources, such as economic activity, labour and capital, which are the basis for tourism activity" (Stanciulescu *et al*, 2002, p.154-155).

Attractions are natural locations, objects, or constructed facilities that have a special appeal to both tourists and local visitors (Cook *et al*, 2010, p.207). A tourist attraction is a natural or man-made element that attracts and incites to travel and that can be arranged for tourists to come and visit it (Stanciulescu *et al*, 2002, p.25).

We note that tourism resources have a wider scope than tourist attractions and that there is a whole to part relationship. At the same time, tourism resources can be seen as a system that is made up of a multitude of elements that constitute tourist attractions and together determine the tourist destination status attributed to a country, area or locality.

Tourism patrimony remains at the stage of tourism potential or natural and man-made tourism resource if it is not exploited through tourism development (Candea *et al*, 2012, p.13). In other words, if investments are not made for the creation of tourist infrastructure and the employment of workforce to provide tourist services, the resources are not exploited from a tourist point of view, they do not constitute tourist attractions and a tourist destination cannot be contoured and developed to generate tourist flows and revenues from the tourist activity in that destination.

Tourism amenity plays a key role in the development of tourist resources and attractions, and the standard unit is the tourist resort. In this sense, a tourist resort is a locality that has a set of attractions and is equipped with tourist accommodation units (Erdeli *et al*, 2006, p.47).

Accordingly, a tourist destination can be "a country, a region within a country, a city, town, village, resort or other area whose economy is dependent on significant growth in tourist receipts" (Neacsu *et al*, 2011, p.25). The tourist offer is concentrated on the world tourist market in certain destinations, called tourist offer basins and located in relation to the specific tourist resources of the respective areas (Glavan, V., 2010, p.121).

### 3. Research methodology

For a tourist destination, tourist resources and attractions are the defining elements. Therefore, the analysis of different concepts related to these notions, together with the analysis and interpretation of statistical data on Romania as a tourist destination, are the main research tools related to this issue.

### 4. Findings

From the point of view of resources and tourist attractions Romania is one of the countries with a high potential, which can generate important tourist flows but also high revenues from tourism.

In order to observe the importance and the role of tourist resources and attractions in the tourist areas of Romania, we observe, in table number 1, the arrivals of Romanian and foreign tourists according to the forms of tourism generated by the exploitation of these tourist resources and attractions, namely: spa tourism, coastal tourism, mountain tourism, ecotourism and rural tourism, cultural and religious tourism, knowledge tourism and itinerant tourism.

Table no. 1 Arrivals in tourist accommodation establishments by tourist areas in Romania in 2022

Tourist areas	Total tourists		Of which			
	Number (thousands)	%	Romanian tourists		Foreign tourists	
			Number (thousands)	%	Number (thousands)	%
All tourist areas	11299.1	100	9718.1	86.0	1581.0	14.0
Spa resorts	1067.4	100	1041.5	97.6	25.9	2.4
Coastal resorts	1106.2	100	1081.1	97.7	25.1	2.3
Mountain resorts	2062.1	100	1971.0	95.6	91.1	4.4
Danube Delta Area	106.8	100	97.2	91.0	9.6	9.0
Bucharest and cities of county residence	5020.0	100	3783.7	75.4	1236.3	24.6
Other localities and tourist routes	1936.4	100	1743.5	90.0	192.9	10.0

Sources: (National Institute of Statistics in Romania, Tourism Statistics Series, 2023, [www.insse.ro](http://www.insse.ro) )

Thus, the following points emerge:

- Table 1 shows that in 2022, 11299.1 thousand tourists arrived in Romania, of which 86% were Romanian tourists and 14% were foreign tourists. This indicates that Romania is a more attractive destination for domestic tourists than for foreign tourists
- in terms of the form of tourism, the first place is held by urban tourism, represented by Bucharest and the cities of county capitals, which holds a share of 44.4% of the total number of tourists who had Romania as a tourist destination. Urban tourism, which also includes cultural and knowledge tourism, is generated by the cultural, historical, architectural and entertainment resources and attractions of these cities. This type of tourism also had the highest share of foreign tourists (24.6%),

which indicates an increased interest in knowing and visiting Romania's cultural and urban heritage

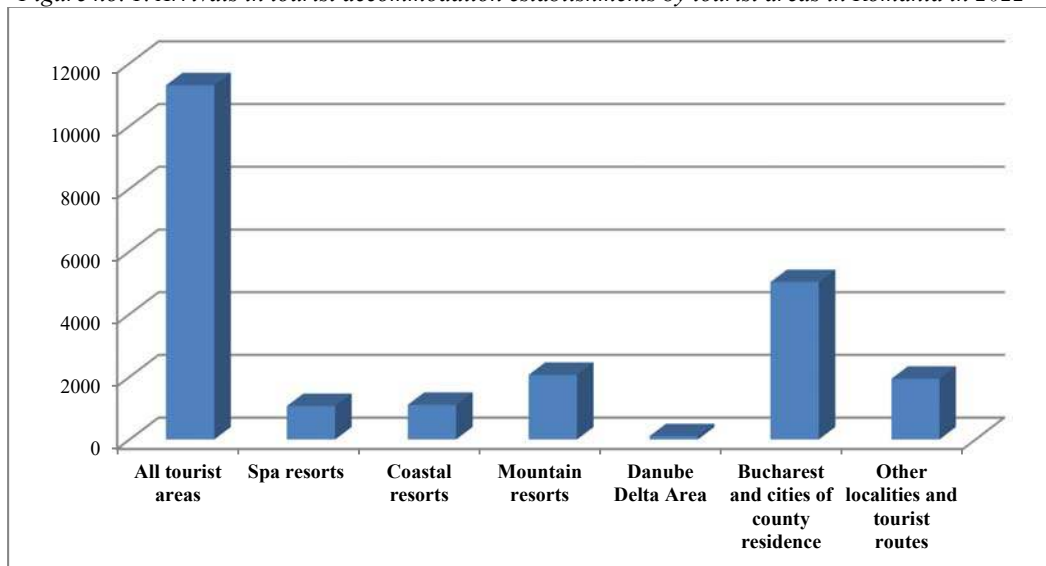
- in second place as a tourist destination are mountain resorts with 18.3%, followed by other localities and tourist routes with 17.3%
- tourism in mountain tourist destinations and itinerant tourism is determined by the natural resources and attractions of the mountain area, such as picturesque landscapes, national parks and nature reserves, climatic and sports resorts, mountain villages that preserve Romanian traditions and customs, as well as ski slopes that allow the practice of white tourism, and the numerous routes and itineraries that satisfy the tourist motivations of tourists during the summer tourist season
- mountain tourism is preferred especially by Romanian tourists (95.6%), who seek relaxation, recreation and health in a natural environment
- in third place is seaside tourism, with 9.79% of total tourist arrivals in Romanian tourist areas. This type of tourism is stimulated by Romania's coastal resources and attractions, such as sandy beaches, the Black Sea, modern and varied resorts offering "sun tourism", as well as leisure and entertainment tourism. Tourism in the Romanian resorts on the Black Sea is particularly appreciated by Romanian tourists (97.7%), who spend their summer holidays by the sea
- the fourth place is occupied by spa tourism, with 9.44% of total tourist arrivals in Romania as a tourist destination. This type of tourism is supported by Romania's spa resources and attractions, such as mineral and thermal waters, therapeutic and sapropelic muds, salt lakes and clean air. Spa tourism is mainly used by Romanian tourists (97.6%), who benefit from medical treatments and health care in spas
- It can be observed that, although Romania has a rich potential of balneary tourism and seaside resources, nevertheless balneary tourism and seaside tourism occupy lower places in tourists' preferences, which highlights either the seasonal nature of these tourist resources or the low attractiveness of these tourist destinations due to the outdated technical and tourist material base, worn-out treatment facilities and low investments in the exploitation of these tourist resources at high standards, which leads tourists to turn to other tourist destinations and other forms of tourism (see also figure 1)
- The last place is taken by ecotourism and rural tourism in the Danube Delta tourist area, which accounts for about 1% of all tourist arrivals in tourist areas in Romania. These forms of tourism are generated by rural and ecological resources and attractions in Romania, such as traditional villages, ethnographic and folkloric monuments, agro-tourism and gastronomic products, rural traditions and customs. The Danube Delta is a protected area and the low number of visitors does not indicate an undervaluation of this tourist destination, but indicates a control of tourist flows to ensure the protection of these resources and tourist attractions and to ensure a sustainable tourism development

If we consider the typology of tourists and their preferences towards tourist areas in Romania, we find the following:

- the order of preferences of Romanian tourists in exploiting tourist resources and attractions in Romania, by tourist areas that also determine the forms of tourism practiced is as follows: coastal tourism (97.7%), balneary tourism (97.6%), mountain tourism (95.6%) and tourism in the Danube Delta (91%), followed by itinerant tourism (90%) and urban tourism (75.4%)
- In the case of foreign tourists, it can be seen that they account for only 14% of all tourists by tourist area, and their preferences were directed primarily towards urban tourism (24.6%), then tourism in other localities and itinerant tourism, which highlights their preferences for cultural and knowledge tourism
- at the same time, it can be observed that unlike Romanian tourists, tourism in the Danube Delta tourist area shows high values in the preferences of foreign tourists, as they place great emphasis on ecotourism and rural tourism as the main forms of sustainable tourism. The high degree of industrialization, pollution and urbanization in their countries, as well as the urbanization of the rural environment and the destruction of rural customs and traditions, make foreign tourists turn to these tourist areas in Romania and appreciate them at their true value
- the lowest percentage of foreign tourists was registered on the Romanian Black Sea coast (2.3% of all tourists who visited this destination), which highlights the low preference of these tourists to consume these tourist resources. Of course, it may also be an ineffective promotion of Romania's image as a tourist destination on the international tourism market. As a consequence, a better tourism

promotion of Romania at the international level should be carried out, in order to encourage foreign tourists to choose and consume Romanian tourism products.

Figure no. 1. Arrivals in tourist accommodation establishments by tourist areas in Romania in 2022



Source: Table no.1, National Institute of Statistics in Romania, [www.insse.ro](http://www.insse.ro)

## 5. Conclusions

The analysis shows that Romania can be a top tourist destination on the international tourism market. Even if tourist resources and attractions are better exploited among Romanian tourists, Romania has a rich natural, cultural and artificial potential that can be exploited on the international tourism market, thus generating a positive economic impact.

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## Aspects of Gender Vulnerability in the Just Transition Process

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### Abstract

*The just transition targets aspects with a strong social impact that influence the quality of life of communities on the front line of the energy transition. These communities are found in coal-bearing and heavily industrialized areas. Just transition involves creating new reskilling opportunities as well as decent and inclusive jobs. A special attention is directed to women, who are particularly vulnerable to these changes, due to increased family responsibilities. Our work aims to contribute to the analysis on gender equity prior to the financing mechanism for just transition in Romania from the perspective of the infrastructure development and services relevant for just transition (e.g. nurseries) that create a direct impact on the professional retraining and employability of women in the affected areas. We concluded that, for some of the six Romanian counties that are object to just transition, the European funding was the necessary impetus for the development or even the emergence of the nursery infrastructure.*

**Key words:** just transition, women, gender equality, vulnerable category, decarbonization

**J.E.L. classification:** I24, I25, J24, J65, J16, F63, B55

### 1. Introduction

The energy transition in Romania, as in the other EU countries, will involve the fundamental transformation of the structure of electricity production. The process of reducing carbon emissions, timed with national energy security objectives, is estimated to be achieved by phasing out coal from the national mix and decarbonizing the industrial sector. This vision for a zero-carbon economy brings with it significant social challenges that address the professional (re)training of the workforce, especially in heavily industrialized and coal-mining areas. As for women in these affected areas, one of the core solution for employability is the development of infrastructure and services relevant for just transition (nurseries, primary and secondary schools, day care centers for children).

During the previous financial programming period, the issue of access to pre-school (nursery) and preschool (kindergarten) education services that has a direct impact on parents' situation (especially women) on the active labor market was addressed through the Regional Operational Program (Regio 2014-2020), thematic objective OT 10 – *Investments in education, skills and lifelong learning* (POR, 2014, p. 31). Based on the n+3 rule, the development of some of the projects has been extended until the December 2023.

### 2. Literature review

Allwood (2020, p. 10-11) and Walk (2021, p. 3) argue that the energy transition tends to be a gendered process. Moreover, for Giacomini (2020, p. 194-205) the *ecofeminist dimension* of just transition will change the way we understand the capitalism, especially due to issues strictly related to women employment (Janikowska, O. et al, 2021, p. 2, Velicu, I. Et al, 2020, p. 263-273). Other authors (Mohr, K., 2021, p. 11, Young Park, C. Et al, 2021, p. 17-19) rely on women as change agents within their communities during the implementation of climate change policies. The recurring



question is, in this context, how accessible will the newly created jobs be for women (Pollin, R. et al, 2020, p. 50)

In Romania, the absence or insufficient number of nurseries favors gender inequality, given the fact that women bear the responsibility of caring for children (Apostol, A, 2021, p. 1). A recent study carried out in Valea Jiului (Muscă, M et al, 2022, p. 54) shows that an essential factor influencing the possibility of women in this area to be employed is the pressure to stay at home to take care of small children, due to the lack of nurseries. Of the 6 analyzed counties, only Prahova county is in the top 5 nationally in terms of the number of places available in daycare relative to the total number of children in the county (1 place/ 20 children) (Apostol, A, 2021, p. 1).

We performed a summary analysis of the literature review on the Google Academic search engine using the keywords *women* AND *just transition* and the interval we chose was 2015-2023. We obtained the fact that 61% of the articles addressing the topic of women in the just transition are published between 2021-2023, so in the last 2 and a half years of the selected 9-year interval. When we added the keyword *Europe*, the statistics showed us that, between 2020, over 41% of the identified articles refer to the European continent.

### **3. Research methodology**

The research methods used in this paper are the comparative analysis and the statistical method, so that the data resulting from the implementation of the European funds through the Regional Operational Program 2014-2020 were processed. In this research, we analyzed the databases published by the relevant ministry for the projects financed by European funds during the 2014-2020 programming period in the 6 counties in Romania targeted by the just transition (MIPE, 2023, List of operations). We targeted information regarding construction and/or modernization projects of nurseries, kindergartens, primary and secondary schools, as well as day care centers for children financed through axes 4, 9, 10, 13.

### **4. Findings**

#### **4.1. Social and economic challenges for communities affected by the energy transition, from the perspective of gender vulnerability**

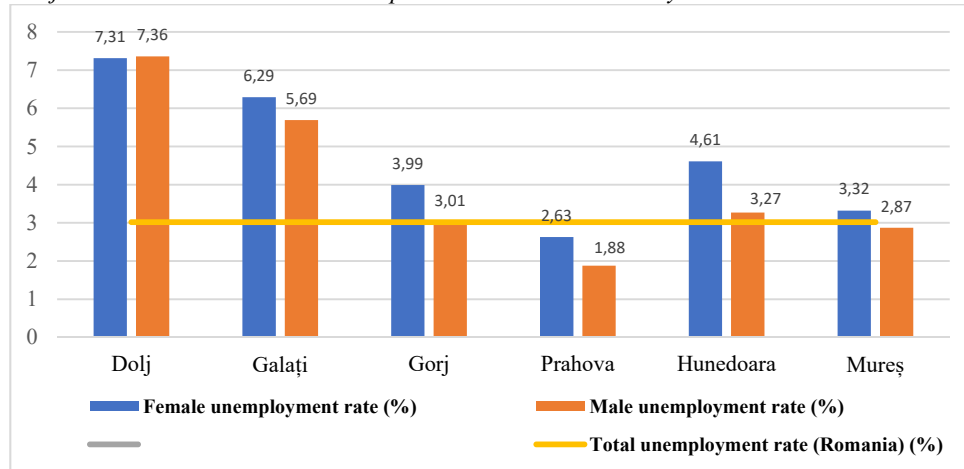
Regulation ((EU) 2021/1056) for the establishment of the Just Transition Fund emphasizes the principle of gender equality, making references to the role of women in the transition to a zero-carbon economy. From this perspective, measures that support women's participation in the labor market and entrepreneurship, as well as equal pay, are encouraged. That is why the regulation establishes gender-disaggregated results reporting indicators.

The legal framework for the decarbonisation of the energy sector in Romania is represented by Emergency Ordinance no. 108/2022. This foresees, on the one hand, the decommissioning by December 2032 of the capacity installed for the production of coal-fired electricity and the closure of mines, and, on the other hand, the need for professional reconversion in order to ensure a high degree of employment laid off in the context of changes in the activity profile. Thus, in parallel with the removal of coal from the national mix, PNRR finances RES production capacities, especially wind and solar, and through the Modernization Fund, projects will be implemented for the operationalization of photovoltaic and natural gas-based capacities and green hydrogen.

The communities strongly affected by these processes of the energy transition and which, moreover, in the period 2021-2027, are the subject of financing through the Just Transition Mechanism, are in coal mining areas (Hunedoara, Gorj, Dolj counties) and industrial areas (concentrated in Galați, Prahova and Mureș counties) (Joița, D. et al, 2022, p. 294). A serious consequence in the targeted areas is the loss of jobs in the local economy through the transformation of some economic activities that, until now, have generated for employees incomes above the zonal average for the similar level of training (PTJ, 2021, p. 12).

A more special situation is recorded in the county of Hunedoara and Valea Jiului, where the unemployment of young people able to work creates negative effects on the lives of many families. In the competition for remaining employment opportunities, accessibility is more difficult for women, leading to gender inequalities in accessing jobs.

Figure no.1. Unemployment rate (%) (female vs. male) in Romania, March 2023 within the 6 counties that are subject to Just Transition Fund. Comparative situation created by author based on statistic data



Source: ANOFM, Registered unemployment – March 2023, <https://data.gov.ro/ro/dataset/somajul-inregistrat-martie-2023>

The comparative analysis showed us that, currently, of the 6 analyzed counties, in 2 of them (Dolj and Galați) the female unemployment average is double compared to the national unemployment average. For now, the situation appears more optimistic from this point of view in Prahova. Another result is that in Dolj the female unemployment rate is almost equal to the male unemployment rate, while in the other 5 counties the percentage differences are more pronounced.

The employment of new jobs depends on access to professional training programs, but also to family support services, which would help vulnerable categories (women, children) to face the social inequalities. The most significant impact occurs on sole breadwinners by affecting the standard of living and increased financial responsibilities of women with dependent children.

#### 4.2. Progress in strengthening services and infrastructure relevant to just transition

Territorial just transition plans (PTJ, 2021, p. 12) indicate that the people affected by the transfer to a new job need forms of support for reintegration. For example, vocational training centers should include play areas for children, so that women's participation in training programs and reinsertion into the labor market is possible.

In Romania, in 2021, there were 376 nurseries (including other pre-school education structures) (INSSE, Tempo 2, 2023), which means that only a percentage of 4.3% of children aged 0-3 could benefit from nursery school places. Added to this is the urgent need for educators-child educators (Apostol, A, 2021, p. 1)

That is why the investments from European funds for the period 2021-2027 (POR, POIS, POEO, POS) and PNRR allocate over 12 billion euros for the development of infrastructure and services relevant for the just transition (including nurseries, primary and secondary schools, centers for elderly, day care centers for children, services for people with disabilities). Rural areas still require long-term measures and projects to increase the number of nurseries and kindergartens (ME, Report 2021-2022). All of these are complementary to the Just Transition Program financing objectives and are based on consultations with civil society, in order to consider equal opportunities for women in the just transition process (PTJ, 2021, p. 103).

Before the PTJ, the Regio allocations started from data that showed that the available places in nurseries and kindergartens are insufficient, which creates difficulties for professional reinsertion for mothers with children aged 0-3 (POR, p. 181). The discrepancies regarding the preschool educational offer is evident from the rural/urban perspective, so the total number of children registered in pre-school education in the urban environment exceeds that of children in rural areas (ME, Report 2021-2022).

Below we have conducted a research on the database published by the relevant ministry on the status of the implementation of the POR. As databases are not available in an exportable format, we selected the list of projects carried out in each of the 6 counties in the period 2014-2020/23. Subsequently, the thematic objective from the POR, respectively the axes from which projects were financed for the creation and/or development of pre-school education infrastructures, were selected. We continued the search on each resulting item, by identifying the keywords in the title of the project or in the description of the project objectives. The results are shown in the following table and graph.

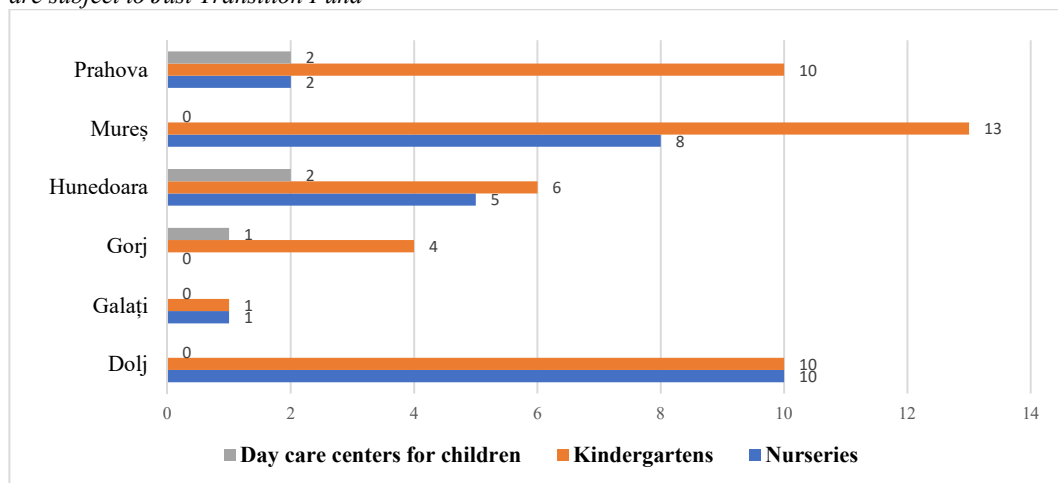
*Table no. 1 Nurseries and kindergartens (no.) built and/or modernized with funding from European funds (Regional Operational Program) between 2014-2021/2023 within the 6 counties that are subject to Just Transition Fund*

County	POR – Priority Axis no.	Nurseries (no.)	Kindergartens (no.)	Day care centers for children (no.)
<b>Dolj</b>	4	0	4	0
	9	0	0	0
	10	0	1	0
	13	10	5	0
	<b>total</b>	<b>10</b>	<b>10</b>	<b>0</b>
<b>Galați</b>	4	0	1	0
	9	1	0	0
	10	0	0	0
	13	0	0	0
	<b>total</b>	<b>1</b>	<b>1</b>	<b>0</b>
<b>Gorj</b>	4	0	2	0
	9	0	0	0
	10	0	2	1
	13	0	0	0
	<b>total</b>	<b>0</b>	<b>4</b>	<b>1</b>
<b>Hunedoara</b>	4	1	2	1
	9	1	0	1
	10	3	3	0
	13	0	1	0
	<b>total</b>	<b>5</b>	<b>6</b>	<b>2</b>
<b>Mureș</b>	4	2	1	0
	9	0	0	0
	10	5	12	0
	13	1	0	0
	<b>total</b>	<b>8</b>	<b>13</b>	<b>0</b>
<b>Prahova</b>	4	0	1	0
	9	0	0	0
	10	0	7	2
	13	2	2	0
	<b>total</b>	<b>2</b>	<b>10</b>	<b>2</b>
<b>Total</b>		<b>26</b>	<b>44</b>	<b>5</b>

Source: Comparative situation created by author based on statistic data. Information Center for European Investments (MFE), MySMS 2014, *List of contracted projects with implementation by county, 2023*, <https://www.fonduri-ue.ro/statistici>

We observed that, of the 6 analyzed counties, most nurseries were developed in the range chosen by the POR in Dolj and Mureş counties, with Gorj county at the opposite pole. At the same time, we noted that the number of nurseries is significantly lower than that of newly built or modernized kindergartens (which are aimed at children over 3 years old), excepting Dolj.

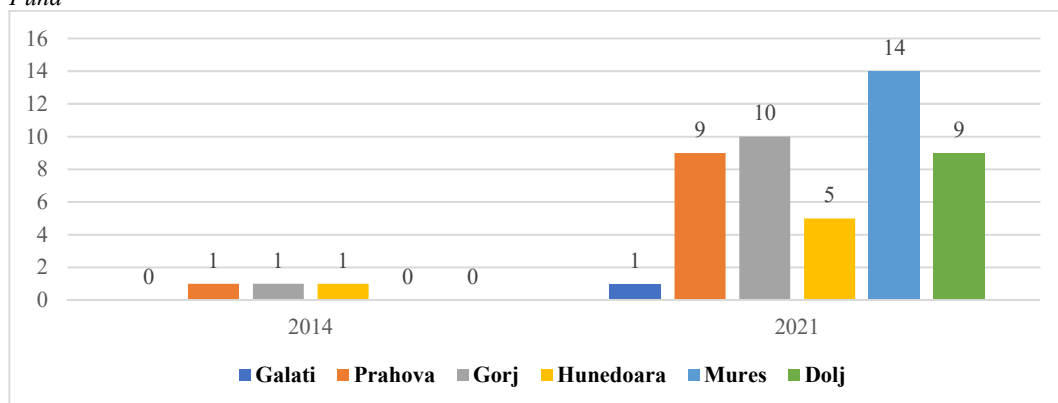
Figure no. 2. Graphic overview on nurseries and kindergartens (no.) built and/or modernized with funding from European funds (Regional Operational Program) between 2014-2021/2023 within the 6 counties that are subject to Just Transition Fund



Source: Comparative situation created by author based on statistic data. Information Center for European Investments (MFE), MySMS 2014, *List of contracted projects with implementation by county*, 2023, <https://www.fonduri-ue.ro/statistici>

Furthermore, studying the official statistics (INSSE, Tempo 2, 2023), we made a comparative analysis between the number of nurseries reported in 2014 (the first year of implementation of POR funding) and 2021 - the last year for which data were recorded.

Figure no. 3. Number of nurseries in 2014 vs. 2021 within the 6 counties that are subject to Just Transition Fund



Source: Comparative situation created by author based on statistic data. The National Institute of Statistics, <http://statistici.insse.ro:8077/tempo-online/#!/pages/tables/insse-table>

Progress has been registered for all 6 counties, especially in Mureş, although the number of units is still numerically reduced.

We continued the comparative analysis by putting together the data reported in the last year from the official statistics (2021) with the numerical results obtained by us by researching the POR projects database.

Table no. 2 Nurseries reported in 2021 and those built and/or modernized with funding from European funds (Regional Operational Program) between 2014-2021/2023 within the 6 counties that are subject to Just Transition Fund

County	Reported in 2021	Developed with POR (2014-2020/2023)
Galați	1	1
Prahova	9	2
Gorj	10	0
Hunedoara	5	5
Mures	14	8
Dolj	9	10

Source: Comparative situation created by author based on statistic data. For data reported in 2021: The National Institute of Statistics, <http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table>; for data referring to POR projects – the tabel nr. 1 in this paper

We observe, therefore, that in the counties of Galați and Hunedoara the only nurseries built were those financed by the POR, while the situation is totally different in Gorj, where none of the existing nurseries are developed from this source of funding. A particular aspect we found in Dolj, where compared to the data officially reported in 2021, in 2023 there is a greater number of nurseries developed through the POR.

The results obtained reveal the need to support the capacity of local authorities in the targeted areas so that they can address the challenges of the gender issue, so that the principle of leaving no one behind is achieved from a social and economic perspective in the current context of decarbonization.

If for some of these counties the funding from the POR was the necessary impetus for the emergence or development of the nursery infrastructure, in others this source of funding was a complementary, but necessary, solution. Basically, each of the pre-school units developed represents a better chance for reducing women's vulnerability in the challenging process of professional training and employability on the long road of the just transition to a zero-carbon economy.

## 5. Conclusions

Considering the important sums that will be allocated through European funds and PNRR and in the period 2021-2027 for the development of preschool education infrastructure, including in the 6 counties targeted by the analysis in this paper through the Just Transition Program, we conclude that the aspect of gender inequality in terms of employment opportunities will continue to exist in the time horizon of the next years in the counties that are affected by the transition to a green energy, as the responsibility of caring for small children considering the lack of nurseries is one of the causes of higher unemployment among women.

The limits of the research are given by the time interval for which the analysis was carried out (2014-2020/23), the type of financing analyzed (European funds, through POR) and the implementation area of the analyzed projects (counties (Hunedoara, Gorj, Dolj, Galați, Prahova and Mureș).

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## Ethics in Education: Exploring the Ethical Implications of Artificial Intelligence Implementation

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### Abstract

*The integration of artificial intelligence (AI) technology in education has introduced numerous possibilities and benefits. However, it also raises ethical concerns that demand careful consideration. This research article explores the ethical implications associated with the implementation of AI in education. The literature review examines key ethical dimensions, including privacy and data protection, equity and bias, and the impact on the teacher-student relationship. The findings highlight the importance of transparency, accountability, and fairness in AI design and deployment. The article proposes a comprehensive framework to guide ethical AI implementation in education, emphasizing the need for robust policies, algorithmic transparency, and addressing biases. By proactively addressing these ethical considerations, educational stakeholders can ensure a responsible and inclusive educational environment that harnesses the potential of AI while upholding ethical principles.*

**Key words:** artificial intelligence, education, ethics, implementing AI

**J.E.L. classification:** I21, I23, F6

### 1. Introduction

In recent years, the field of education has witnessed a rapid transformation, primarily driven by advancements in artificial intelligence (AI) technology. AI has the potential to revolutionize various aspects of education, ranging from personalized learning experiences to efficient administrative systems. However, as educational institutions increasingly integrate AI into their practices, a crucial aspect that demands careful consideration is the ethical implications of such implementations. This research article aims to explore the multifaceted ethical challenges associated with the implementation of AI in education and shed light on the potential consequences for students, teachers, and the broader educational ecosystem.

As AI continues to permeate various sectors, the field of education has not remained untouched. Intelligent tutoring systems, automated grading, adaptive learning platforms, and data-driven decision-making processes are just a few examples of AI applications that have made their way into classrooms and educational institutions. While these technological advancements bring promising benefits, they also raise significant ethical questions that need to be addressed to ensure a responsible and inclusive educational environment.

The ethical implications of AI implementation in education extend beyond mere technical considerations. They encompass issues related to privacy, fairness, transparency, accountability, and the broader impact of AI on educational outcomes. For instance, the collection and analysis of vast amounts of student data by AI systems raise concerns about data privacy, security, and potential misuse. Moreover, the use of AI algorithms in decision-making processes, such as student placement or teacher evaluation, may introduce biases or reinforce existing inequalities if not carefully designed and monitored.

Furthermore, the role of teachers and their interaction with AI technologies becomes a focal point of ethical analysis. As AI systems assume certain teaching functions, questions arise about the implications for the teacher-student relationship, the development of critical thinking skills, and the human touch in education. Striking the right balance between AI-assisted instruction and human guidance becomes paramount to ensure that the educational experience remains nurturing, empowering, and sensitive to individual needs.

To comprehensively examine the ethical dimensions of AI implementation in education, this research article will analyze a range of pertinent topics. It will delve into the ethical principles that should guide the design and deployment of AI systems in educational settings, emphasizing the importance of transparency, accountability, and fairness. Additionally, it will explore the ethical implications for student privacy and data protection, highlighting the need for robust policies and safeguards. Furthermore, the article will examine the potential impact of AI on educational equity and inclusivity, focusing on issues of bias, discrimination, and access.

In conclusion, as artificial intelligence increasingly integrates into educational practices, it is imperative to proactively address the ethical implications it poses. This research article aims to contribute to the ongoing discourse on ethics in education by examining the multifaceted challenges associated with the implementation of AI. By shedding light on these ethical considerations, it is hoped that educational stakeholders, policymakers, and researchers can collaboratively work towards harnessing the potential of AI while upholding ethical principles and ensuring a just and inclusive educational environment.

## 2. Literature review

The arguments intensify when technology advances at an exponential rate but understanding, acceptance, and/or adaptation to such innovations are nonlinear and lag behind them. The application of AI is a hotly contested topic in every single field. Higher education is at the center of the discussion regarding the effects of and responses to AI because of its multifaceted role in educating and fostering sustainable development.

As artificial intelligence (AI) technology increasingly permeates the field of education, the ethical implications of its implementation have garnered significant attention from researchers, educators, and policymakers. This literature review aims to provide an overview of the key scholarly contributions that explore the multifaceted ethical challenges associated with AI implementation in education.

*Privacy and Data Protection.* One critical area of ethical concern pertains to privacy and data protection. The collection and analysis of vast amounts of student data by AI systems raise questions about data privacy, security, and potential misuse. Floridi et al (2019) argues for the need to establish a comprehensive framework of information ethics to address the challenges posed by AI in education. The author emphasizes the importance of transparency and user control in safeguarding student privacy rights.

Furthermore, Selwyn (2019) highlights the potential risks and ethical dilemmas associated with learning analytics, a field that leverages AI to analyze student data for educational insights. The author argues that concerns related to data ownership, consent, and algorithmic transparency need to be addressed to ensure ethical practices in the use of AI-driven analytics tools in educational contexts.

*Equity and Bias.* The potential impact of AI on educational equity and inclusivity is another crucial dimension of ethical analysis. Van Wynsberghe (2013) calls for a holistic framework to assess the ethics of AI in education, considering issues of fairness and justice. The author emphasizes the need to identify and mitigate biases that may be embedded in AI algorithms, which could perpetuate existing educational disparities or discriminate against certain student groups. Tetzlaff et al (2021) explore the concept of personalized and adaptive learning, wherein AI systems tailor educational content and experiences to individual students. While this approach holds promise for enhanced learning outcomes, the authors caution against the potential risks of perpetuating inequality if the design and implementation of AI systems fail to consider diverse learner needs and backgrounds.

*Teacher-Student Relationship and Human Touch.* The role of teachers and their interaction with AI technologies is another area of ethical consideration. As AI systems assume certain teaching functions, questions arise about the implications for the teacher-student relationship, the development



of critical thinking skills, and the human touch in education. Balancing the benefits of AI-assisted instruction with the need for human guidance becomes crucial to maintaining an ethical and supportive learning environment.

*Ethical Guidelines and Frameworks.* Several researchers have proposed ethical guidelines and frameworks to inform the design and deployment of AI in education. For instance, Floridi et al (2019) advocates for the incorporation of ethical considerations in AI design, emphasizing the principles of fairness, transparency, and accountability. Van Wynsberghe (2013) proposes a set of ethical guidelines that encompass principles such as beneficence, autonomy, and informed consent, aiming to guide educational stakeholders in the responsible implementation of AI systems.

The biggest challenge that the implementation of AI has arisen is in the form of ChatGPT, a chatbot designed by OpenAI in 2019, mentioned in research done by Su, J. et al (2023). With ChatGPT, users may communicate with the model in a conversational setting while doing so in a straightforward and natural way. ChatGPT is a potent AI program that can write stories, essays, document summaries, and answers to inquiries. ChatGPT can be utilized in the educational setting to make virtual tutors, respond to student inquiries, and offer specialized learning opportunities. The ability to comprehend, apply, and critically assess AI technologies and their effects on society may also be developed through its use as a practical application of AI for instructors and students.

Numerous studies have been conducted on the application of GPT (Generative Pre-trained Transformer) among students. While other research has looked at the use of GPT as a tool to enhance writing abilities or provide individualized learning experiences, some have looked at the possible advantages of GPT for language learning and teaching. For instance, a study on the use of GPT-based chatbots for language acquisition was published in the *Journal of Educational Technology & Society* in 2021. The study discovered that the chatbots were well regarded by the students and were successful in enhancing students' English language skills.

The use of GPT to assist students' writing abilities was the subject of another study that was published in the *Journal of Writing Research* in 2020. According to the study, GPT-generated suggestions assisted students in coming up with more creative and sophisticated writing assignment ideas. Other research has investigated the use of GPT for tailored learning experiences, including resource recommendations based on learning styles and preferences of the students.

The use of AI tools like GPT should be done ethically, responsibly, and in a way that complements and supports human teaching and learning, despite the fact that this research indicates that GPT can bring numerous potential benefits to education.

A US startup, OpenAI, has created ChatGPT, which has the potential to revolutionize how education is received and could have a negative impact on students' ability to acquire critical thinking skills. More than half (51%) of students believe that utilizing AI tools like ChatGPT to do coursework and tests constitutes cheating, according to a recent survey. At least five Australian states' public schools have outlawed ChatGPT by taking steps like installing a firewall to prevent students from accessing the website while on school property. Access to ChatGPT has also been forbidden in numerous US schools, including those in Alabama and New York. Cambridge University, Imperial College of London, Sciences Po in Paris, RV University in Bengaluru, India, and doubtless many more international colleges have also prohibited ChatGPT.

Even certain nations, such Italy, China, Iran, North Korea, etc., have now outlawed access to ChatGPT. However, it should be emphasized that ChatGPT's main rival in China is Baidu's ErnieBot. As a result, I see this blocking as more of an acknowledgment of the financial dangers associated with ChatGPT's entry into the China market and how they can affect local software product advances. These market responses also reveal the level of importance that nations have to ChatGPT.

In-depth interviews with 18 academics from five Romanian universities helped Pisica et al. (2023) write their research, which explores the benefits and drawbacks of using AI in higher education from the viewpoints of Romanian academics. The article is exploratory in nature and is grounded in qualitative research. The results are crucial for formulating university plans because their ability to compete depends on the integration of new technology into the teaching and learning process. The findings of this study will contribute to the expanding body of knowledge on the subject and provide an intriguing example of a nation (Romania) with great internet infrastructure but low levels of economic digitalization.

Since more than 30 years ago, there has been intense discussion on integrating artificial intelligence into education. There have been significant research expenditures, and it is predicted that the market for AI in education would exceed USD 25.7 billion by 2030.

### 3. Research methodology

This research article employs a qualitative research methodology to explore the ethical implications of artificial intelligence (AI) implementation in education. The study adopts a literature review approach to analyze existing scholarly works, research articles, and relevant publications in the field of AI in education, with a specific focus on ethics.

*Data Collection and Selection.* The data collection process involves a comprehensive search of academic databases, such as Google Scholar, JSTOR, and ERIC, using relevant keywords including "AI use in education," "education ethics," "the ethical implications," and "the implementation of artificial intelligence". A systematic approach is employed to identify and select primary sources that directly address the ethical considerations of AI implementation in educational settings. The inclusion criteria prioritize peer-reviewed articles, conference papers, and book chapters published within the last ten years to ensure the relevance and currency of the sources.

*Data Analysis.* The selected sources are thoroughly reviewed, and key themes and ethical dimensions are identified. The analysis focuses on privacy and data protection, equity and bias, and the impact on the teacher-student relationship. The findings from each source are synthesized to develop a comprehensive understanding of the ethical implications of AI implementation in education. The analysis process involves categorizing and organizing the data to identify common patterns, recurring themes, and divergent perspectives.

To name just a few of the numerous more uses, the tools supplied by AI have shown to be helpful and some of them have become widely used in western universities and high schools. Voice assistants, virtual and augmented reality, and other examples are some. Technology and cutting-edge tools and solutions are becoming more widely available to close learning gaps and improve pedagogical techniques for students to achieve academically.

Even though the subject of AI implementation in HE is still debatable, and is prone to have many obstacles before it may be accepted by the research community, it is still a fact of our nowadays lives, and even more so after the COVID-19 pandemic, when we have been dependent on the technology. We have as proof the prices in gadgets that have exploded once the school has started to be online, and all pupils, students and any other scholars had to be connected to a device in order to further their education. Even after more than three years after the start of the pandemic, and even though the society has started to revert to their old habits, the links are not completely severed, as we still acknowledge the facility that the online environment offers us, and that for some activities we resort to it.

From the qualitative analyzation of the papers available, there were some very interested facts that were needed to be presented to the community, such as positive and negative effects of the technology implementation.

Table no. 1 Positive impacts of implementing AI in education

No.crt.	Pro for AI implementing	Comment
1.	The teaching–learning process	that, in the future, and with the aid of AI, the process of learning will alter, bringing with it new learning content, processes, and methodologies in addition to better educational experiences and outcomes. This theme has been divided into three main areas: creating the TLP, adapting the TLP, and making the TLP better
2.	Positive effects on competencies and capabilities	is related to bettering the knowledge and skills that students acquire during their academic training (mainly digital skills, which will be upgraded) and to developing new knowledge and skills as a result of technology advancement in general and the use of AI in particular.

3.	Inclusion	due to specific learning methods that are adapted and tailored to suit their demands, students with a variety of needs and backgrounds will have the chance to continue their academic progress with the aid of AI.
4.	Administrative cost efficiency	the enrolling procedure is thought to be the most cost-effective in this situation. More than a third of respondents concur that administrative duties can be automated, which could improve the information flow between students and administrative personnel, "speed up the registration process", "process enormous amounts of data" and "reduce bureaucracy" for the benefit of students.

Source: Pisica et all (2023, pp. 6-8)

As seen in table no.1, the pros for implementing the AI technology in the higher education system is quite substantial, as this technology progress should not be seen only as a bad thing. We do not question the fact that it should be cared after and handled with care as to not replace fully the human part. The humans have their well-developed part in the equation, as they bring feelings, emotions and the soft side in the business. This is why we should be highly careful how we use the technology and to not let it use us.

*Table no. 2 Negative impacts of implementing AI in education*

No.crt.	Cons for AI implementing	Comment
1.	Social and psychological effects	ten respondents agreed that "addiction" and "isolation" are linked to "alienation", "a lack of empathy", "decreased emotional intelligence" and a delayed process of exchanging and comparing ideas. They also agreed that "social interaction" is "critical" for mental health. The detrimental effects of interactions between humans and machines have been identified as "lack of motivation" and "barriers in communication".
2.	Security	one of the most sensible features of using AI in HE institutions was mentioned as "data protection." The three concepts of "data storage security," "confidentiality," and "loss of privacy" were considered to be the aspects of the virtual environment that are most vulnerable to hackers and those with criminal purposes.
3.	Ethical aspects	if AI advocates replacing student-written texts with algorithm-written texts, it may cause a rise in unethical behavior among students in higher education, according to a study.
4.	Unemployment	voiced worry over the possibility of "being replaced" by silicon-based knowledge suppliers. Additionally, according to the academics' predictions, it is very possible that administrative staff members will be replaced or reduced in number in the near future ("staff reduction/replacement").

Source: Pisica et all (2023, pp. 8-9)

The negative aspects of implementing AI in education, as mentioned in table no.2 are highly insightful. We may even consider them plausible and topics to be looked after when we consider using AI for educational purposes. We, as humans, and knowing better, we should not fall for such traps. We should be taking into consideration very carefully the topic and in the end, for us to extract only the good aspects of it.

*Ethical Considerations.* In line with the research topic, ethical considerations are given utmost importance. The data collected from the literature review is properly attributed to its original sources to ensure academic integrity and avoid plagiarism. Additionally, the privacy and data protection of individuals mentioned in the selected sources are respected.

Ethical aspects are very important when approaching the aspect of implementing AI in education or in any other field, as other people may consider those "cheating" as they are not using traditional methods. Inaccurate assessment results can easily be communicated when information gathering is superficial and attempts to cheat are made. The universities that grant diplomas, which ought to be the trustworthy credentials that employers require to choose the finest applicants for their openings, as well as the graduates who lack the skills they ought to have learned during their academic program, will suffer long-term consequences.

Artificial intelligence and AI-based technology provide a significant problem for the academic community. In addition to providing people with various forms of convenience, AI-based services like ChatGPT, Perplexity, Bing Chat, and other comparable services also raise ethical concerns, particularly when used in the field of education. As is already generally known, ChatGPT has made it possible for users to communicate commands to "computers" in the form of requests, such as asking for the creation of a 1000-word essay, which would subsequently be completed instantly. On many social media platforms, this technology is being hotly debated and employed as if it were transforming how people use computers. These types of services unquestionably save people time and effort when they are compiling writing, for instance to make content for websites.

Because ChatGPT is so simple and easy to use, it might encourage lazy behavior in students because they don't have to worry about coming up with original ideas or conducting in-depth research—they can just state the issue they're trying to solve and get content that will help them pass—and because without AI plagiarism software checking the sources, students have less rich and important learning experiences. As people regrettably frequently choose the least difficult option, providing answers so quickly on a computer screen from ChatGPT would undoubtedly discourage curiosity and the development of independent skills. Additionally, academic plagiarism is a worry when using AI Natural Large Language Models (LLMs), as it is difficult to properly cite sources. This raises ethical questions as well as potential legal issues for educational institutions.

*Limitations.* It is essential to acknowledge certain limitations of the research methodology. Due to the nature of the study being a literature review, it relies on the available published materials and may not capture all recent developments or perspectives on the topic. The analysis and findings are based on the interpretation of existing research, which can be subject to biases and limitations inherent to the selected sources.

#### **4. Findings**

The findings of this research article shed light on the ethical implications associated with the implementation of artificial intelligence (AI) in education. Through the literature review, several key ethical dimensions emerged, including privacy and data protection, equity and bias, and the impact on the teacher-student relationship.

The integration of AI technology in education raises concerns about the privacy and protection of student data. Scholars, such as Floridi et al (2019) and Selwyn (2019), highlight the importance of transparency, user control, and algorithmic transparency to address these concerns. Striking a balance between utilizing student data to enhance educational experiences while respecting privacy rights is crucial.

AI implementation in education has the potential to either reinforce existing educational disparities or promote equity. Van Wynsberghe (2013) emphasizes the need for a comprehensive framework to address fairness and justice in AI systems. The literature review reveals that without careful design and monitoring, AI algorithms can introduce biases and discrimination, impacting

student outcomes and perpetuating inequality. Consideration of diverse learner needs and backgrounds is essential to mitigate these risks (Tetzlaff et al, 2021).

The role of teachers and the impact on the teacher-student relationship are significant ethical considerations. As AI systems assume certain teaching functions, the human touch in education may be compromised. Striking the right balance between AI-assisted instruction and human guidance becomes crucial to maintain an ethical and nurturing learning environment. The findings suggest the need to ensure that AI technologies enhance, rather than replace, the critical thinking skills and individualized support provided by teachers.

In the research done by Su, J. et al (2023), the analysis wanted to emphasis that even though they are somewhat of help, the chatbots, in this particular case ChatGPT, have their limitations, that may be in the form of:

*Table no. 3 The Limitations of ChatGPT*

<b>ChatGPT Limitation</b>	<b>Comment</b>
Lack of Common Sense	Despite having access to a wealth of data, ChatGPT lacks common sense and occasionally may produce answers that are true in theory but are absurd in practice.
Limited Understanding of Context	Because ChatGPT has a limited awareness of context, it occasionally has trouble deciphering talks' deeper meanings. Additionally, it could miss subtleties or subtext in a dialogue.
Biased Data	If the training data has biases or inaccuracies, ChatGPT may reflect such biases in its responses because it can only be as impartial as the data it is trained on.
Inability to Perform Physical Tasks	As a language model, ChatGPT is unable to carry out practical chores like cooking or cleaning.
Lack of Emotional Intelligence	Although ChatGPT can provide responses that seem to express emotions, it does not truly experience emotions and may find it difficult to comprehend or react correctly to talks that are emotionally intense.
Vulnerability to Adversarial Attacks	ChatGPT is susceptible to adversarial assaults, in which the input data is intended to cause ChatGPT to produce inaccurate or harmful results. Overall, ChatGPT is an effective tool for producing human-like replies to a range of inputs, but it has a few drawbacks that should be taken into account.

*Source:* Su, J. et al (2023, p. 5)

There are several restrictions on ChatGPT's use in the classroom. First of all, ChatGPT is still a new technology, and its efficacy hasn't been well investigated. While the aforementioned studies indicate that the ChatGPT might be a helpful educational tool, more research is required to understand how beneficial it is in various settings.

Overall, the findings highlight the importance of ethical considerations in the design, deployment, and use of AI in education. Transparency, accountability, and fairness are critical principles that should guide the implementation of AI systems. Respecting privacy rights, addressing biases, promoting equity, and preserving the teacher-student relationship are essential for creating an ethical and inclusive educational environment.

These findings contribute to the ongoing discourse on ethics in education and emphasize the need for educational stakeholders, policymakers, and researchers to collaboratively work towards harnessing the potential of AI while upholding ethical principles and ensuring a just and inclusive educational environment.

## 5. Conclusions

The integration of artificial intelligence (AI) in education brings numerous opportunities and benefits, but it also raises significant ethical implications that must be carefully examined. This research article has explored the multifaceted ethical challenges associated with AI implementation in education, focusing on the dimensions of privacy and data protection, equity and bias, and the impact on the teacher-student relationship.

The findings emphasize the importance of transparency, accountability, and fairness in AI design and deployment. Respecting privacy rights and ensuring user control over student data are crucial to maintain ethical practices. Safeguarding against biases and discrimination in AI algorithms is essential to promote educational equity and inclusivity. Furthermore, preserving the teacher-student relationship and the human touch in education is paramount, striking a balance between AI-assisted instruction and personalized guidance.

To navigate the ethical implications of AI in education, it is imperative to establish comprehensive frameworks and guidelines. Incorporating ethical considerations in the design and development of AI systems, as proposed by Floridi et al (2019) and Van Wynsberghe (2013), is fundamental to ensuring responsible AI implementation. Stakeholders, including educators, policymakers, and researchers, should collaborate to establish robust policies and safeguards to protect student privacy, address biases, and promote equity.

Also, the study done by Pisica et al (2023), has highlighted the most important positive and negative arguments that the scientific community may have when referring to this aspect. We must not forget of course, that in the end, a teacher should not be replaced by the implementation of the artificial intelligence, as the technology does not have the finesse and the emotions that a pedagogue has after years and years of training in children character and psychology.

Future research should, first and foremost, concentrate on creating and assessing AI-based educational apps and investigating the possible advantages and difficulties of utilizing this technology in various educational contexts and settings. Second, it's crucial to carry out research on how ChatGPT and/or other generative AI applications affect student learning outcomes including academic performance, motivation, and engagement. The ethical and social ramifications of utilizing AI in education, including its possible impact on human teachers and the need for proper rules and policies, should also be further explored in future research. Third, more investigation is required to properly grasp this technology's potential and determine the best ways to use it to education. It's critical to keep up with the most recent advancements in AI.

Fourth, using the IDEE framework as a guide (Su, J. et al (2023), more research is required to ascertain ChatGPT's efficacy in various contexts (such as teacher education, professional development, early childhood education, formal schooling, lifelong learning, special education, and online learning), as well as to make sure that the technology is applied responsibly and morally. By using voice-activated interfaces like smart speakers or virtual assistants, ChatGPT can be used by young children in the early childhood education setting who are unable to read and write. Children can use voice commands or inquiries to interact with ChatGPT, and the AI model can answer with audio outputs. Children who are not yet able to read or write can nonetheless use technology and engage with it. To ensure safety and wellbeing, it is crucial to stress that young children should utilize AI technology under the close supervision and guidance of adults.

ChatGPT and other AI tools won't go away, thus we need to make sure that we set up moral and pertinent boundaries for our students to use these technologies successfully. All educational organizations must purchase AI plagiarism toolkits. In order to guarantee that students are developing critical thinking and judgment abilities, educators must simultaneously adapt their teaching and curriculum strategies. As the purpose of education is to equip students with the necessary abilities to gain employment, as well as to solve business difficulties and problems that develop the organizations they are employed by, a judicious balance is required to ensure that cognitive off loading and critical thinking skills are not disregarded.

The stakes for OpenAI and other top chatbots could not be higher. The General Data Protection Regulation (GDPR) of the EU is the harshest data protection law in existence, and it has been widely imitated. What happens next will be closely watched by regulators from Brazil to California, and the result might profoundly alter how AI companies approach data collection. To ensure that risks and resources are appropriately handled, educators must move cautiously.

In conclusion, as AI continues to transform the field of education, proactive attention to ethics is crucial. By examining the ethical dimensions and implications of AI implementation, this research article contributes to the ongoing discourse on ethics in education. It is imperative that educational stakeholders embrace ethical principles while harnessing the potential of AI to create inclusive, just, and nurturing learning environments. With responsible AI implementation, we can leverage the benefits of AI while upholding ethical values and ensuring a brighter future for education.

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## Comparative Analysis of Investor Communication Practices in Listed Companies

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### Abstract

*Financial communication is essential for any organization, regardless of its field of activity or size. This complex process involves the transmission of relevant financial information to various stakeholders, including investors, shareholders, financial analysts and regulators. To ensure effective communication, economic entities and financial specialists use a diverse range of indicators and tools. One such indicator is Vektor, which plays a crucial role in evaluating and interpreting the financial performance of an organization.*

*In this article, we aim to study two economic entities in the field of production and supply of electricity and thermal energy, gas, hot water and air conditioning. The choice of the two entities is due to the importance and significant impact these companies have on society and the economy as a whole. These types of companies are essential for providing the energy and services required in various sectors such as industry, residential and commerce, playing a vital role in the development and functioning of modern society.*

**Key words:** financial communication, indicators, financial performance, impact

**J.E.L. classification:** A11, F64, Q56

### 1. Introduction

Within any economic entity, financial communication and the structure of financial-accounting information play an important role in ensuring transparency, understanding and evaluation of their financial performance and has the role of " increasing the notoriety and credibility of the company, in order to attract investors " (Avram, A. et al., 2017). Salvioni DM (2002) believes that financial communication "can be an intangible asset of primary importance for corporate development". Because these companies have complex operations, involving the management of resources, infrastructure and supply, financial communication aims to "support and, above all, strengthen the market value and prospects of the company, but also its credibility with shareholders and investors" (Avram, 2017).

By analyzing the structure of financial-accounting information within these entities, we can identify how they report their financial performance, including aspects such as revenues, expenses, investments and operational efficiency. Thus, we can assess to what extent the current financial communication is effective and understood by the various stakeholders, such as owners or employees of other entities, on the one hand, and, on the other hand, the financial institutions that provide the necessary capital for the entity (Avram, 2005) and we can identify the possible improvements needed to optimize the financial communication process.

Through this approach, our study aims to bring practical solutions to increase the efficiency of financial communication within companies in the production and supply of electricity and thermal energy, gas, hot water and air conditioning. Our approach can also help increase transparency, trust and support from investors and other stakeholders, thus strengthening the financial performance and competitive positioning of these companies in the market.



## 2. Theoretical background

Effective communication with investors is a crucial aspect in the business and financial markets environment. Companies, especially listed ones, need to be transparent, provide relevant information and establish strong relationships with investors to gain trust and support in their continued development. In this context, the VEKTOR indicator is a valuable tool that facilitates the evaluation and improvement of companies' communication performance.

The VEKTOR indicator is a tool developed by the Romanian Investor Relations Association (ARIR) in collaboration with the Bucharest Stock Exchange. It assesses the quality of companies' communication with investors and provides an objective framework for analyzing and comparing their communication performance. The VEKTOR indicator is based on several criteria, including transparency, information accessibility, financial communication, sustainability reporting and interaction with investors. By evaluating these key aspects, the VEKTOR indicator provides a comprehensive insight into the communication performance of companies and identifies strengths and possible areas for improvement.

The Vektor 2021 indicator analyzes 15 indicators grouped into 6 categories as follows: investor relations, corporate governance, proactive approach in investor relations, interactive tools, coverage by financial analysts and sustainability.

## 3. Research methodology

To carry out this study, we selected two companies in the field of production and supply of electricity and thermal energy, gas, hot water and air conditioning, to analyze their financial performance and communication with investors. We have chosen to focus on the period 2019-2022, in order to obtain a relevant picture of the evolution of these companies over a significant period of time.

To obtain the necessary data, we took into account the VEKTOR reports available for these two companies, during the mentioned period, which we analyzed in order to identify the relevant indicators for the financial communication and performance of the companies. We examined criteria such as transparency, information accessibility, financial communication, sustainability reporting and interaction with investors.

In order to gain a deeper understanding of the results, we interpreted the data and performed comparative analyzes between the two studied societies. We highlighted the strengths and weaknesses of financial communication and identified possible improvements needed to increase the effectiveness of communication and financial performance of these companies.

### *Brief history of the National Company SN NUCLEARELECTRICA SA*

Founded in 1998, Societatea Națională SN NUCLEARELECTRICA SA (SNN) is a reference company in the energy industry, specialized in the production of nuclear energy and the supply of fuel for CANDU 6 technology. In October 2013, SNN became listed on the Bucharest Stock Exchange, by offering a share package representing 10% of the company's share capital. This strategic move strengthened SNN's position and brought significant benefits to the financial market. The company is headquartered in Bucharest and has two key branches in Romania. The Cernavodă Nuclear Power Plant represents one of SNN's most important assets, operating Units 1 and 2 and generating both electricity and thermal energy. Both units have a capacity of 700 MWe and use natural uranium and heavy water as fuel and moderator, respectively coolant, all produced in Romania. The Pitesti Nuclear Fuel Factory, the second branch, is a qualified producer of CANDU 6 nuclear fuel and ensures the operating needs of Units 1 and 2 at CNE Cernavodă. Through the two units in operation, SNN contributes approximately 20% to Romania's total energy production from nuclear sources. The operational performances of these units have been recognized internationally, and together with the capacity factor of Units 1 and 2 from CNE Cernavodă, they are in the top 20 nuclear units out of the 436 existing globally.

#### *Brief history of CNTEE Transelectrica SA*

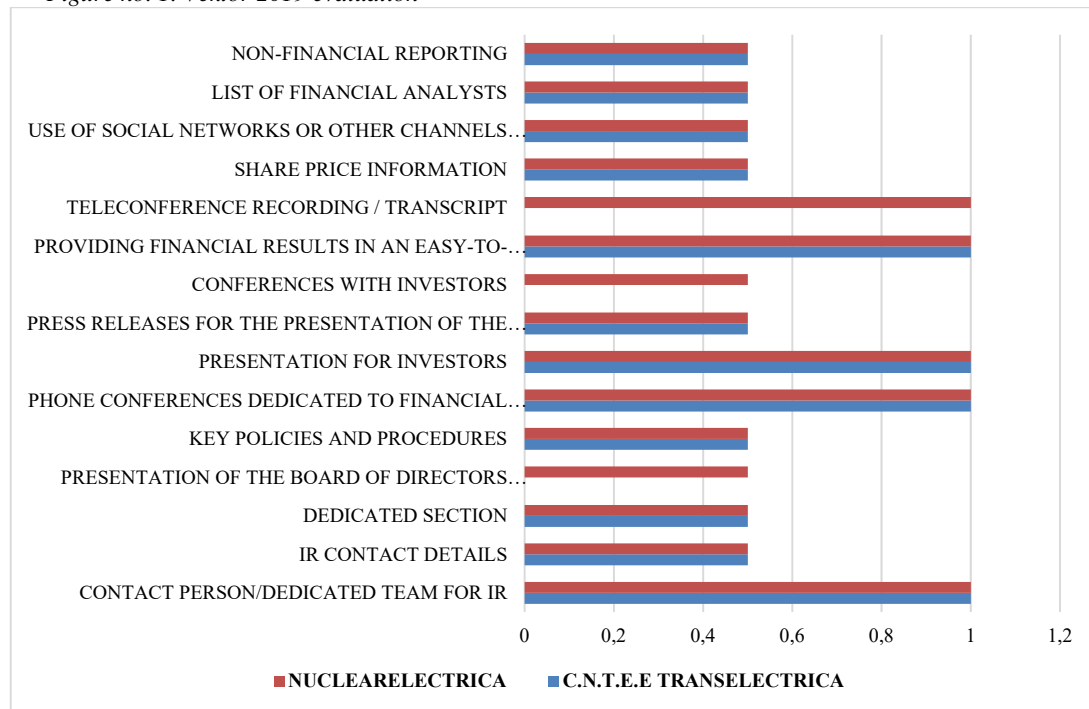
CNTEE Transelectrica SA is a strong company recognized nationally and internationally, having a strategic role on the electricity market in Romania and an important presence on the regional market. Transelectrica plays an active role in the national security strategy by providing the necessary infrastructure for the operation and development of the electricity market in the country. As a Transport and System Operator, Transelectrica has the responsibility to ensure the safety of the national electric power system (SEN) and to constantly improve the technological performance and adequacy of the electric transmission network (RET), respecting quality standards and guaranteeing non-discriminatory access and equidistant to the electricity transmission network for all market participants.

Transelectrica holds the position of natural monopoly on the Romanian electricity market and was the first company with majority state capital listed on the Bucharest Stock Exchange under the program "A strong market - Development of the capital market". Since its listing in August 2006, Transelectrica's shareholding structure has undergone changes, and currently, the Romanian state owns 58.69% of the shares, while other shareholders own 41.31% of the share capital. As a first for a company with majority state capital, Transelectrica issued corporate bonds in December 2013, worth 200 million lei, which were traded on the domestic capital market at the beginning of the current year. Regarding the relationship with investors, Transelectrica's strategy aims to increase the added value for shareholders by increasing the share and dividend values, as well as maximizing the invested capital. The company's efforts were recognized by the rating agency Moody's Investors Service, which maintained Transelectrica's rating at the Ba2 level and upgraded the outlook from "negative" to "stable".

#### 4. Findings

In Figure no. 1, we presented the evaluation of the Vektor indicator related to the year 2019. Each criterion addressed can have the value of 0 points, 0.5 points or a maximum of 1 point.

Figure no. 1. Vektor 2019 evaluation



Source: own processing

In terms of investor relations (IR), both companies score highly for having a dedicated investor relations contact person or team, reflecting the importance they place on interacting with investors. Both companies also score 0.5 for providing IR contact details, indicating that they provide information needed to contact the IR department.

Regarding corporate governance, both CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA score 0.5 for having a section dedicated to corporate governance in their financial reports. This indicates both companies' commitment to transparency and informing investors about the management structure and key policies.

When it comes to the proactive approach in investor relations (IR), both CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA achieve maximum scores in indicators such as telephone conferences dedicated to financial results and the presentation of these results to investors. This communication indicates the companies' efforts to ensure that investors receive up-to-date and relevant information about financial performance.

In terms of interactive IR tools, both companies score highly in providing financial results in an easy-to-process format, reflecting their commitment to providing accessible and understandable financial information to investors. SN NUCLEARELECTRICA SA obtains maximum score in the recording of teleconferences or their transcripts, indicating the availability to access these resources. At the same time, both companies score 0.5 for providing stock price information and using social media or other channels for IR news.

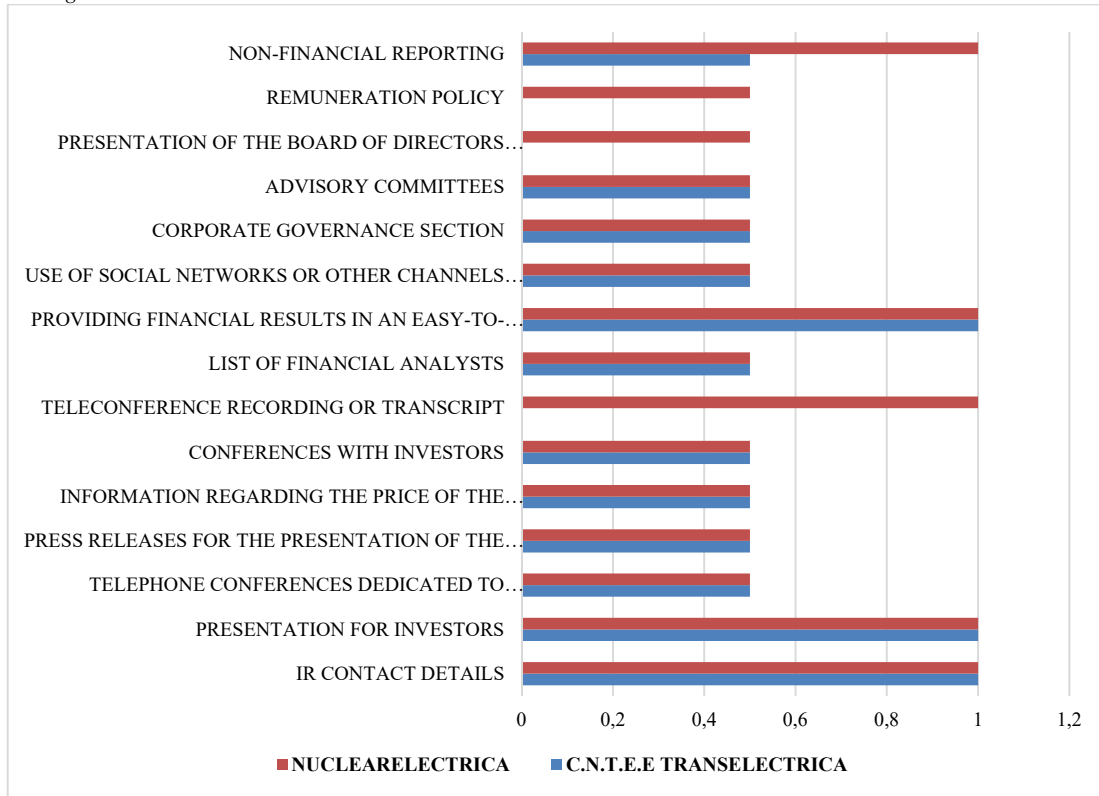
Regarding the provision of information by financial analysts, both companies score 0.5 for having a list of financial analysts. This aspect indicates that the two companies are aware of the importance of providing information, by financial analysts, relevant to them.

Regarding sustainability, both CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA score 0.5 for non-financial reporting. This indicates the commitment of both companies to provide information about the impact of their activity on social and environmental aspects.

In conclusion, the analysis of the relevant indicators in 2019 for CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA shows that both companies have solid approaches in terms of investor relations, corporate governance and proactive approach in IR. There are, however, aspects where there is room for improvement, such as the presentation of relevant information, both financial and non-financial, to the board of directors and executive management for SN NUCLEARELECTRICA SA or the organization of investor conferences for CNTEE TRANSELECTRICA. By developing these aspects and strengthening financial communication practices, companies can strengthen investor confidence and provide clearer and more relevant information for evaluating their financial performance.

Figure no. 2 presents the Vektor 2020 indicator which analyzes 15 indicators grouped into 5 categories as follows: investor relations, proactive approach in IR, interactive IR tools, corporate governance, sustainability.

Figure no. 2. Vektor 2020 evaluation



Source: own processing

Regarding investor relations, both companies (CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SASA) have maintained consistency in providing IR contact details, investor presentations, press releases for financial results and share price information. This indicates a continued focus on investors and a desire to ensure easy access to relevant information. Compared to previous years, this stability in the presentation of indicators suggests a consistent and consolidated approach in the relationship with investors.

Regarding the proactive approach in IR, both companies (CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA) have maintained the level of investor conferences, recording of conference calls or transcripts and the list of financial analysts. This suggests a sustained effort to engage with investors and facilitate access to financial information and analysis. Compared to previous years, there is a continuity in the adoption of these practices, which may indicate a stable strategy in the proactive approach to investor relations.

Regarding interactive IR tools, both companies (CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA) maintained the provision of financial results in an easy-to-process format and the use of social networks or other channels for IR news. This suggests a continued focus on adapting to investor demands and using modern technologies to ensure efficient and accessible communication. Compared to previous years, a stability is observed in the presentation of these indicators, which indicates a consolidation of these practices and an adaptation to changes in the business environment.

Regarding corporate governance, both companies (CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA) maintained a section dedicated to corporate governance and advisory committees. However, there is a significant difference in the presentation of information to the board of directors and executive management, where SN NUCLEARELECTRICA SA scores higher. This may indicate an increased effort by SN NUCLEARELECTRICA SA to highlight the role and contribution of management in the decision-making process. Regarding the remuneration policy, SN

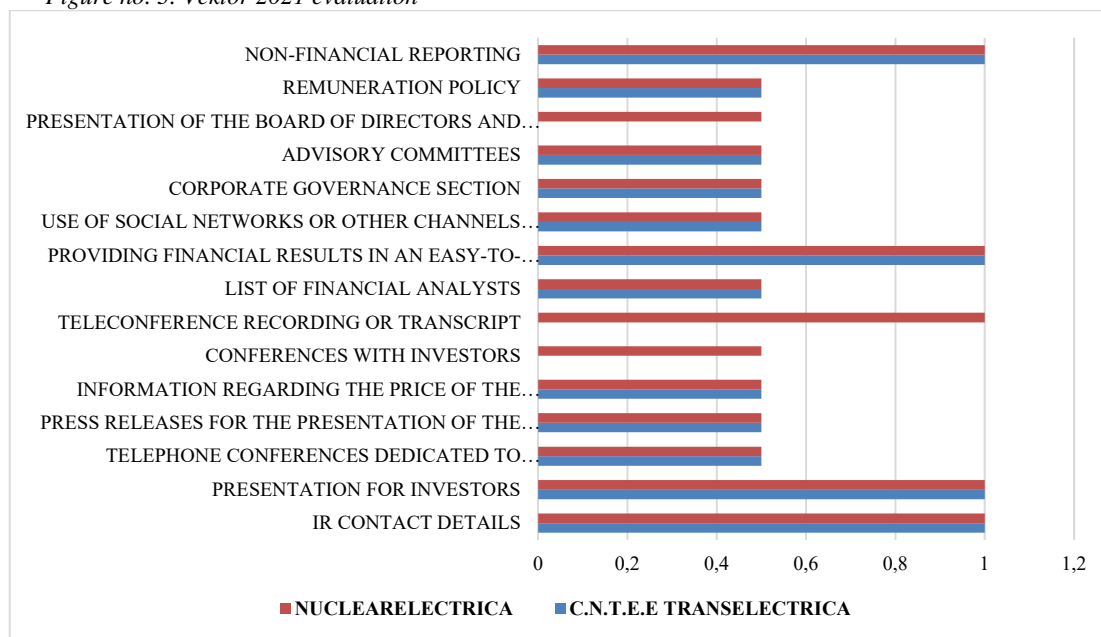
NUCLEARELECTRICA SA obtains a higher score, suggesting greater transparency and concern regarding the remuneration policy of employees and management.

Regarding sustainability, SN NUCLEARELECTRICA SA obtains a higher score for non-financial reporting compared to CNTEE TRANSELECTRICA. This suggests a more pronounced concern of SN NUCLEARELECTRICA SA for non-financial aspects and integrated reporting such as environmental impact and commitment to sustainable development. Compared to previous years, SN NUCLEARELECTRICA SA demonstrated an increase in this indicator, giving increased interest in the responsible management of its impact on the environment and the communities in which it operates.

The analysis of the relevant indicators in 2020 for CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA in terms of investor relations, proactive approach in IR, interactive IR tools, corporate governance and sustainability shows an evolution and consolidation of these companies in their financial communication and transparency. Although there are some differences between the two companies in certain aspects, both show an increased interest in improving the relationship with investors and providing relevant and accessible information. By comparing the current results with those of previous years, we can observe a continuity and an adaptation to the changes in the business environment, indicating a stable approach and a consolidated strategy in financial communication. These developments suggest that both companies have understood the importance of effective and transparent communication with investors and are committed to constantly improving their financial communication and corporate governance practices to ensure the trust and satisfaction of investors and other stakeholders.

As in 2020, the Vektor 2021 indicator analyzes 15 parameters grouped into 5 categories as follows: investor relations, proactive approach in IR, interactive IR tools, corporate governance, sustainability, presented in Figure no. 3.

Figure no. 3. Vektor 2021 evaluation



Source: own processing

In terms of IR contact details and investor presentation, both companies get maximum scores, 1 point, indicating the existence of a well-structured communication channel and investor presentations. This is an essential practice in financial communication and demonstrates the companies' commitment to transparency and accessibility.

Conference calls dedicated to financial results and press releases to present financial results are important assessments in financial communication. Both companies score 0.5 points, reflecting the existence of such events and information materials. These practices allow investors to be informed

in a timely manner about the financial evolution of companies and to better understand the context in which they operate.

For share price information, both companies score 0.5 points. This shows that the two companies provide relevant and up-to-date information on share price developments, which is essential for investors in their decision-making process.

Investor conferences are an important aspect of taking a proactive approach to investor relations. CNTEE TRANSELECTRICA obtains 0 points, indicating an absence in the organization of these conferences. In contrast, SN NUCLEARELECTRICA SA gets 0.5 points, suggesting that it involves its investors in such events. This aspect represents an opportunity for CNTEE TRANSELECTRICA to improve its financial communication and create a more direct interaction environment with its investors.

Recording or transcribing conference calls is a valuable practice in financial communication, allowing investors to access the information discussed in the conference calls. SN NUCLEARELECTRICA SA gets 1 point, indicating the existence of these records, while CNTEE TRANSELECTRICA gets 0 points, suggesting that it does not provide such resources.

The list of financial analysts is important to investors because it provides a picture of the company's external recognition and specialist opinions. Both companies score 0.5 points, indicating the existence of such a list and recognition of the importance of communication with financial analysts.

Providing financial results in an easy-to-process format is essential for investors. Both CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA score 1 point, reflecting that both provide financial reports that are easy to understand and analyze.

Using social media or other channels for IR news is an increasingly common practice in financial communication. Both companies score 0.5 points, indicating that they use such channels to inform investors of relevant news.

CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA obtain 0.5 points for the corporate governance section, indicating the presence of such a section in the financial reports. This highlights the companies' commitment to transparency and the adoption of high standards in corporate governance.

Advisory committees are an important practice in corporate governance. Both companies score 0.5 points, suggesting the existence of these committees and their involvement in the decision-making process.

Presenting information to the board of directors and executive management is a valuable practice in financial communication. SN NUCLEARELECTRICA SA obtains 0.5 points, indicating their presentation in the financial reports, while CNTEE TRANSELECTRICA obtains 0 points, suggesting the absence of this information.

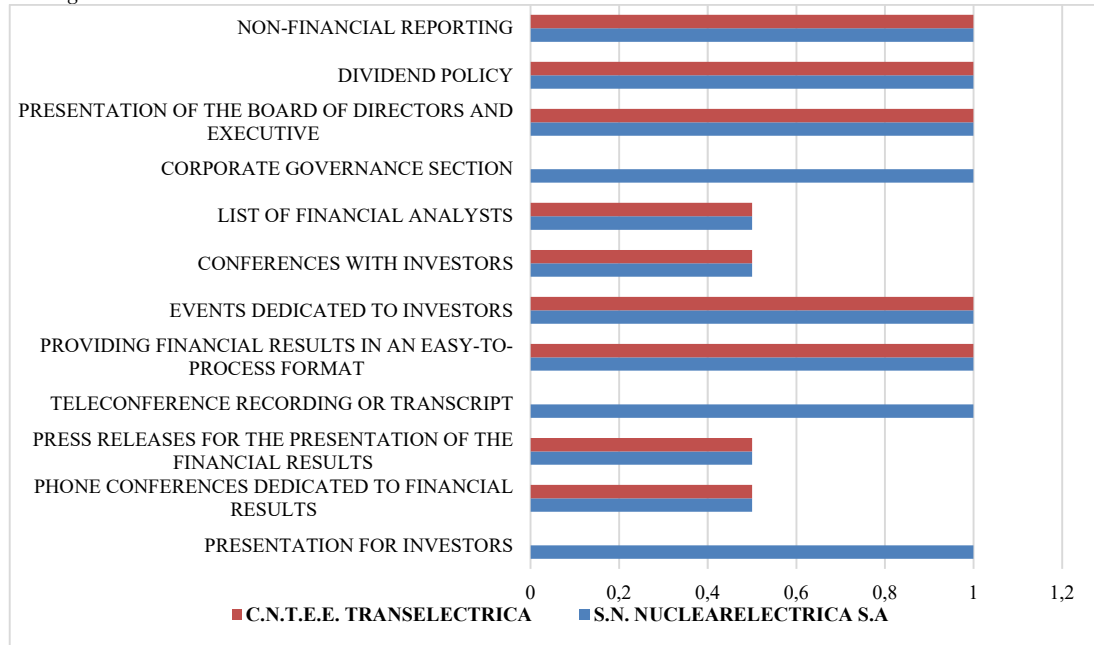
The remuneration policy is an important component of corporate governance and financial transparency. Both companies score 0.5 points, reflecting the existence of a concern regarding the remuneration policy.

Non-financial reporting is a key practice in responsible and transparent financial communication. Both CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA obtain 1 point, indicating that they provide relevant and up-to-date information about the impact of their activity on the environment and social aspects.

The analysis of the relevant indicators from the relationship with investors for CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA for the year 2021 highlights both their strong points and aspects for which there is room for improvement. Both companies score well in most indicators, but there are opportunities for development, such as holding investor conferences for CNTEE TRANSELECTRICA or presenting information to the executive management for SN NUCLEARELECTRICA SA. By improving financial communication and adopting proactive practices, companies can strengthen trust investors and can provide clearer and more relevant information for evaluating their financial performance.

Figure no. 4 presents the evaluation of the Vektor indicator for the year 2022.

Figure no. 4. Vektor 2022 evaluation



Source: own processing

SN Nuclearelectrica SA attaches great importance to the presentation for investors, highlighted by the score of 1 for this indicator. The company recognizes the need to provide relevant and up-to-date information to investors, thereby providing them with a comprehensive view of the company's performance and strategic direction. On the other hand, CNTEE Transelectrica does not pay the same attention to the presentation for investors, obtaining a score of 0 for this indicator. The company could benefit from a proactive approach in communicating with investors by developing a comprehensive presentation that provides clear and relevant information.

Both companies, SN Nuclearelectrica SA and CNTEE Transelectrica, recognized the importance of conference calls dedicated to financial results, obtaining a score of 0.5 for this indicator. This demonstrates their commitment to communicating directly with investors and providing up-to-date information on companies' financial performance.

Both SN Nuclearelectrica SA and CNTEE Transelectrica use press releases to convey relevant information regarding the presentation of financial results, obtaining a score of 0.5 for this indicator. This practice allows companies to reach a wider audience and inform investors and other interested parties about their financial performance.

SN Nuclearelectrica SA gets a score of 1 on this indicator, indicating that it provides recordings or transcripts of teleconferences. This approach provides investors with access to relevant information and allows them to gain insight into key discussions and decisions on conference calls. CNTEE Transelectrica, on the other hand, does not provide recordings or transcripts of conference calls, obtaining a score of 0. The company could evaluate the possibility of providing this facility to increase the accessibility of information and to ensure that investors have access to the same information.

Both SN Nuclearelectrica SA and CNTEE Transelectrica pay particular attention to providing financial results in an easy-to-process format, achieving a score of 1 in this indicator. This practice facilitates the understanding and analysis of financial information by investors, contributing to the transparency and efficiency of financial communication.

Both SN Nuclearelectrica SA and CNTEE Transelectrica recognize the importance of organizing events dedicated to investors, obtaining a score of 1 for this indicator. These events provide valuable opportunities for direct interaction between investors and company representatives, allowing investors to obtain additional information and clarify questions or concerns.

Both companies, SN Nuclearelectrica SA and CNTEE Transelectrica, attach importance to the organization of conferences with investors, obtaining a score of 0.5 for this indicator. These conferences provide a platform to communicate directly with investors, presenting them with detailed information on financial performance and development strategies.

Both SN Nuclearelectrica SA and CNTEE Transelectrica recognize the importance of the list of financial analysts, obtaining a score of 0.5 for this indicator. This indicates that both companies monitor and identify relevant financial analysts in the field and involve them in their investor communication process.

SN Nuclearelectrica SA pays special attention to the corporate governance section, obtaining a score of 1 for this indicator. The company highlights the importance of transparency and good governance in communication with investors, providing them with relevant information about the management structure and control mechanisms.

CNTEE Transelectrica, on the other hand, gets a score of 0 for this indicator. The company could improve its communication practices by paying more attention to corporate governance and by providing detailed information about the management structure and control mechanisms.

Both SN Nuclearelectrica SA and CNTEE Transelectrica attach importance to the presentation of information to the board of directors and executive management, obtaining a score of 1 for this indicator, which demonstrates their commitment to providing relevant and transparent information about the management team and their experience in energy field.

Both SN Nuclearelectrica SA and CNTEE Transelectrica attach importance to the dividend policy, achieving a score of 1 for this indicator, which highlights their commitment to rewarding shareholders by distributing dividends in a transparent and predictable manner, contributing to stability and investor confidence.

Both companies, SN Nuclearelectrica SA and CNTEE Transelectrica, attach importance to non-financial reporting, obtaining a score of 1 for this indicator. This emphasizes their responsibility for integrated reporting, sustainability and their social and environmental impact, providing detailed and transparent information on this.

## 5. Conclusions

After analyzing this data, there is a trend of growth and improvement in the financial communication and corporate governance practices of both companies over the years under review, which is a positive aspect, as it demonstrates the companies' commitment to being transparent and provide relevant and accessible information to investors and other interested parties.

Companies have been able to improve their relationship with investors, including by taking a proactive approach in their relationship. Entities have made efforts to strengthen corporate governance and provide clear information about the board of directors and executive management, considered essential to ensure investor confidence and demonstrate transparency and accountability in business decision-making. Both companies have also paid increased attention to sustainability and non-financial reporting, a significant aspect in a context where environmental and social responsibility concerns have become increasingly important for investors and society in general.

However, there are also practices by which companies can continue to improve financial communication. For example, holding investor conferences may be more efficient and better structured in some cases. Also, CNTEE TRANSELECTRICA could develop practices for recording teleconferences or making their transcripts to facilitate investors' access to important and relevant information.

In conclusion, the analysis of financial communication and corporate governance practices of CNTEE TRANSELECTRICA and SN NUCLEARELECTRICA SA shows significant progress towards more transparent and effective communication with investors and other interested parties. However, there is always room for improvement and strengthening of these practices in order to ensure robust financial communication and build the confidence of investors and other stakeholders in the companies' work.



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# The Edupreneur: Empowering Education through Entrepreneurial Innovation

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## Abstract

*This paper examines the concept of edupreneurship and its impact on the education system. Edupreneurship is an innovative approach that combines elements of entrepreneurship and education, aiming to transform and improve the learning process. The paper highlights the main characteristics of edupreneurship, including initiative, creativity, risk-taking and entrepreneurship. The benefits of edupreneurship in terms of developing key 21st century skills such as critical thinking, problem solving and collaboration are also analysed. A relevant case study is also presented, illustrating how edupreneurs are contributing to the transformation of education systems in Romania. The paper highlights the importance of support and collaboration between education, business and government to promote edupreneurship. By implementing edupreneurship, we can create an educational system adapted to the needs of society and prepared for the challenges of the future.*

**Key words:** edupreneur, education, creativity, innovation, edupreneurship

**J.E.L. classification:** I20

## 1. Introduction

In the dynamic and ever-changing world of education, a new concept has begun to gain attention: edupreneurship. Edupreneurs are the pioneers who combine passion for education with entrepreneurial skills to bring innovation to the education system. They are called sometimes 'education entrepreneurs' (Smith and Petersen, 2006), other times 'educational entrepreneurs' (Hess, 2006) or simply 'edupreneurs' (Lavaroni and Leisey, 2007).

Edupreneurship is a form of social entrepreneurship, in which individuals engage in innovative educational projects, developing solutions for educational needs and challenges. These edupreneurs take risks and use their creativity to create and implement unique educational programs and platforms.

A key aspect of edupreneurship is the holistic approach to the learning process. Edupreneurs are concerned not only with the transmission of knowledge, but also with the development of the skills and competencies necessary to face the demands of today's society. They explore new teaching and assessment methods, integrating technology and innovative approaches into the educational process.

Edupreneurs also assume an important role in promoting the entrepreneurial spirit among young people. They encourage students to develop their critical thinking, creativity and personal initiative. Through special programs and workshops, edupreneurs inspire students to explore their entrepreneurial potential and turn their ideas into reality.

Another notable aspect of edupreneurship is the emphasis on collaboration and partnerships. Edupreneurs collaborate with educational institutions, non-governmental organizations, the business environment and other relevant entities to create synergies and amplify the impact of their educational initiatives.

Edupreneurship represents an innovative approach to the educational system, which combines elements of traditional education with the entrepreneurial spirit. According to The Edupreneur's Guidebook "Edupreneurship is the marriage of education and entrepreneurship, unlocking the potential to revolutionize the way we learn and teach. It empowers educators to create innovative

solutions that bridge the gap between traditional classroom settings and the demands of the modern world." (Cordiner, 2017, p. 101).

Edupreneurs are professionals passionate about education, who aim to bring positive changes in the field of education through innovation, creativity and initiative. They are "In the realm of education, the catalysts for change, driving the transformation of outdated systems into vibrant and inclusive learning communities. They envision a future where education is personalized, accessible, and empowering for all learners." As Tait and Faulkner state. (Tait and Faulkner, 2018, p.87).

These edupreneurs have a vision for the education system and are eager to put it into practice. They are involved in the creation and development of innovative educational solutions that meet the current needs and challenges of pupils and students. From online learning platforms, mobile apps, to non-formal education projects, edupreneurs seek to provide accessible, engaging and relevant learning opportunities for new generations.

An important aspect of edupreneurship is the fact that these professionals are not limited to the development of solutions, but are also involved in their implementation. They are open to collaboration with educational institutions, non-governmental organizations or other entities interested in improving the educational system. Thus, edupreneurs become agents of change, contributing to the transformation of education into a more dynamic process and more adapted to the needs of contemporary society.

In addition, edupreneurship has the potential to create economic and social opportunities. By developing innovative educational products and services, edupreneurs can help create jobs and boost the local economy. At the same time, by offering quality educational solutions, edupreneurs contribute to the formation of a better educated society, with equal development opportunities for all individuals.

## **2.Theoretical background**

Edu-preneurship, or entrepreneurship in education, refers to the application of entrepreneurial principles in the field of education. While there is no rigid theoretical framework for edupreneurship, there are certain concepts and theories that can be applied in this context. Here are some key elements that can be considered in the theoretical framework of edupreneurship:

1. Entrepreneurship: Edu-preneurship borrows principles and approaches from traditional entrepreneurship. This includes innovation, risk-taking, results-oriented approach and finding opportunities to solve problems in education.

2. Design thinking: This method of problem solving focuses on deeply understanding user needs and generating innovative solutions. By applying design thinking in education, edupreneurs can develop products and services that meet the specific needs of students and teachers.

3. Entrepreneurial Learning Theory: This theory focuses on the development of entrepreneurial skills and mindset. It emphasizes the importance of learning by doing, taking responsibility, problem solving, decision making and self-confidence. Edupreneurs can use these principles to encourage entrepreneurship in students and prepare them to develop their skills outside the educational environment.

4. Organizational change theory: Edupreneurs who want to bring innovations in the educational system can use principles from organizational change theory. This includes understanding the process of change, managing resistance to change and creating an enabling climate for innovation and educational improvement.

5. Theory of Innovation in Education: This theory explores how innovations are adopted and implemented in the field of education. Edupreneurs can study the factors that influence the adoption and success of innovations in schools and use this knowledge to develop their implementation strategies.

These are just some of the theories and concepts that can be considered in the theoretical framework of edupreneurship. It is important to note that edupreneurship is a constantly evolving field and practitioners can bring innovative contributions and approaches to promote progress in education through entrepreneurship.

There are a number of books and literature that address the topic of edupreneurship, providing information and practical guidance for those interested in developing their education business.

For example, "The Edupreneur's Guide to EdTech: A Framework for K-12 and Higher Education" by Timothy D. Green provides insight into how entrepreneurs can use educational technology to revolutionize the education system. "The Innovator's Mindset: Empower Learning, Unleash Talent, and Lead a Culture of Creativity" by George Couros explores how educational leaders can be innovative and encourage innovation in education systems. The author of "Education Nation: Six Leading Edges of Innovation in our Schools", Milton Chen, presents six key areas where innovation can have a significant impact in the education system and provides concrete examples of innovations in each area. A global perspective on entrepreneurship education is provided in "Entrepreneurship Education: A Global Perspective" by Michael Fritsch and Alina Rusakova, exploring how this field is approached in different countries and cultures. "Edupreneur: Unleashing Teacher Led Innovation in Schools" by Aaron Tait and Dave Faulkner focuses on how teachers can become edupreneurs and bring innovation to the education system.

### **3. Research methodology**

In the digital age we live in today, the Internet has become an inexhaustible source of knowledge and information. Access to information is at our fingertips, and Internet research has become an essential method in the study of various fields.

When we embarked on the research process on edupreneurship, we found the Internet to be an indispensable resource in obtaining relevant and up-to-date information. Through the search engine, we were able to explore different sources such as scientific articles, blogs, reports and websites of organizations specialized in education and entrepreneurship. This variety of sources allowed us to approach the subject from multiple perspectives and to obtain a complex picture of the edupreneurship phenomenon.

As we ventured into the world of online research, we discovered that there are numerous case studies and examples of success that have been documented and published on various platforms. We were able to identify entrepreneurs in the field of education who turned their visions into reality through the Internet and digital technologies. These examples inspired us and gave us a deeper insight into how edupreneurs build their businesses and their impact in society.

Another advantage of Internet research in the study of edupreneurship was the opportunity to interact with the online community and participate in discussions and debates on forums and social networks. We had the opportunity to communicate directly with edupreneurs, experts in the field and even with the beneficiaries of the products or services offered by them. These interactions allowed us to ask questions, get clarifications and better understand the needs and challenges faced by edupreneurs in practice.

Internet research has not only meant getting information, but also participating in online learning programs specifically designed for education entrepreneurs. We had access to courses and webinars that gave us practical knowledge about business strategies, instructional design, digital marketing and other critical aspects for success in this field. These learning resources helped us develop our skills and enrich our knowledge in an interactive way and adapted to our own learning paces.

The internet research method was essential in studying edupreneurship in an effective and engaging way. Through access to varied information, case studies and success stories, direct interaction with industry specialists, and participation in online learning programs, we were able to gain a complex and current perspective on edupreneurship. The Internet has opened doors to a vast world of knowledge and development opportunities, allowing us to be true "digital edupreneurs" in our own learning and research process.

On the other hand, in our quest to better understand the concept of edupreneurship and its impact in Romania, we decided to venture on an online journey. We opened the browser and started exploring the rich digital resources, looking for information about edupreneurship and how this movement took off in Romania.

With each page accessed and each article read, we began to understand the importance of edupreneurship in the Romanian context. We have come across many examples of passionate people who have turned their ideas and knowledge into education businesses. We discovered that Romanian edupreneurs want to offer innovative and effective solutions to improve the educational system in our country.

One of the remarkable aspects of our online research was the diversity of ideas and approaches regarding edupreneurship in Romania. We found examples of start-ups developing online learning platforms, mobile apps for education, tutoring services and more. These initiatives were created by people committed to providing access to quality education regardless of location or social conditions.

#### 4. Findings

During our research, we also noticed that edupreneurship in Romania is heavily based on technology. The Internet and new digital technologies play a crucial role in creating and promoting educational businesses. Through online platforms and apps, edupreneurs can reach a larger number of students and provide personalized and interactive content.

In addition to the impact in the educational sphere, edupreneurship also has a significant influence on the Romanian economy. These educational businesses not only bring innovation and a proactive approach to education, but also generate jobs and contribute to the economic development of the country. Romanian edupreneurs have demonstrated that they can bring about a significant change and have a positive impact on society.

Our online research about edupreneurship in Romania made us realize that this movement is booming in our country. We discovered a community of passionate people who want to revolutionize the education system and provide quality education for all. Technology and innovation are key elements in this movement, and the results are visible both in the educational sphere and in the economy of the country.

Edupreneurship in Romania is a relatively new concept that combines elements of education and entrepreneurship. The term refers to the development and implementation of innovative educational projects and initiatives, which aim to promote an entrepreneurial culture in the Romanian education system.

In recent years, entrepreneurship education has become increasingly important in Romania, and edupreneurship has begun to gain ground as a method to prepare young people for the labor market and to encourage them to develop their own businesses. This approach aims to combine theory and practice, to encourage critical thinking, creativity and entrepreneurship in pupils and students.

There are various organizations and initiatives that support and promote edupreneurship in Romania. They offer specific educational programs and resources to develop the entrepreneurial skills of pupils and students. These programs may include training sessions, business competitions, internships in the business environment or supporting the establishment of student start-ups.

There are also partnerships between educational institutions and the business environment in which joint projects are carried out or special events are organized to promote entrepreneurship among pupils and students. Thus, an attempt is made to create a bridge between the world of education and that of business, in order to stimulate the interest and entrepreneurial skills of young people.

Edupreneurship in Romania represents an important initiative in developing the entrepreneurial skills of young people and in promoting the entrepreneurial culture in the education system. By integrating entrepreneurial education into school and university programs and by involving the business environment, the aim is to train a new generation of entrepreneurs and innovators in the country. In other words,

In Romania, there are several institutions and organizations that support the development and promotion of entrepreneurship in the field of education. Here are some notable examples:

1. Business School - It is a private educational institution that offers training and education programs in the field of entrepreneurship and entrepreneurial education. Business School promotes the development of entrepreneurial skills and competencies among teachers and students.

2. The Romanian Association for Entrepreneurship - It is a non-governmental organization that supports and promotes entrepreneurship among young people and local communities. It organizes various programs and events to develop entrepreneurship and support young people in starting and managing their own businesses.

3. Junior Achievement Romania - It is a non-profit organization that aims to educate and prepare young people for business life and inspire them to become successful entrepreneurs. It offers

educational programs, such as "Company", where students learn to create and manage their own business.

4. School of Values - It is an organization that offers entrepreneurial and leadership education programs for young people. Their aim is to develop critical thinking skills, creativity and entrepreneurship among participants.

5. Institute of Entrepreneurial Education - Offers training and training programs in the field of entrepreneurship and entrepreneurial education, both for teachers and students. Their aim is to promote entrepreneurship in schools and develop the entrepreneurial skills of young people.

These are just a few examples of institutions and organizations that support entrepreneurship education in Romania. There are other initiatives and projects that encourage the development of the entrepreneurial spirit and promote education in this field.

In Romania, currently, there are no institutions specialized exclusively in edupreneurship, but rather there are organizations, programs and initiatives that support entrepreneurship in the field of education. They can be found in academia, the private sector or non-governmental organisations, and focus on developing and promoting innovation in education.

Case study:

Here is an example of a method that the Entrepreneurial Education Institute could use to promote edupreneurship:

Name of the method: Edupreneurship Development Program

Purpose of the method:

The Edupreneurship Development Program aims to promote entrepreneurial skills and innovation in the field of education, encouraging teachers and educational staff to become edupreneurs. The method aims to inspire and prepare participants to transform their ideas and knowledge into innovative educational solutions, generating positive impact in the education system.

Objectives of the method:

- To encourage entrepreneurship among teachers and educational staff.
- To develop innovation, creative thinking and problem solving skills in the context of education.
- To support the development and implementation of innovative educational solutions in schools and educational institutions.
- To provide support and resources for turning ideas into innovative educational products or services.
- To facilitate networking and collaboration between edupreneurs, teachers and other stakeholders in the field of education.

Method steps:

- Identifying needs and opportunities: Participants will be encouraged to identify challenges and opportunities in the education system and generate innovative ideas to address them.
- Development of entrepreneurial skills: Participants will be involved in training sessions and interactive workshops that aim to develop the entrepreneurial skills needed to transform ideas into educational products or services.
- Mentoring and coaching: Participants will benefit from mentoring and coaching from entrepreneurship and education experts who will support them in the process of developing and implementing innovative educational solutions.
- Access to resources and funding: Participants will be guided and supported in accessing available resources and funding to develop their ideas and put them into practice.
- Presentation and evaluation: Participants will have the opportunity to present their innovative educational solutions to an audience and a jury of experts in the field of education and entrepreneurship. Solutions will be evaluated and awarded according to their potential impact.
- Networking and collaboration: The program will facilitate interaction and collaboration between edupreneurs, teachers and other stakeholders in the field of education, by organizing dedicated events, conferences and online platforms.

The benefits of the method:

- Developing entrepreneurial and innovative skills in education.
- Promoting entrepreneurship among teachers and educational staff.

- The generation of innovative educational solutions, adapted to the current needs and requirements of the education system.
- Increasing the quality of the learning process by introducing new methods and technologies.
- Creating an environment of collaboration and exchange of best practices between edupreneurs, teachers and other interested parties in the field of education.

This is a general method that the Entrepreneurship Education Institute can adapt and customize according to needs and available resources. The main goal is to encourage and support the development and implementation of innovative educational solutions that bring real benefits to the education system and students.

## 5. Conclusions

In conclusion, edupreneurship is an innovative movement that is transforming the way we learn and educate. Edupreneurs are courageous pioneers who bring positive changes in education, developing programs and solutions that meet the needs of society in the 21st century. Through their creativity and passion, edupreneurs are shaping the future of education, preparing future generations for the challenges and opportunities of the ever-evolving world.

Edupreneurship in Romania has become a growing force in the country's educational and entrepreneurial landscape. In recent years, more and more people have seen the unique potential of education and have chosen to combine their passion for learning with entrepreneurship, thereby creating valuable opportunities for themselves and the community.

An obvious conclusion is that edupreneurship represented a significant source of innovation and change in the field of education in Romania. From online learning platforms and digital tutorials, to exam preparation centers and alternative educational programs, edupreneurs have brought new approaches and methods to the learning process, adapting to the specific needs of students.

This trend is also supported by the increased interest of young entrepreneurs and investors in the education sector. Many Romanian entrepreneurs see opportunities in the development and commercialization of technological solutions and innovative educational programs. This entrepreneurial initiative brings economic and social advantages, generating jobs and improving access to quality education.

However, for edupreneurship to continue to thrive, collaboration between the public and private sectors is essential. The government should create a favorable environment for the development of educational businesses by providing tax incentives, facilities and support in the training and development of skills necessary to run a business in this field.

In conclusion, edupreneurship in Romania represents an important source of innovation and development in the field of education. With the right support from the government and the continued involvement of young entrepreneurs, this sector can significantly contribute to improving the education system and creating innovative learning opportunities for students.

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## Understanding Commodity Investments: Factor Analysis and Bibliometric Findings

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### Abstract

*In recent years, commodity investment research has made significant progress. The crisis arising from the Covid-19 pandemic and the war in Ukraine highlighted the importance of understanding commodity markets and rationalizing distribution chains. The main research topics relating to commodities are in constant flux. The present study conducts a bibliographic analysis based on 920 research papers indexed in Scopus during 1980-May 2023. The focus was set on the economic perspectives of commodities and a knowledge map of the most frequently used research themes revealed remarkable research advancements. This analysis was deepened by factor-based research methods, which allowed us to explore the relationships between the most used keywords and implicitly identify the themes of increasing interest in commodity investments. The results show that commodity markets research is closely linked to cost-economic research, environmental impact research, and human involvement in the management of distribution chains.*

**Key words:** commodity investment, bibliometric analysis, factor analysis, knowledge mapping.

**J.E.L. classification:** D80, G00, Q02

### 1. Introduction

Despite technological progress and economic difficulties, our planet suffers from pollution and depletion of resources. Although the deterioration of the environment is indisputable and leads to global warming and increasingly poor access to resources, human consumption, and expenditure behavior progress.

Several studies warn against the risks of the consumption of underground resources or the generation of energy that severely impact the global environment (Huijbregts et al., 2010). The greenhouse effect and its analysis of evolution have become increasingly important and highly analyzed topics. Efficiency or rationalization of water consumption, desertification and the environmental impact of primary resource consumption are just some of the recent problems that have stimulated the scientific world.

The context of the crisis arising from the Covid-19 pandemic, the long-term war in Ukraine, and the global imbalances resulting from lack of access to resources are all questions of research. Concerns are raised about the destructive environmental impacts of mismanagement of resources or abuse of commodities. On the other hand, commodities create an opportunistic context for the investment environment (Poncela et al., 2014). The listing of commodity traders has become an increasingly exciting topic for economic research.

The present study provides a retrospective of published economic studies focusing on the topic of commodities. The bibliometric analysis on keywords supplemented by factor analysis showed commodity market investigations are closely linked to economic cost research, environmental analysis, and human involvement in commodity management.



## 2. Theoretical background

The field of commodities and commodity markets is of intense research interest especially in recent years. Although there are many analyses on the impact of commodity consumption on the environment (Batrancea et al., 2021), the research hotspots still change, because the commodity market itself is constantly evolving.

Understanding commodities implies a dual perspective. On the one hand, commodities offer investment opportunities and have become important portfolio investment assets. On the other hand, commodity management is a challenge for controlling negative effects and has a direct impact on the environment of our planet, leaving deep traces in terms of resource consumption or reckless exploitation.

Commodity investments relate to energy, metals, cereals, soft foods, and meats. Among the investments in metals, literature focuses mainly on the analysis of gold, silver, and platinum investments. In terms of energy investment, research has focused on Brent oil prices, carbon emissions, crude oil, and natural gas. In cereals, several scholars explored the evolution of investment indicators for wheat, corn, rice, or oats. The soft market includes stocks markets indicators for cocoa, coffee, sugar and orange juice, while meat markets provide information on livestock.

Commodity investment research has multiple implications for daily life. Commodities are the main resources of human life or economic activity. Consumption has various triggers, as the research provides insights into technological advances or social media that can influence consumer behavior (Micu et al., 2016). Other studies explore energy consumption and show that it is one of the driving forces of business and also an important resource. Commodity prices influence consumption and business cycles (Alquist et al., 2014), but they also directly affect exchange rates, according to empirical evidence (Sankararaman et al., 2018).

By reviewing the literature, we have observed that there are shortcomings in the bibliometric analysis in the field of commodity investments. From an economic perspective, diversification of investment portfolios is an important concern for financial market players.

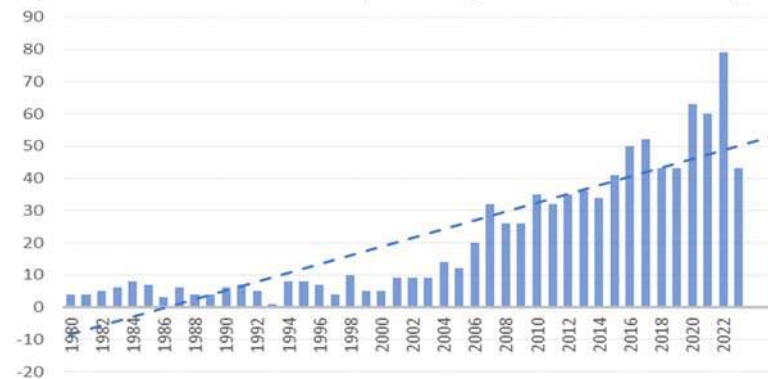
The methodology of the study contributes to the research and is anchored in the subjectivity of the researcher's argumentation (Pathac et al., 2023). Traditional classification and data analysis face serious difficulties when it comes to the need to investigate large amounts of information or long time series. Statistical analysis is an objective alternative to such contexts and is preferred by researchers to explore information in depth and in a comprehensive way (Tolmasky et al., 2002; Micu et al., 2013). Bibliometric analysis is a valuable method for investigating research trends. Relations between authors, keywords, journals, co-citations, source journals and other such information can be thoroughly explored and can actively contribute to the mapping of knowledge on various hot topics. Factor analysis allows the database to reduce its dimensions, and visually explains and represents the correlations between the increase in variables in an  $n$ -dimensional space (Mirea et al., 2016a; Munteanu et al., 2017). Reducing the large number of keywords used in various research directions to a limited number of factors allows for better and more comprehensive information management.

## 3. Research methodology

To identify relevant data for our analysis we used the Scopus database, following a process of systematically evaluating the commodities literature through several steps (Bem, 1995). The observation period was extensive, starting from 1980 to May 2023. The first stages of the research focused on building an analysis base and filtering the relevant information for the study. The selection criteria of relevance and validity were set up to include keywords such as "accounting" and "commodity". A total of 920 publications which met the criteria were obtained.

The numerical evolution of the publications included in the analysis sample is shown in Figure 1. It is interesting to note that the subject of commodities has started to raise more and more interest among economics researchers since 2006 and is now a hot topic in research. The diachronic evolution of research trends on the topic of commodities allows us to calculate the prediction of research interest over the next three years. The forecast of the research trends for the following period is marked with a dotted line in Figure 1, and it vividly shows that its upward trend suggests the expectation of an intensification of research in the field of commodities.

Figure no. 1 Numerical evolution of research publications on accounting and commodities topics



*Source:* own research

The next steps of the analysis aimed at reducing the dimensionality of the identified keywords and exploring the relationships between them to identify hot topics related to commodity investments. Towards this goal, factor analysis allowed the construction of a knowledge map of linked keywords and the analysis of the relevance of the links between the items analyzed.

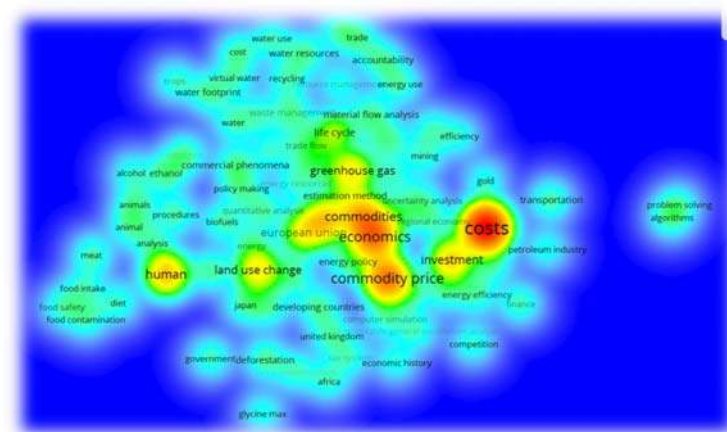
## 4. Findings

The bibliometric analysis followed the relevance of each selected study and the validity of the keywords used. To increase the relevance of the analysis, the next step consisted of additional filtering of the database, setting the condition that the minimum number of occurrences of each identified keyword was 12. Of the 7055 keywords identified, 100 met the selection criteria, total link strength was 5318, and the keywords were grouped into 6 clusters according to the research topic and the association of their use in research papers.

The validity of the keywords used was confirmed in the next stage of data processing, when the data filtering focused on keywords that were similar, such as keywords in plural and singular form that had the same meaning. After applying this last filter, 6966 keywords were identified, of which the selection targeted those words with a minimum number of occurrences of 8. 84 keywords out of the 920 selected papers met the threshold.

The visual presentation of the results and the creation of a knowledge mapping were made possible by using the VosViewer software, density visualization being considered the most suggestive for observing item density, according to Figure 2. A medium value of the Kernel width parameter was chosen.

Figure no. 2 Density visualization of research keywords



*Source:* own research

From Figure 2 a rough conclusion can be drawn regarding most of the used keywords in the field of commodity accounting research. The density visualization suggests that commodity prices, costs, economic implications, and human interventions are key issues concerning commodity analysis.

Keywords represent the quintessence of analyzed contextual ideas, and their repeated use across multiple studies allows the identification of hot topics in research (Gurtu et al., 2015). VosViewer shows a link between two keywords whenever there is a co-occurrence relationship between these two keywords in a publication (Guo et al., 2019, pp. 7). Total link strength shows the number of papers in which the two keywords appear together. Of the 84 keywords identified, keywords that recorded or frequented a co-occurrence greater than 10 were selected for inclusion in the next steps of the analysis, as shown in Table 1.

*Table no. 1 Data description of keywords co-occurrence*

No.	Keyword	Occurrences	Links	Total link strength
1	costs	140	50	229
2	commodity price	74	49	130
3	economics	73	64	172
4	commodities	52	51	100
5	human	46	46	124
6	carbon	42	57	130
7	investment	40	38	80
8	greenhouse gas	33	46	103
9	land use change	33	43	93
10	European Union	29	51	99
11	life cycle	22	42	88
12	accountability	11	11	14
13	commercial phenomena	11	49	63
14	conservation of natural resources	11	28	44
15	deforestation	11	14	28
16	developing countries	11	21	30
17	energy policy	11	21	34
18	environmental management	11	23	28
19	estimation method	11	28	38
20	ethanol	11	29	51
21	income	11	31	43
22	material flow analysis	11	30	46
23	nitrogen	11	29	40
24	transportation	11	15	22
25	waste management	11	25	33
26	water footprint	11	27	41
27	water resources	11	22	32

*Source:* own research

The factorial analysis was performed by using Kaiser criteria, principal component matrix (PCA) as the extraction method (Mirea et al., 2016b) and the oblique rotation as the interpretation method. In accordance with the interpretation of Field, the oblique rotation was preferred to avoid oversimplifying the data (Field, 2013). The factor analysis performed on the sample data led to the extraction of two factors which explain 91,51% of the variance. The two factors were labeled according to Table 2 and the component plot is presented in Figure 2.

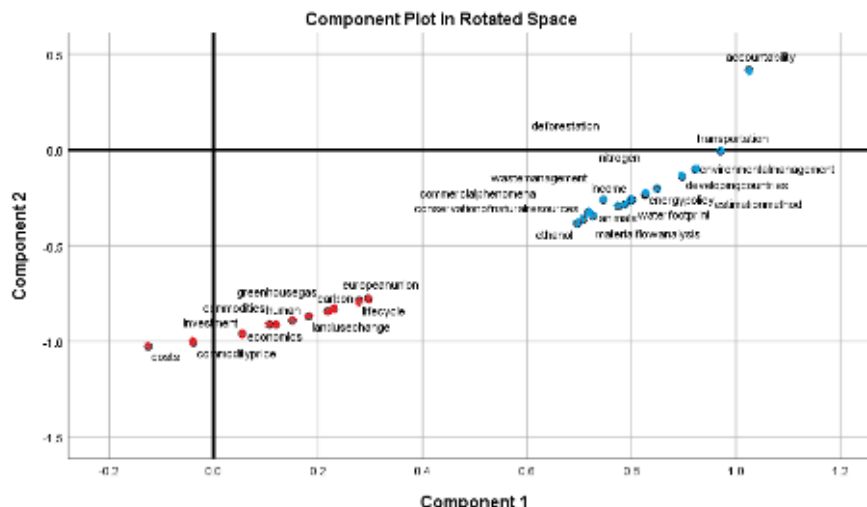
*Table no. 2 Factor labels and the corresponding number of keywords*

Factor	Factor Label	Number of keywords
Factor 1	Commodity investment	11
Factor 2	Commodity management	16

*Source:* own research

The label attributed to each factor was influenced by the keywords contained by the corresponding factor and the theme that could be considered as common. In order to better observe each factor, we used the red color for the representation of the keywords in factor 1, and the blue color for the representation of the keywords in factor 2, according to Figure 3.

Figure no. 3 Representation of component plot in rotated space



Source: own research

Factor 1 contained 11 keywords and explained most of the variance, 87, 54%. The label, Commodity investment, was inspired by the economic and commodity market oriented contained in the factor sampling. The most popular keywords are "cost", "commodity price", "investment" and "economics". The analysis suggests that the papers investigating commodities as portfolio investments or for cost reasons, also show close interest in the human involvement in supply chain management. Suggestive keywords supporting such conclusion are "greenhouse gas", "human", "land use change", "lifecycle" and "carbon".

Factor 2 contained 16 keywords, amongst which the most representative ones are "waste management", "deforestation", "environmental change", "developing countries", "water footprint" and "conservation of natural resources". The papers attributable to this factor have the common theme commodity management and support the research of commodities by acknowledging the managerial implications and the environmental effects of such management decisions.

It is interesting to note from the representation of Figure 3 that the keyword "accountability", which is contained in Factor 2, is represented at a fair distance compared to the cloud of related keywords. Such an observation suggests that understanding commodity management and its implications to the environment or resource use does not necessarily have strong links with accountability incentives.

## 5. Conclusions

This paper explores trends in research published on accounting and commodity topics on the Scopus platform from 1980 to May 2023. The subject of commodities is complex, manifesting several implications for daily life in general, and representing extensive investment opportunities in particular. Since 2066, the topic has attracted significant research interest and is currently a hot topic of research, particularly in terms of exploring trends in the commodity market.

The exploration of co-occurrence of keywords using bibliometric analysis and factor analysis allowed the identification of the main directions of commodity economic research. Although the research hotspots have tended to change over time along with the development of research perspectives, two main directions of analysis can be observed, namely commodity investment and commodity management.

When analyzing the limitations of the study, they are characterized mainly by the limited nature of the research sample. The data platform used for data collection, Scopus, is a comprehensive and relevant research literature database from which data can be extracted from renowned journals and publishers. The expansion of research trends analysis by supplementing the analysis sample with other relevant international databases in the field of research is a proposed future direction of analysis. In addition, this document analyzed the full record of selected papers, but bibliometric analysis did not allow other important aspects of the analysis to be included, such as the distinction between theoretical and empirical articles. On the basis of these limitations, it may be suggested to deepen the analysis of the contents of publications in the field of commodity investments in general and commodity investments in particular.

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## The Role of Phrasal Verbs in Business Communication

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### Abstract

*This paper illustrates the role of phrasal verbs in business communication (a business environment). With the world's economy becoming increasingly global, the desire and ability to compete in the global economy are some of the greatest challenges facing business today. Organizations will want to negotiate, consider joint ventures, adapt products for an international market. All of this involves communication, which is crucial to business and, therefore, communication skills are vital. A discussion about business communication should consider a wide array of elements, such as: verbal communication, nonverbal communication, paralanguage (intonation, tone of voice, pitch), the personal psychological traits of the people involved in that business, their attitudes, perceptions and behavior, the speakers' status, their managerial qualities, qualifications, knowledge, skills and abilities, experience, interests and needs, the general economic, social and even political context. This paper mainly focuses on the use of phrasal verbs (and collocations) in this type of communication.*

**Key words:** phrasal verbs, business communication

**J.E.L. classification:** D83

### 1. Introduction

An organization is 'a collection of individuals who have been brought together to carry out tasks to achieve set aims' (Dimbleby, Burton, 2007, p. 130). It is a group that has certain characteristics, as follows: it is established by an individual or group of people; it develops formally structured relationships between people; it sets objectives that the people in the organization are seeking to achieve; it manages human, financial, technological, and natural resources; effective communication is essential.

Communication, which is typical of any human being (see Buzarna-Tihenea, 2019, p. 140), in an organization is needed for: exchanging information; exchanging opinions and options/giving and seeking information; organizing and clarifying ideas, making plans and proposals; making and executing decisions, evaluating results. Furthermore, team communication is essential in an organization, especially in the English language, and, for this purpose, more and more employers assess the applicant's skills in this regard (see Buzarna-Tihenea, 2021, p. 226). It depends on the number of people, a shared purpose, the interdependence of group members, the presence of regular interaction and communication. Thus, relationships and collaboration can be boosted through communication while personal and joint needs can be met.

### 2. Literature review

The importance of communication is stressed by Nickerson *et al.* (2017, p. 148) who propose "more integration of mobile learning resources into business communication training". Due to the new social media and technology, approaches to communication have diversified and led to investigations into multi-communication (MC) practices (see Cameron & Webster, 2011; Turner & Reinsch, 2010). Gimenez (2014, p. 2) refers to MC as "the act of holding multiple conversations at the same time", "'conversation' including not only face-to-face but also electronically mediated communication (e.g., talk over the telephone, email, and instant messaging [IM])". The same

author mentions four "key skills": "Thematic threading" ("the ability to decide what messages can be dealt with simultaneously based on their topic"; "Presence allocation" ("requires communicators to allocate their presence over a number of simultaneous communication instances"; "Media packaging" ("the ability to decide what media to combine on the basis of their real or perceived compatibility"; "Audience profiling" ("concerns ways in which similar needs of diverse audiences can be grouped together to be dealt with more efficiently") (Gimenez, 2023, p. 89).

Guy Cook (2000) refers to three levels or fields of communicative competence: grammatical competence (knowledge of the lexicon, syntax, and semantics), strategic competence (strategies for effective communication) and sociolinguistic competence (depending on the context).

The bottom line is that communication should consider the topic under discussion, providing and receiving new information, coherence and cohesion, style and register and even rhetorical effectiveness.

When teaching business communication, teachers should be reflective researchers who select and then evaluate and rethink their approaches, attitudes and methods of presenting new business subject matters to their students. Learners must become partners in the process, while teachers become mentors, coaching and guiding the students to become autonomous learners. They are expected to be more independent, to make choices, and even to initiate learning activities.

### 3. Research methodology

The methodology that we have selected for our study to be carried out next year will consist of an experiment devised for students in the economic field. The hypothesis could be: a reality-like context and appropriate teaching and learning methods can help students get accustomed to speaking for specific business purposes and getting ready for work life.

Both the control and the focus group will study the same texts and the same explanations will be provided to them (see Table no. 1 and Table no. 2). Nevertheless, the activities/procedures/games prepared for the focus/experimental group will be different and heavily relied on *roleplaying* by creating various business situations, or a(n online) business meeting, conference; *crossword puzzles* created by teachers or students, using dictionaries or software; *to guess the right words* when being provided with definitions; *Seize the Keywords*, based on memorization; *Scrabble*; *First Letter, Last Letter* ("The first person writes or says a word, and the next person has to come up with another word using the last letter or the last few letters of that word [...] For example, the first student says "promotion." The next student takes the last letter "n" and might say "negotiation," and so on."); Playing *Twenty Questions* with business-related topics ("One student draws a card with a word on it. This can be a person, a thing, an event, or a situation. [...] Then, the other students have 20 chances to ask questions and find out what word is written on the card. For more information, go to <https://bridge.edu/tefl/blog/games-teaching-business-english/>).

In the table below we have selected some of the most frequently used phrases/collocations that should be studied in class and practised for expressing personal opinions, describing personal experiences, asking for clarifications, expressing agreement or disagreement, summarizing the group's discussion, etc.

Table no. 1 Vocabulary for group discussion

Personal opinion	In my opinion/view; The way I look at it/see it; It seems/appears to me that;
	If you ask me; From my point of view/viewpoint; My assessment is that; I have a feeling/It's my feeling/impression; What is your judgment of/What is your view of/conclusion about/feeling about/opinion of/impression of/ assessment of?; How do you view? What do you think about? How do you assess?
Personal experience	I had a similar experience; I faced a similar situation; I had the same problem/I was in a similar situation; Let me tell you what happened to me once in a situation like the one we're discussing.
Hypothetical situations	Let us assume/suppose/imagine/presume; Assuming that; Working on the assumption that; Given a situation in which.

Role-playing situations	Put yourself in Tom's position/place/shoes. What would you do? Suppose you were in Tom's position/place/shoes. What would you do? Imagine you are in Tom's position/place/shoes. What will you do? If you were in Tom's position/place/shoes, what would you do?
Clarification	Let me make myself clear/Let me clarify what I just said/Let me make that clearer; I'm having trouble understanding your idea. Could you please clarify it?; I don't follow you. Could you please clarify what you mean by...?
Explanation	Let me explain/Let me expand on this/Let me elaborate on this/Let me clarify this point; Can you please explain how this plan will be put into operation?; Would you expand on your idea?; Would you elaborate on your plan?; What is the justification for your request for an increase in funds?; What is the rationale behind a reorganization of the department?; How would/do you explain/interpret/account for these facts/events?
Agreement/Disagreement	Does everyone agree with Tom's proposal?; Do you go along with Tom's proposal?; Do you accept this view?; Before we go on to/move to/take up the next question/problem/point, do we all agree?; Is there anyone who disagrees?; Are we all in agreement?; I agree with Tom's proposal; I don't/can't agree with this idea; Does anyone have a different idea/opinion/viewpoint?; Can you think of another alternative?
Summary	Let me summarize; Let's review what we've discussed today; Let's briefly go over; In short,/To sum up,/In summary,/To summarize, we have agreed upon the following conclusions about; Before we go on to the next question/point/topic, let me give you a rundown of what we've covered; let's quickly review what we've talked about; let's briefly go over what we've discussed; let me summarize what we've covered; let's recapitulate our conclusions; let's see what we agree on; Let's see where we stand so far/to this point/up to this point; Let me give you a brief sketch of what I'm going to say; Let me outline for you what we're going to discuss; Let me give you an overview of what we discussed at our last meeting; Let me give you a short summary of what ... Let me give you a rundown of what ... Let me summarize briefly what ...

Source: (Nădrag, 2011, pp. 46-56)

Teaching English for economics and especially business communication involves a complex process of practising general vocabulary, specialized terms, phrasal verbs and idioms. In Table no. 2 we provide a set of phrasal verbs used in business communication.

Table no. 2 Phrasal Verbs

Phrasal verb	Meaning	Example
bring up	mention or introduce a subject	He often brings up that boring subject.
call back	return a telephone call	I am busy, but I will call you back as soon as possible.
call up	telephone	She will call us up when the plane lands.
carry out	complete an action	The economic crisis/pandemic prevented them to carry out the investment plan.
cross off	remove an item from a list	She fought with her colleagues and they crossed her name off their present lists.
figure out	solve a problem by reasoning	They tried to find a solution but they couldn't figure it out.
hand in	submit, turn in	The reporter finished his article and handed it in to the editor.



look over	examine	I will look over your papers and tell you my opinion on that project.
point out	call attention to	He pointed out that he would not change his decision.
put away	store in drawers	He put away all his papers in order to clean his desk.

Source: (Nădrag, Gălbează (Buzarna-Tihenea), 2018, pp. 98-102)

#### 4. Findings

As the world's economy is becoming increasingly global, business language does not have to be dull. It should be articulate, concise and precise. We are hopeful that the outcomes of our research will stress some principles that must be obeyed, such as thinking thoroughly while communicating/conveying information, being an active listener, being brief, to the point, managing conflict, giving feedback, taking advantage of communication resources.

#### 5. Conclusions

All the issues discussed above reveal that there are several pillars that have to be taken into consideration when planning, announcing, implementing, and communicating a piece of information or a change initiative. First, we have to remember that there is no one perfect way to communicate change and that we should start by asking ourselves what exactly change is and why it is necessary. Another important element is represented by the fact that we should know what results we want. Based on these elements, the next step is represented by the inclusion of communication strategies at the very beginning of the discussions about change. Moreover, important bits of information should be shared with employees as soon as possible. We should not forget that quantity is fine, but quality and consistency are crucial. Another pillar is represented by the employment of a variety of communication pathways and tools, in order to make sure that the information reaches its recipients. In addition, we should not confuse communication with elements such as process-visioning, chartering change teams, planning, endless Power Point presentations. Last but not least, we should provide people with more opportunities to share concerns, ask questions, and offer ideas.

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## EU Energy Plans between Energy Justice and Ethical Dilemmas. Expectations and Future Education

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### Abstract

*Globally, the EU energy system has gradually emerged as an educational science research agenda which is required for the unpredictable environment of energy consumption. Our research extends beyond ethical dimensions of the affordable and renewable energy systems but through balanced energy making decisions. The authors deftly explain the energy justice and energy consumption nexus by using an econometric model. The results emphasize the value of the investments in renewable energy generation systems and extended research in energy education.*

**Key words:** energy system, climate change, sustainability, energy justice, affordable energy.

**J.E.L. classification:** A2, K10, E01

### 1. Introduction

The realm of energy transition to a decarbonized and digital energy system implies multiple risks of injustice (Calver & Simcock, 2021). The extensive academic literature attest that by offering some policy recommendations or by identifying the inherent risks of domestic consumers of the energy system may be bordered in a changing climate.

Becoming an interdisciplinary energy research subject till nowadays, energy justice appears to solve some of the current energy transition by settling some inherent disputes between different parties, stakeholders and the common consumer (Heffron, 2022). In the current research paper, we will focus on how energy justice is an indissoluble part of the energy transition taking into consideration the accelerated climate change and the future sustainable world. Energy justice seeks to accumulate the ethical mixture of some energy systems, such as climate change (Bickerstaff et al. 2013), energy economics (Sovacool et al. 2013) and the EU energy policy (McCauley et al. 2013). Energy justice, also energy equity, states the goal of obtaining equilibrium in the energy system by identifying two concepts as environmental justice and climate justice.

The increased number of academics who developed a personal implication of the energy concept seeks to find the core of the following issues: i) the root of injustice concerning the energy system, ii) which are the limits of the injustice, iii) the ignored part of the energy dilemmas, iv) the theoretical plan of reducing the current injustices, and vi) implementing an energy justice concept into the policy field.

Summarizing all the above, it is observable that after some decades of time, even it is entitled the concept of energy justice and there were already implemented some plans concerning the energy dilemmas, the society still is waiting for a sustainable plan which will be able for some results which decrease considerable and gradually the emergent energy choices. In the same vein, each energy decision should be defined and taking into consideration each national regulatory system and mostly for the EU countries.

Going further, each national energy system has created its own defense against the emergent and direct attack of the reality challenges. In this sense, we review the most significant issues which constitutes, at the same time, actual energy dilemmas for several EU countries, as the following: i) the increasingly need for larger-scale storage capacity, ii) the building of the radioactive waste, iii) the cost of decreasing the renewable energy, iv) the gradual transition to the low-carbon production. Concluding all the above, the connection of the energy justice and ethical dilemmas led to the emergence of the rich of specialized literature characterized by an increased number of UE plans developing their own energy system.

In this context, our research captures and reflects the energy values of the investments in renewable energy generation systems which can't be created without the existence of the ethical and strategic goals at the same time.

## 2. Literature review

On a general level, we can assess the economic viability of a country by sustainable development. Unemployment and inflation rates are benchmarks on the macroeconomic map of a country, in what concerns sustainable development. The main economic indicator is inflation in a macro context of the economy of one state. Nowadays, there are different types of inflation when comparing to the past, but the root causes and the repercussions are the same (Girdzijauskas et al., 2022).

Modern inflation affects all countries across the globe in different forms. In the past two decades, more developed economies have experienced decreased inflation rates, after periods of time when the inflation rate was on an ascending trend of inflation.

This has been highlighted also by the literature and inflation varies depending on each country's particularities and that includes the inflation measures as well used (Ha et al., 2021)

What contributes to the welfare of a country is the unemployment rate. There is a direct link between the environment and unemployment, but this aspect has been scarcely described by the literature. Climate change plays a very important role and policymakers together with the authorities have this climate change issue under their close attention (Jiang et al., 2022).

Pre-pandemic, employment was progressively increasing but not for all countries and industries. As per the World Employment and Social Outlook, employment is very diversified depending on the sectors and countries, the labor market being very volatile. When crises strike, such as the pandemic, it is very abrupt the employment scenery, since it changes from total employment to temporary employment, and people find it difficult to adapt.

According to a study carried out by the OECD, the share of foreign assets on total assets for the sample of companies that is the basis of the study carried out in the period 1995-2008, together with the evolution of energy prices on the domestic market of these companies, resulted. Thus, it could be seen that both FDI and energy prices have both increased since the early 2000s, suggesting that some of the increase in FDI may have been associated with offshoring in the face of higher energy prices.

Since countries with lax environmental policies are predicted to gain a competitive advantage in heavily polluting industries (Pethig, 1976; Siebert, 1977; Yohe, 1979), stricter environmental policies should provide incentives for firms to relocate. parts of their production processes to countries with looser regulations (Siebert, 1977; McGuire, 1982; Merrifield, 1988). Assuming that capital is sufficiently mobile between countries and transportation costs are not too high, this relocation effect is a particular concern for polluting industries when implementing new environmental regulations. The study's conclusion shows that relative energy prices (that is, the difference between domestic energy prices and foreign energy prices) matter as a driver of FDI, but the magnitude of the effect is small. The effect is found only for firms experiencing an increase in the price of energy at home, while a reduction in domestic energy prices is not correlated with a lower amount of international assets.

According to the study carried out by Majewski et al, it shows that there is a negative relationship between the production of renewable energy, the amount emitted in agriculture and the values of CO<sub>2</sub> per capita. If determined, a 1% increase in renewable energy production leads to a 0.18% decrease in CO<sub>2</sub> emissions. Our results remain robust when including additional control variables. The results of our study suggest that policy instruments such as subsidies or low-interest loans can be used to promote renewable energy consumption in middle-income countries.

### 3. Research methodology

The research focuses on analyzing the main drivers of economic and electrical and indicators. Our panel dataset contains data for the period 2010-2021, for all the EU-27 countries. The following data sources were used:

Eurostat database, for the following indicators: *GDP per capita and Inflation rate*

Our World in Data for: *Electricity generation, Annual change in primary energy consumption, Annual change in renewable energy generation, CO2 emissions per capita, Renewables electricity*

According to the data sources mentioned above, the indicators used for the purpose of this paper are:

- *Foreign direct investment (FDI).*
- *GDP per capita.*
- *Renewable energy* is energy derived from natural sources that are replenished at a higher rate than they are consumed. Sunlight and wind, for example, are such sources that are constantly being replenished (United Nations, Climate action, 2022).
- *Electricity price for household* - the price of energy in the EU for household depends on a range of different supply and demand conditions, including the geopolitical situation, the national energy mix, import diversification, network costs, environmental protection costs, severe weather conditions, or levels of excise and taxation (Eurostat, 2022).
- *Electricity generation* is defined as electricity generated from fossil fuels, nuclear power plants, hydro power plants (excluding pumped storage), geothermal systems, solar panels, biofuels, wind, etc. It includes electricity produced in electricity-only plants and in combined heat and power plants. Both main activity producer and auto producer plants are included, where data are available. Main activity producers generate electricity for sale to third parties as their primary activity (OECD, 2019).
- *Annual change in renewable energy generation* represent the change in renewable energy generation relative to the previous year, measured in terawatt-hours. This is the sum of energy from hydropower, solar, wind, geothermal, wave and tidal, and bioenergy (Our World in Data, 2021).
- *CO2 emissions per capita* are those stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during consumption of solid, liquid, and gas fuels and gas flaring (World Bank).
- *Inflation rate* is an increase in the general price level of goods and services. When there is inflation in an economy, the value of money decreases because a given amount will buy fewer goods and services than before (Eurostat, 2018).

To analyze the level of correlation between the previously defined indicators, we have constructed the following research hypotheses:

#### Hypotheses

*H1.* Do companies redirect their FDI to countries that have lower energy distribution prices and weaker environmental policies?

*H2.* Do investments in renewable energy generation systems lead to a decrease in carbon dioxide emissions and an increase in GDP per capita?

*H3.* Does the low energy price lead to an increase in the consumption of renewable energy and a decrease in carbon dioxide emissions per capita?

*H4.* If the price of energy and the inflation rate are low, does the consumption of primary energy and GDP per capita increase?

We have used panel regression models and the software used for all the analysis is R (R Core Team, 2021). In table no. 1 the dependent and independent variables used in the econometric models were listed.

Table no. 1 Dependent and independent variables

Dependent variables	Independent variables
1. FDI current prices 2. GDP per capita current prices 3. Renewables electricity 4. Electricity price for household	Electricity generation Annual change in primary energy consumption Annual change in renewable energy generation CO2 emissions per capita Inflation rate

Source: Authors' contribution

As can be seen in Table no. 2. Correlation matrix, there is a very strong relationship between the price of household electricity and carbon emissions per capita (0.907404), between the price of household electricity and GDP per capita (0.858427), carbon dioxide emissions and GDP per capita (0.882262), household electricity price and renewable energy (0.795693), household electricity price and inflation rate (0.669616). And there is a moderate relationship between GDP per capita and electricity production (0.515299), carbon dioxide emissions and electricity production (0.512901), inflation rate and GDP per capita and a weak and very weak relationship between foreign direct investment and electricity generation (0.365329), GDP per capita (0.338199), annual change in primary energy consumption (0.032745), annual change in renewable energy generation (0.18854), inflation rate (0.217196).

Table no. 2 The matrix of correlations

Variables	Electricity generation	GDP per capita current prices	Annual change in primary energy	Annual change in renewable energy generation	CO2 emissions per capita	Renewables electricity	Inflation rate	Electricity price for household	FDI current prices
Electricity generation	1								
GDP per capita current prices	0.515299	1							

Annual change in primary energy consumption	0.076192	0.057601	1						
Annual change in renewable energy generation	0.503338	0.278178	0.015772	1					
CO2 emissions per capita	0.512901	0.882262	0.088868	0.266238	1				
Renewables electricity	0.446644	0.73133	0.078856	0.257717	0.689685	1			
Inflation rate	0.378232	0.543226	0.031669	0.015772	0.088868	0.078856	1		
Electricity price for household	0.577637	0.858427	0.102287	0.297521	0.907404	0.795693	0.669616	1	
FDI current prices	0.365329	0.338199	0.032745	0.18854	0.340069	0.180779	0.217196	0.35355	1

Source: Authors' calculation performed in R

The correlation analysis revealed significant relationships between most of the factors (table no. 2). Consequently, they were successively introduced in the models.

**Model 1:**

FDI. Current. prices ~ Electricity. Generation + Annual. Change. In. primary. Energy. consumption + Annual. Change. In. renewable. Energy. generation + Renewables. electricity + Electricity. Price. For. household (1)

**Model 2:**

Renewables. electricity ~ GDP. Per. Capita. Current. prices + Electricity. generation + Electricity. Price. For. household + CO2 emissions per capita (2)

**Model 3:**

Electricity price for household ~ Renewables. electricity + CO2. Emissions. Per. capita + Inflation. rate (3)

**Model 4:**

Electricity price for household ~ Annual change in primary energy consumption + CO2 emissions per capita + GDP. Per. Capita + Inflation rate + Renewables. electricity (4)

#### 4. Results and discussion

The econometric model used for testing the hypotheses is a panel regression (table no.3). In all four models the country has been considered as a factor.

Table no 3. The interpretation of models

Models	Model 1		Model 2		Model 3		Model 4	
Independent Variables	Estimate	Pr(> t )	Estimate	Pr(> t )	Estimate	Pr(> t )	Estimate	Pr(> t )
Electricity generation	8.893e-09	0.135	2.235e-05	0.0101 *				
GDP per capita current prices	-6.084e-09	0.377	3.940e-06	0.6942				
Annual change in primary energy consumption	4.674e-06	0.075.	4.603e-03	0.2276	2.755e+02	< 2e-16 ***	4.393e-06	8.72e-06 ***
Annual change in renewable energy generation	-9.611e-01	2.76e-07 ***	-1.357e+03	5.93e-07 ***				
CO2 emissions per capita					-7.348e+01	0.411310		
Renewables electricity					6.575e+01	0.379775		
Inflation rate					6.133e+01	0.679531		
Electricity price for household							4.450e-02	0.0129 *

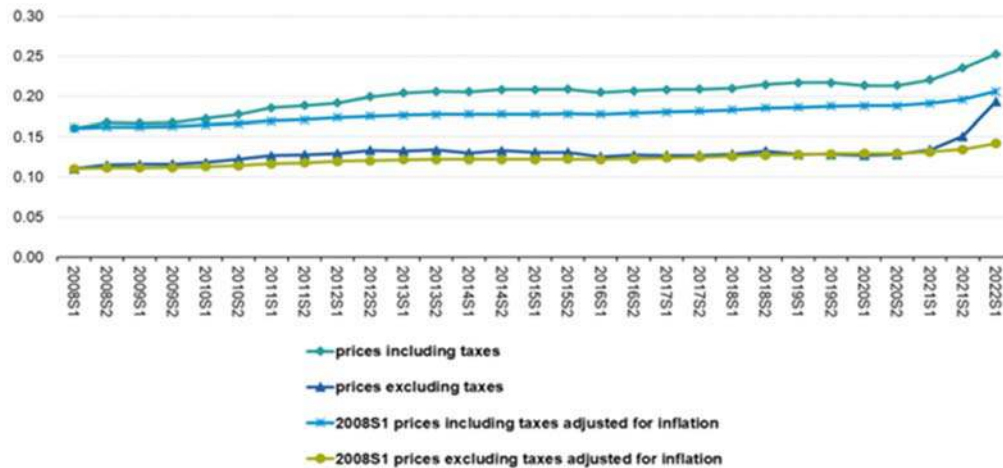
Notes: Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Source: Authors' calculation performed in R



*The First Hypothesis* is not confirmed by the first model that shows us that the volume of foreign direct investment is strongly correlated with the generation of electricity and with the annual change in primary energy consumption, while the negative coefficient of GDP per capita and the annual change in generation of renewable energy shows that the increase in foreign direct investment does not directly cause an increase in GDP per capita and the annual change in renewable energy generation.

Figure no. 1. Development of electricity prices for household consumers, EU, 2008-2022 (EUR per kWh)

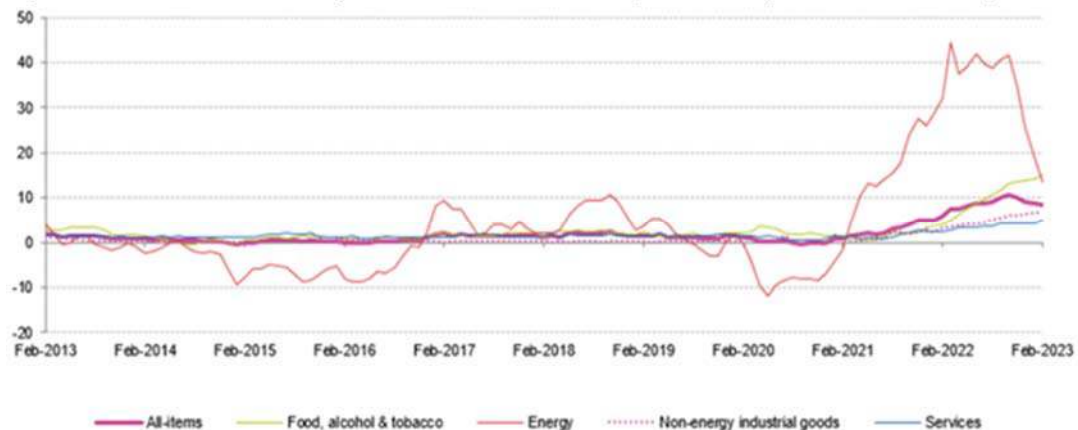


Source: (Eurostat, 2022)

As can be seen in Figure 1. Development of electricity prices for household consumers, EU, 2008-2022, prices have experienced a gradual increase in recent years, but at the European level according to Eurostat data, the highest distribution prices (including all taxes) for consumers are in the following: Denmark, Belgium, Germany, Italy, Spain, Czech Republic, Romania, while the lowest rates are in Bulgaria, Hungary, Netherlands, Albania, Serbia, Bosnia and Herzegovina. This shows us that the fact that some countries have lower energy distribution prices does not determine a greater attraction of foreign direct investments.

The model 3 confirm that the price of electricity for households is closely related to the increase in the consumption of renewable energy by the population of European countries, which does not lead to the confirmation of hypothesis number 3 that the reduced price of energy leads to an increase in the consumption of renewable energy and a decrease in carbon dioxide emissions per capita.

Figure no 2. Euro area annual inflation was 8.5 % in February 2023, down from 8.6 % in January 2023



Source: (Eurostat, 2023)

Model 4 shows us that the price of electricity for the household is closely related to the annual change in primary energy consumption and confirms the first part of hypothesis 4 in which if the price of energy and the inflation rate are low, primary energy consumption increases but not also confirms the increase in GDP per capita.

## 5. Conclusions

Over the years at the EU level, several countries have faced several energy dilemmas such as the need for greater storage capacity, the construction of spaces for radioactive waste and all this leading to a decrease in the cost of renewable energy as well as the transition to low-carbon production.

In order to be able to discuss a sustainable development from an energy point of view, we considered in our analysis, the main landmarks on the macroeconomic map of each EU member country, namely: inflation rate, GDP per capita, foreign direct investments correlated with those more relevant energy indicators, electricity price for household, renewable energy, annual change in renewable energy generation, CO<sub>2</sub> emissions per capita, and research has shown us that there is a direct and very strong link between these and they influence each other.

Concluding all of the above, the connection between energy justice and ethical dilemmas has led to the emergence of a rich literature and in-depth research characterized by an increased number of EU plans to develop its own energy system.

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## Harmonizing Hydrogen Colour Codes: Need for an Economic Policy Framework for a Global Hydrogen Market

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### Abstract

*This paper presents an economic policy framework designed to harmonize hydrogen colour codes for the nascent global hydrogen sector, since the current colour code systems suffer from inconsistencies, causing confusion and misinterpretation among industry stakeholders and consumers. This study seeks to contribute to the development of a transparent and well-informed hydrogen market, empowering businesses enhance competitiveness, and foster long-term sustainability through a standardized approach to labelling hydrogen based on its carbon dioxide emissions across different production pathways, i.e., hydrogen production technologies. The proposed policy framework, based on reliable qualitative data, aims to enhance the scientific underpinning in assigning colours, ensuring that hydrogen colour codes accurately reflect their environmental impact. By offering a clear and consistent classification, the proposed harmonized colour code system facilitates market access for businesses, it enables strategic decision-making, effective market positioning, and fosters consumer trust. It also supports businesses in differentiating their products based on environmental credentials.*

**Key words:** green hydrogen, policy, harmonization, colour codes

**J.E.L. classification:** M10

### 1. Introduction

The global commitment to mitigate and adapt to climate change is enshrined in the Paris Agreement, a landmark international accord that seeks to limit global warming to „well below 2°C above pre-industrial levels” (UNFCCC, 2015, p.3). As part of this broader sustainability agenda, regional plans and initiatives have been established to accelerate the adoption of clean energy solutions. One such initiative is the *European Green Deal*, which sets ambitious targets for achieving climate neutrality and a sustainable economy within the European Union (European Commission, 2019).

In this context, the need to decarbonize the energy sector and reduce greenhouse gas emissions has led to a growing interest in hydrogen as a versatile energy carrier, which can be produced from renewable energy sources and other sources that emit fewer emissions than the fossil options. Hydrogen can play a vital role in the energy transition at global level by facilitating the integration of renewable energy sources into existent power grids, providing energy storage, and decarbonizing various sectors, such as transport or industry.

However, the use of hydrogen is not without challenges, particularly in terms of its production methods and the associated carbon dioxide emissions. To address this, various colour codes have been introduced to classify hydrogen based on its environmental impact, such as green, blue, grey, and others. Yet, the existing colour code framework lacks consistency and scientific underpinning, leading to confusion and misinterpretation (Ocenic and Tanău, n.d.).

The aims of this paper are twofold: firstly, to redefine hydrogen colour codes based on carbon dioxide emissions associated with different production pathways, and secondly, to propose building blocks of a policy framework for harmonizing these colour codes. By aligning hydrogen colour codes with their environmental impact, the author seeks to provide a transparent and scientifically grounded

approach to labelling hydrogen, supporting the objectives of the Paris Agreement and regional plans like the *European Green Deal* (European Commission, 2021).

Furthermore, the paper seeks to highlight the relevance of harmonized colour codes for businesses, emphasizing the potential for transparent market access and enhanced business competitiveness in the emerging hydrogen economy.

## 2. Literature review

The scientific literature on „green” hydrogen, colour codes for hydrogen, policy frameworks, and their relevance for businesses provides valuable insights into the development of sustainable hydrogen economies. Despite growing research, policy and business interest into „green” hydrogen, key questions – both socioeconomic and technical – remain unanswered.

While Nikolaidis and Poullikkas conducted a comprehensive study on hydrogen production processes (Nikolaidis and Poullikkas, 2017), the commonly used colours „green”, „blue” and „grey” hydrogen have not received a lot of attention as to what these labels mean or convey (other than a technological processes).

There has been some initial work done proposing a lifecycle analysis (LCA) for hydrogen production technologies, looking into the environmental impact of various production methods (Mehmeti *et al.*, 2018). Since this work used several environmental criteria, including human toxicity potential, freshwater eutrophication potential and land use, among others, the study concluded with a lack of a single technological pathway that is environmentally friendly from the perspective of all studied variables.

The relevance of policy frameworks for harmonizing hydrogen colour codes and their impact on businesses have also received little scholarly research. However, besides academia, international organisations such as the International Renewable Energy Agency provide insights into policy frameworks and market design for „green” hydrogen, emphasizing the need for clear labelling and harmonized standards in driving market growth and attracting investments, including so-called „*guarantees of origin*” (IRENA, 2020, p.18).

Yet, literature lacks a standardized framework that accurately reflects carbon dioxide emissions in hydrogen production technologies, or a clear and consistent labelling or colour code that ensures transparency and facilitate market understanding.

In this context, the present research aims to advance the understanding of what is needed for a clear and consistent labelling system that enhances transparency and accuracy, ensuring that hydrogen colour codes accurately reflect their environmental impact, or at least reflect the carbon dioxide emitted in the production processes, as a minimum criteria.

Additionally, the study will investigate the direct implications of harmonized colour codes for businesses, exploring the potential benefits and challenges faced by companies operating in the hydrogen sector. It will examine how clear labelling enables informed decision-making, product differentiation, and competitive advantage in the emerging hydrogen economy. Furthermore, the research will assess the alignment of hydrogen colour codes with the objectives of the Paris Agreement and regional sustainability plans like the European Green Deal, determining if additional colour categories beyond „green” are necessary to fully comply with these frameworks.

By addressing these research gaps, the study seeks to provide practical insights that support the development of a transparent and informed hydrogen market while promoting business success and a sustainable energy transition.

## 3. Research methodology

The research methodology for this paper involves a literature review, data collection, data analysis, framework development, and conclusion with recommendations.

Firstly, a review of existing scientific articles, reports, policy documents, and industry publications will be conducted to gather relevant knowledge on green hydrogen, colour codes, policy frameworks, and their implications for businesses. The literature review helps identify research gaps and provided a comprehensive understanding of the subject matter.

For this paper, secondary data will be collected from reliable, public sources. This data includes hydrogen production methods, carbon dioxide emissions associated with different production pathways, existing colour codes, policy frameworks, and the impact on businesses. The collected data will be relevant to the research objectives and support the subsequent analysis.

A qualitative method will be employed for the analysis, which focuses on carbon dioxide emissions data related to various hydrogen production pathways, aiming to identify variations and inconsistencies in the existing colour codes. The qualitative analysis will examine policy frameworks and their implications for businesses, considering factors such as market access, competitiveness, and alignment with sustainability goals. By comparing and synthesizing the findings, research gaps will be identified and a comprehensive understanding of the topic can be further developed.

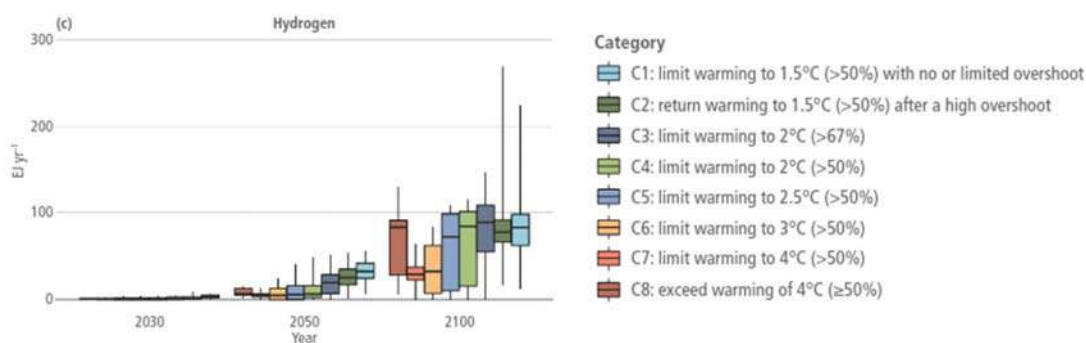
Based on the data analysis and identified research gaps, elements of a policy framework for harmonizing hydrogen colour codes can be put forward. The insights from the literature review and data analysis will inform the formulation of specific criteria and methodologies for assigning colour codes based on carbon dioxide emissions. The framework will address the challenges and inconsistencies in the existing system, promoting transparency, accuracy, and scientific basis for hydrogen colour codes. The relevance of the framework for businesses and its alignment with global and regional sustainability objectives will be considered.

## 4. Findings

### 4.1. Inconsistencies and gaps in labelling, despite huge importance of hydrogen in the long-term

Government plans including scenarios to reach low-emissions by mid-century or after mid-century are increasingly including hydrogen (IPCC, 2022, p.342). Figure no. 1 shows the hydrogen production across all studied scenarios by the IPCC and it illustrates that the current government plans take hydrogen technology into consideration rather after mid-century, if we consider the hydrogen contribution expressed as the energy per year that is included in such plans. Given the magnitude of the contribution of hydrogen to the future economy, this chart illustrates that, while consistent labelling might not be a matter of urgency, laying today the foundations for the creation of a future hydrogen market at global level, is a relevant policy, business and scientific topic.

Figure no. 1. Hydrogen production across studied scenarios by the IPCC



Source: (IPCC, 2022, 342)

However, the colour of the hydrogen used (i.e. the technology to produce the hydrogen depending on the source of energy input and the production process) reveals inconsistent approaches across policy, business and academia. Recent research argues that the current colour codes are „misleading” since colours like „yellow”, „orange” and „turquoise” – in addition to more commonly used ones like „green” and „brown” – are lacking a scientific underpinning (Ocenic and Tanău, n.d.).

This finding illustrates a gap in reflecting the greenhouse gases – especially the carbon dioxide – emitted during the hydrogen production process. Similarly, (Cheng and Lee, 2022, p.23) argue that there is no „*environmental rigor*” in national and regional hydrogen strategies.

There is also no consensus regarding the hydrogen production technology, which is relevant towards the path of achieving the objectives of the Paris Agreement. If we analyse policy and programmatic documents or analytical reports released by international organisations, the lack of consistency is clear. While IPCC talks about „*low or zero-carbon hydrogen*”, acknowledging that „*there is no consensus on the hydrogen production spectrum*” (IPCC, 2022, p.657), IRENA favours the colour codes, using the label „*green*” for the hydrogen produced thanks to renewable power (IRENA, 2022, p.4). At the same time, the IEA considers „*low-emission hydrogen*”, which includes nuclear energy in addition to renewable energy sources and fossil fuels linked with carbon capture technologies (IEA, 2022, p.272).

Similarly, the hydrogen strategy of the European Union defines various technologies, including „*electricity-based hydrogen*”, „*renewable hydrogen*” (the same as „*clean hydrogen*”), „*fossil-based hydrogen*”, „*fossil-based hydrogen with carbon capture*”, while „*low-carbon hydrogen*” includes „*fossil-based hydrogen with carbon capture and electricity-based hydrogen*”. However, it does not explicitly include nuclear power – although „*electricity-based hydrogen*” could be produced thanks to nuclear power (European Commission, 2020, p.3-4), which can add to the confusion.

Therefore, the colour code or labelling at international level lack harmonization and agreement amongst the main stakeholders on the global scene.

#### **4.2. Need for a standardized, scientifically grounded framework, using carbon dioxide emissions**

Providing a standardized and scientifically grounded framework on carbon dioxide emissions for the hydrogen produced via various technologies will require a reliable methodology of accounting the emissions throughout the entire lifecycle or value chain of the production method, or at minimum, the carbon dioxide emitted in the production processes.

Table no. 2 provides the carbon intensity in kilogram (kg) of carbon dioxide equivalent (CO<sub>2</sub>e) for each kg of hydrogen (H<sub>2</sub>) produced. It is important to flag at this point there are no comprehensive comparative studies across various hydrogen technologies. While studies for individual technologies or few technologies in comparison can be found, the carbon intensity may be the outcome of different methodologies, so any comparison of the values indicated in Table no. 2 might be challenging without a deeper analysis. For example, some may include total greenhouse gas emissions, including other emissions other than carbon dioxide, while other may include carbon dioxide only.

IRENA has provided an illustration of the carbon dioxide emissions, which should be considered along the entire value chain, i.e. considering production, but also the required transport infrastructure and the final end-use applications of the hydrogen, as shown in Figure no. 2.

Providing government guarantees of origin for „*green*” or „*renewable*” or even „*low-carbon*” hydrogen will prove to be a challenging task unless clear definitions are put in place for a) technological pathways, b) colour labels and c) methodology for carbon intensity or footprint of hydrogen.

As such, there is a need to formulate a clear methodology to ensure transparency, accuracy, and meaningful differentiation of hydrogen colours, or any other label, which will be eventually used at international level to describe hydrogen produced via various means and techniques.



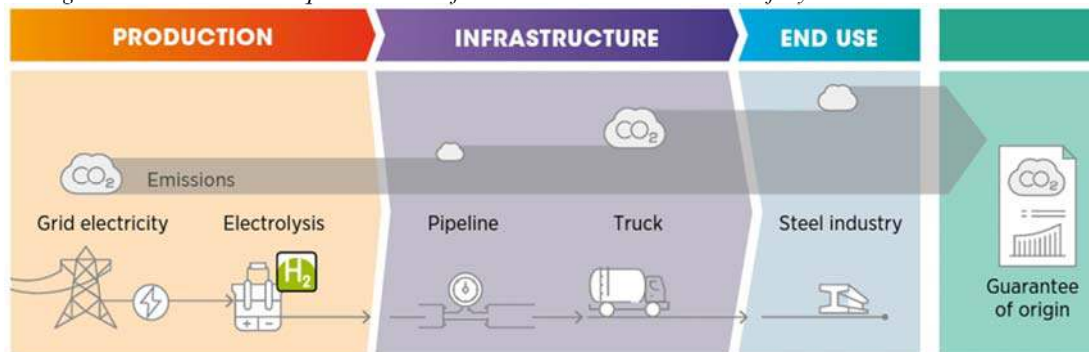
Table no. 2. Estimated carbon intensity per hydrogen production technology depending on the source

Selected technologies	Colour label as per (Ocenic and Tanău, n.d.)	Carbon intensity	Source
Alkaline electrolyzers with various sources	Yellow	15.4-43.01 kg CO <sub>2</sub> e/kg H <sub>2</sub>	(Aghakhani <i>et al.</i> , 2023, p.10)
Alkaline electrolyzers with renewable electricity	Green	By convention, zero carbon intensity	(CertifHy, n.d.)
Polymer electrolyte membrane (PEM) with various sources	Yellow	13.15-38.1 kg CO <sub>2</sub> e/kg H <sub>2</sub>	(Aghakhani <i>et al.</i> , 2023, p.10)
Polymer electrolyte membrane (PEM) with renewable electricity	Green	By convention, zero carbon intensity 5–10 kg CO <sub>2</sub> e/kg H <sub>2</sub> (by 2030)	(CertifHy, n.d.) (Aghakhani <i>et al.</i> , 2023, p.1)
Solid oxide electrolyser cell (SOEC) with renewable electricity	Green	By convention, zero carbon intensity	(CertifHy, n.d.)
Natural gas pyrolysis	Grey/turquoise	3.6-11.6 kg CO <sub>2</sub> e/kg H <sub>2</sub>	(Okeke <i>et al.</i> , 2023, p.12592)
Natural gas pyrolysis with carbon capture	Blue/turquoise	1.8-4.6 kg CO <sub>2</sub> e/kg H <sub>2</sub>	(Okeke <i>et al.</i> , 2023, p.12592)
Steam methane reforming (SMR)	Grey	9-11.5 kg CO <sub>2</sub> e/kg H <sub>2</sub>	(Okeke <i>et al.</i> , 2023, p. 12582) (Valente <i>et al.</i> , 2020, p.4)
Steam methane reforming (SMR) with carbon capture	Grey/blue	9.35 kg CO <sub>2</sub> e/kg H <sub>2</sub>	(Cho <i>et al.</i> , 2022, p.13592)
Coal gasification	Black/brown/grey	21.60 kg CO <sub>2</sub> e/kg H <sub>2</sub>	(Li <i>et al.</i> , 2022, p.4)
Coal gasification with carbon capture	Black/brown/grey/blue	4.92–10.90 kg CO <sub>2</sub> e/kg H <sub>2</sub>	(Li <i>et al.</i> , 2022, p.9)
Hydrogen from biomass gasification including CCS	Green	Potentially negative emission	(Valente <i>et al.</i> , 2020, p.1)

Source: Author's own research results based on indicated sources



Figure no. 2. Schematic representation of carbon dioxide emissions in lifecycle assessments



Source: (IRENA, 2020, 30)

#### 4.3. Need for comparable rules for businesses

Analysing closer the initiatives that seek to provide guarantees of origin for hydrogen, there are several relevant examples mainly in Europe. These include certification bodies like AFHYPAC, Low Carbon Fuel Standard, CertifHy, TÜV SÜD, Clean Energy Partnership, REDII, Technical Expert Group on Sustainable Finance that have already certification schemes in place, while others are being developed. However, only two of these focusing 100% on renewable power as input for the hydrogen production (AFHYPAC and Clean Energy Partnership) (IRENA, 2020, p.29).

Having such a mix of initiatives with various objectives, ranging from 100% renewable power input to a percentage point reduction in greenhouse gas emission in the hydrogen production process, or even a predefined carbon dioxide threshold can lead to market distortions for industry actors since there is no level playing field. At the same time, a level playing field with comparable, if not equal rules, is required for a truly global hydrogen market.

The benefits of harmonized colour codes for businesses operating in the hydrogen sector are manifold: a clear and transparent labelling enables informed decision-making, enhances market positioning, and supports product differentiation, providing businesses with a competitive advantage in the emerging hydrogen economy.

#### 4.4. Alignment with sustainability goals

The extent to which „green” hydrogen is „stringent” i.e. the degree to which strategic and regulatory frameworks work towards achieving its objective has been studied in-depth (Cheng and Lee, 2022). Such work concludes that there is „zero regulatory stringency” in places like India, Norway and the United States. A strategy of „scale-first-clean-later” is adopted in most of the strategies studies around the world including Australia, the United Arab Emirates, the European Union or Japan. However, only one country seems to adopt the „green-hydrogen now” approach, i.e. without more carbon-intensive hydrogen production technologies as intermediary solutions ahead of meeting actual policy objectives. This exception is Portugal (Cheng and Lee, 2022, p.22).

Given this finding, corroborated with the fact that massive hydrogen adoption is likely taking place after mid-century, there is a need to define colour codes or labels in the nascent hydrogen market and to ensure that the adopted technologies are aligned with global climate objectives and more broadly with sustainability goals. However, since most strategies are aimed at economic scales, before environmental concerns (judged by stringency as defined above), there is a need to define what exactly „green” (or „clean”, „renewable”) hydrogen is, but also to define – more broadly speaking – the relevance of a technology in terms of contribution to limiting climate change. Therefore, it is relevant to which extent a hydrogen production technology contributes to the long-term climate and sustainability goals, as opposed to locking-in economic policy decisions which are counterproductive in terms of greenhouse gas emissions in the long term.

## 5. Conclusions

The current hydrogen colour code systems lack consistency and scientific underpinning, leading to confusion and misinterpretation among businesses and consumers. This is especially relevant since most of the existent hydrogen strategies aim at scaling the installed capacity of hydrogen production, before considering the environmental impact.

In order to harmonize hydrogen colour codes, developing guarantees of origin could provide the key towards a transparent and competitive global hydrogen market. Although there are several approaches and initiatives available and under development, the present article suggests that providing a carbon dioxide assessment for the hydrogen production process, followed by a corresponding colour code could perhaps be a more suitable solution in the absence of coherence and agreement on „green” hydrogen among policy, business, and academia. The main argument is that labels should accurately reflect the environmental impact of hydrogen if they are to contribute to the ultimate global policy objective of meeting the Paris Agreement and its underlying targets in terms of climate change mitigation. Colour codes are simple to be used, but to be useful these must have some scientific underpinning.

The discussion of harmonising colour codes is relevant for the private sector, including both large and small businesses since it facilitates their market access, enables strategic decision-making, supports effective market positioning, and can foster consumer trust. As such, businesses can differentiate their products based on environmental credentials while complying with sustainability goals.

However, as with any scientific endeavour, the present work has various limitations, which can be developed in subsequent work. First, it uses secondary data which – although sourced from reliable sources and contribute with valuable insights – limit its depth in the absence of primary empirical research. Second, the paper does not explicitly engage or consult stakeholders, like relevant industry actors, policymakers, or experts, which could validate these findings. Additional insights into the practical and feasible implementation of carbon dioxide assessments (or carbon footprint) as underpinning scale for labelling hydrogen depending on the technology and energy input used has yet to be analysed more closely.

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## Big Data Management and NoSQL Databases

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### Abstract

*In this paper, we aim to showcase the general context, characteristics of NoSQL, data management using NoSQL database and an exemplification in MongoDB. Moreover, organization and management of large volumes of data (Big Data), the trend in the field of advanced database systems and business intelligence will be depicted in this research. The large volumes of data in various fields of activity require adequate management in order to gain a competitive advantage or to achieve the quality of decisions. Various fields generate large volumes of data, such as: consumerism and home devices, smart infrastructure, security and surveillance, healthcare system, transportation, retail and industrial sectors, others.*

**Key words:** database, NoSQL, big data, relational DB

**J.E.L. classification:** C55, C80, C82

### 1. Introduction

The evolution of data management spans from files (in the 60s) to databases. In the 80s, relational databases emerged, in the 90s, object-oriented databases also emerged (Rashid and Sawyer, 2005). After the 2010s, a new category of databases, namely non-relational databases or NoSQL (Not only SQL) databases have taken the floor (Chen and Lee, 2019). Autonomous databases also emerged (Curino et al., 2013). They all coexist and have interesting particularities that make them suitable for certain applications (Schuler and Kessleman, 2019).

This evolution convinced companies to try one of the latest databases (Bjeladinovic, Marjanovic and Babarogic, 2020), (Bjeladinovic, 2018), but there were cases in which the decision makers went back to relational databases (<https://www.theguardian.com/info/2018/nov/30/bye-bye-mongo-hello-postgres>).

This paper is structured in several sections. In the next section, a brief literature review is provided. Research methodology regarding data management is presented in section 3, whereas in section 4, the main findings in MongoDB and a comparison of SQL and NoSQL are presented. The conclusion is drawn in section 5.

### 2. Literature review

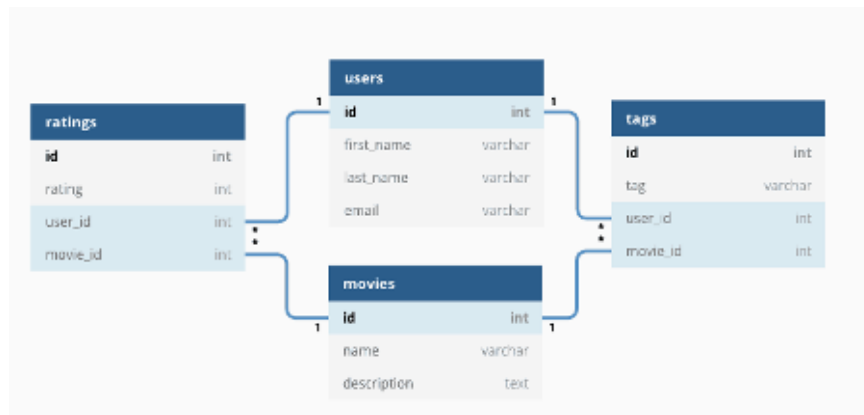
Several research papers approached the database evolution in time (Schuler and Kesselman, 2021), (Dominguez et al., 2008), (Cleve et al., 2015), (Hillenbrand et al., 2022). Recent trends in database technology were investigated in (Lieponienė, 2021). Various social and research networks, internet of things (IoT), e-commerce require reliable data management. The challenges of these networks are relate to the volume of data they generate, the speed and variety of data that has to be

stored and processed to extract useful information and obtain competitive advantages. (Lieponienė, 2021) compared relations and non-relational DB, considering alternatives such as multi-model DB (Lu and Holubová, 2019) and cloud DB. Big data management in the cloud was analyzed in (Hameurlain and Morvan, 2016). The use of Big Data Analytics in healthcare is investigated in (Batko and Ślęzak, 2022). Its use spread to numerous fields, such as: manufacturing (Li, Chen and Shang, 2022), government (Long et al., 2021), energy (Zhou, Fu and Yang, 2016), etc. The applicability of multi-model databases for accessible indoor navigation was also underlined in (Simon-Nagy, Fleiner and Varkonyi-Koczy, 2020).

### 3. Research methodology - Data management

A relational database (DB) represents the traditional method of organizing data into homogeneous collections of structured data. They are organized according to an abstract model that describes how data is represented and accessed, using mathematical formalizations. The main characteristic elements of the data model are as follows: Data structure, Operators, Integrity Constraints. One example of schema is depicted in Figure 1.


Figure no. 1. Example of relational schema



Source: Authors' contribution

The advantages and disadvantages of relational DB are depicted in Table 1.

Table no. 1 Advantages and disadvantages of relational DB

	<p>The <i>advantages</i> of relational DB are:</p> <ul style="list-style-type: none"> <li>✓ Unitary, coherent and structured organization of data according to a previously defined normalized scheme (on-write scheme);</li> <li>✓ The data protection ensured by the SGBD aims at: data security and integrity;</li> <li>✓ Data shareability;</li> <li>✓ Competitive access;</li> <li>✓ Data independence from applications;</li> <li>✓ Optimizing access to data;</li> <li>✓ Relational languages are standardized (SQL standard).</li> </ul>	<p>The <i>disadvantages</i> of relational DB are:</p> <ul style="list-style-type: none"> <li>✓ Loss of some useful semantic information through normalization;</li> <li>✓ Relational operations, even optimized ones, are expensive in terms of computing resources;</li> <li>✓ Relational languages are limited.</li> </ul>
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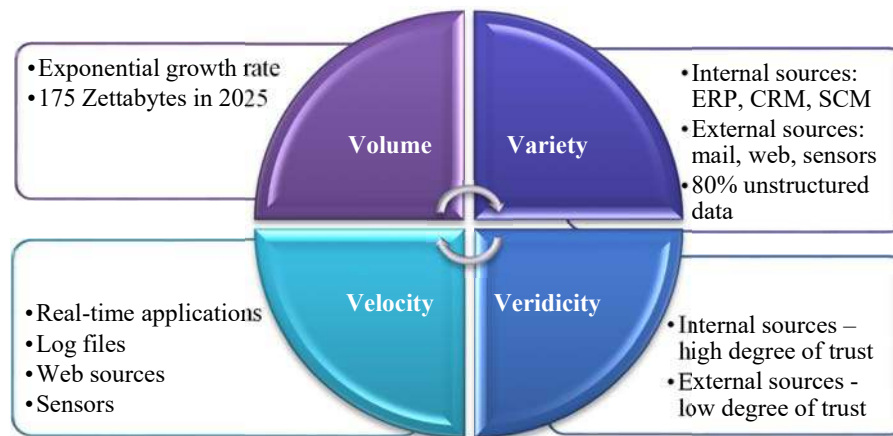
Source: Authors' contribution

They implement ACID properties: Atomicity, Consistency, Isolation and Durability.

*Big data* aims to integrate, organize, process and store large volumes of data in a short time. It represents a suite of technologies used for the collection, processing, storage and analysis of data characterized by large volume, variety, velocity (speed), veracity, as described in Figure 2. The 10 Vs of Big Data (<https://tdwi.org/articles/2017/02/08/10-vs-of-big-data.aspx>) refers to more Vs that include visualization and value.

The management of large volumes of data includes data management-oriented technologies that allow the integration, processing and analysis of large volumes of data in a short time. Its purpose is to extract useful information from data and gain competitive advantage. The multiple data sources include applications and the corresponding data from log files, sensors and real-time data, web and text sources or data that reflects activity on social networks or forums, articles, etc. Some examples are included in Figure 3.

Figure no. 2. Characteristics of big data



Source: Authors' contribution

Figure no. 3. Examples of multiple big data sources



Source: Oracle

Since the 80s, data was traditionally stored in relational DBs and data warehouses. However, relational DBs do not have the functionality to organize large volumes of data and processing requirements related to volume, variety, veracity and speed of data collection require non-relational DB or Not only SQL (NoSQL).

*NoSQL databases - advantages*

- ✓ They do not have a fixed scheme (structure) which gives flexibility to data collections (on-read scheme);
- ✓ They allow the storage and processing of semi-structured or unstructured data;
- ✓ The lack of the need to normalize data and store relations between tables brings increased performance to applications;



- ✓ Provides support for replication, distribution, API (Application Programming Interface);
- ✓ The ability to scale horizontally or replicate and distribute data on multiple servers;
- ✓ Allow dynamic modification of the structure of data collections.

*NoSQL databases - disadvantages*

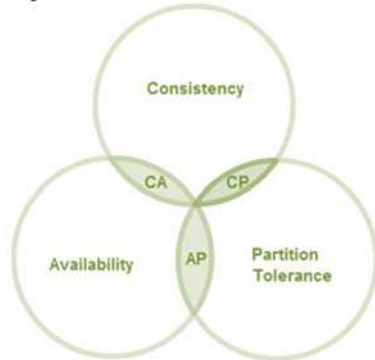
- ✓ Implements a competitive model that is weaker than the relational model (ACID);
- ✓ Lack of standardization of the language;
- ✓ Reduced management facilities;
- ✓ Higher dynamic of versions;
- ✓ Partially implements the CAP theorem (Consistency, Availability, Partition tolerance).

NoSQL databases implements CAP Theorem that refers to:

- ✓ Consistency refers to the fact that all users of the system must access the same data, all the time;
- ✓ Availability is a guarantee that every request will be answered;
- ✓ Partition tolerance is the property of the system to function in case certain nodes in the system are no longer functional.

According to the CAP theorem, a DB cannot simultaneously satisfy all 3 constraints, but it can excel at any 2 of them: CA, CP or AP (graphically depicted in Figure 4).

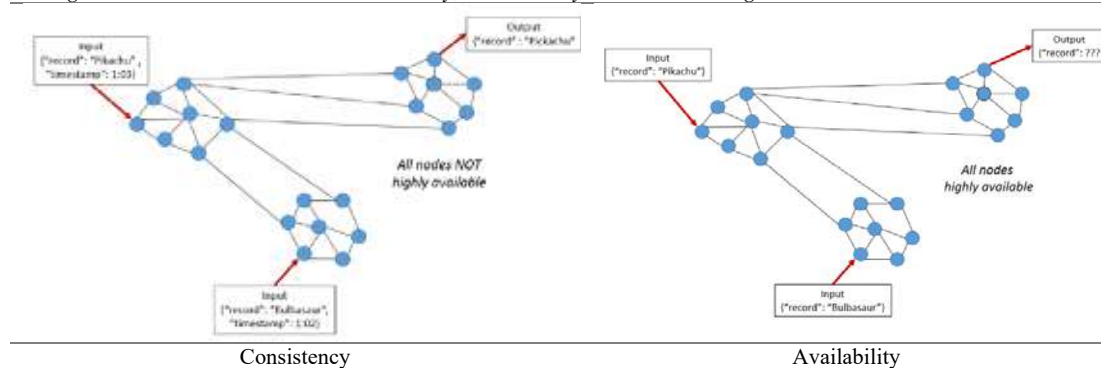
Figure no. 4. CAP theorem and its combination of 2 constraints: CA, CP or AP

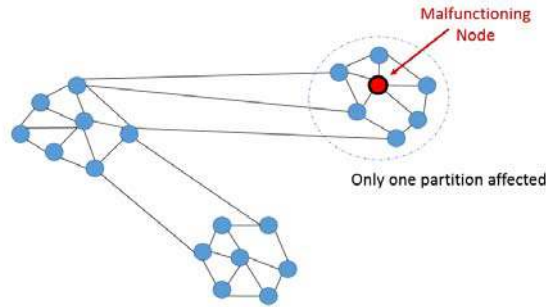


Source: Authors' contribution

The three properties are depicted graphically in Figure 5.

Figure no. 5. CAP theorem: Consistency, Availability and Partitioning





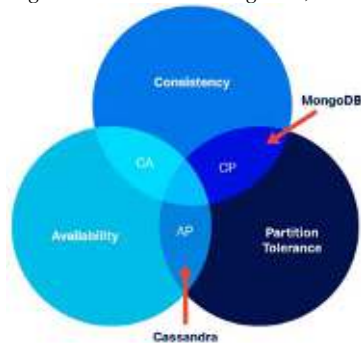
Partitioning

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<https://towardsdatascience.com/cap-theorem-and-distributed-database-management-systems-5c2be977950e>

Therefore, there are databases that better implement CP, whereas others better implement AP. Two examples of databases are MongoDB that is better at Partitioning and Cassandra that is better at Availability (as in Figure 6).

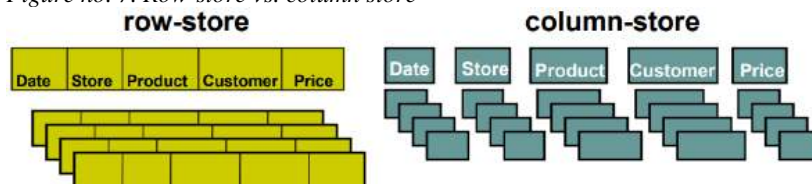
Figure no. 6. CP – MongoDB, AP - Cassandra



Source: Authors' contribution

Data management in NoSQL DB includes the following methods of data organization, by: Columns; Key-value; Document; Graph. On columns, the data is stored in columns (Suárez-Cabal et al., 2023), (Khourdifi, Bahaj and Elalami, 2018) as in Figure 7. The following databases are included in this category HBase, Cassandra, Hypertable, Accumulo, Amazon Simple DB, Cloudata, Cloudera.

Figure no. 7. Row-store vs. column store



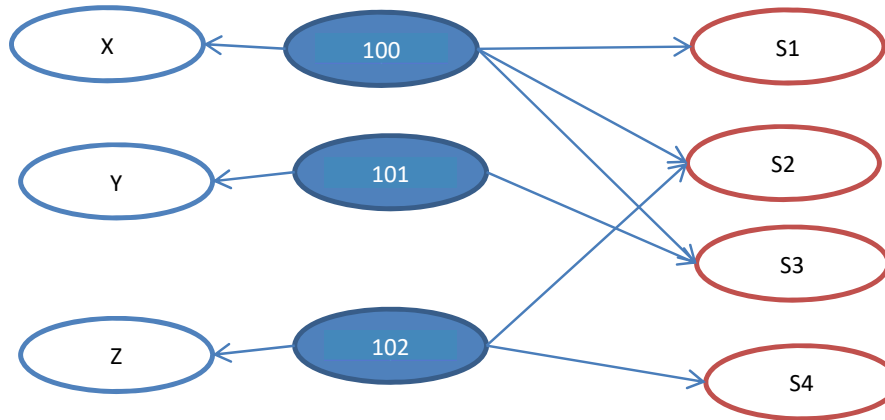
Source: Authors' contribution

On key-value, values are identified by a unique key (Puangsaijai and Puntheeranurak, 2017). The data model is simple, scalable, easy to manipulate, without a predefined schema (El Alami, Bahaj and Khourdifi, 2018). Some examples include: Redis, Riak, Oracle NoSQL Database, Tarantool, Tokyo Cabinet, etc. Documents are semi-structured data and can be stored in different forms: JSON, BSON, XML, etc. Documents are stored in the DB by a unique key to identify that document (Blanco et al., 2022). Couchbase and MongoDB are the most popular systems that implement document storage. Performance evaluation of NoSQL document DB, such as Couchbase, CouchDB, and MongoDB is analyzed in (Carvalho, Sá and Bernardino, 2023).



Graphs use nodes, edges/arcs or relationships between them (links) and node properties (Angles and Gutierrez, 2008). Graph-based DBs do not use indexes to retrieve a particular value in the DB, but instead use relationships between nodes to retrieve adjacent elements. Examples of systems implementing graph-based storage: Allegro, Neo4J, OrientDB, Virtuoso. An efficient graph database model is provided in (Vyawahare, Karde and Thakare, 2019). Additionally, an example of application that reply on graph DB is provided by The Oracle of Bacon that provides interesting movie links (<http://oracleofbacon.org/movielinks.php>). A graph example is presented in Figure 8, while a summary of DB examples is provided in Table 2.

Figure no. 8. Graph example



Source: Authors' contribution

Table no. 2 Summary of DB examples

No.	DB type	Example
1	Columns	HBase, Cassandra
2	Key-value	Oracle NoSQL Database, Riak, Redis
3	Document	CouchDB, Couchbase, and MongoDB
4	Graph	Allegro, Neo4J, OrientDB, Virtuoso
5	Multi-model	ArangoDB

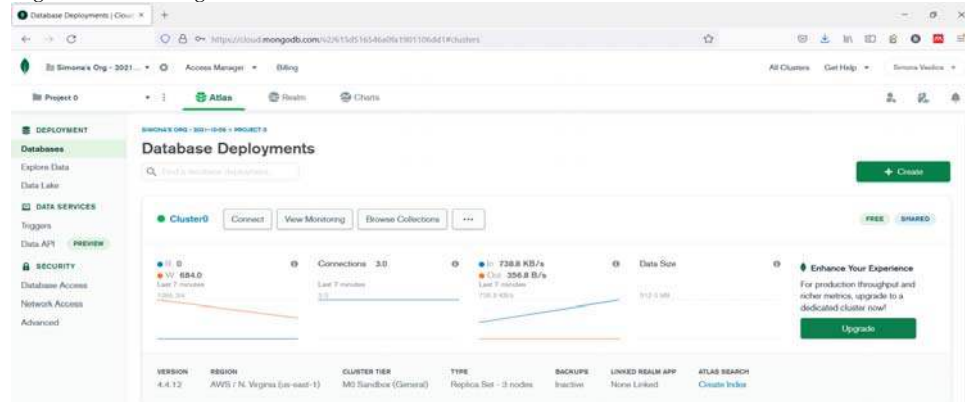
Source: Authors' contribution

The DBs are ranked according to their popularity. At the writing of this paper, Oracle and MongoDB are on top for relational and non-relational DB (<https://db-engines.com/en/ranking>), followed by MySQL and Redis.

#### 4. Findings

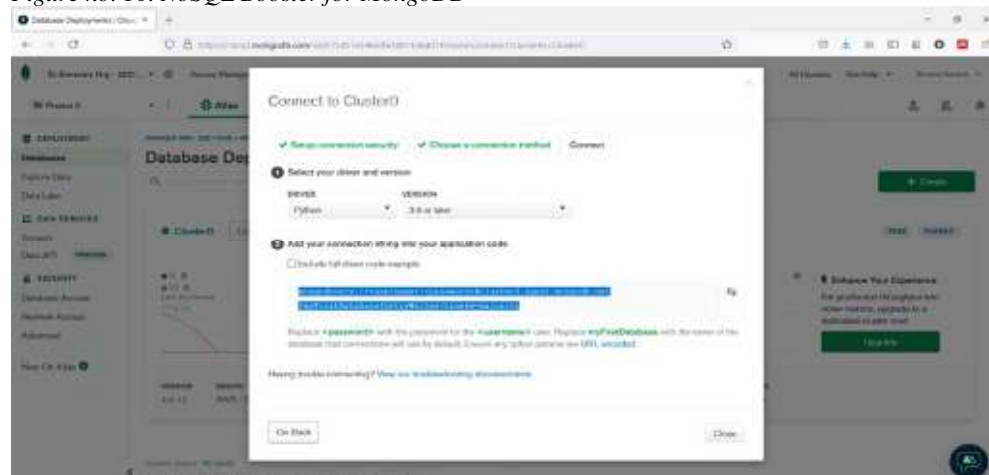
MongoDB Atlas is an environment that allows the creation of a non-relational DB (Figure 9 – Cluster0). Based on the connection string, a user can connect from an application (Figure 10).

Figure no. 9. MongoDB Atlas



Source: Authors' contribution

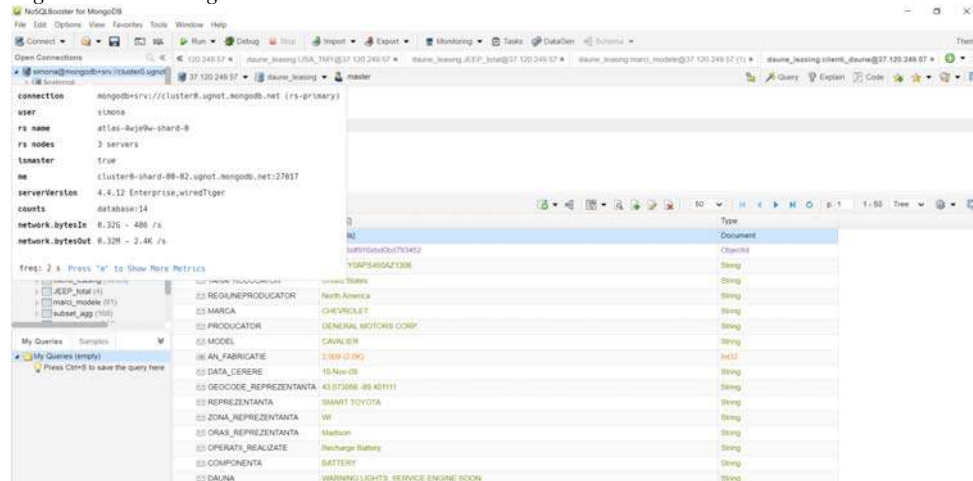
Figure no. 10. NoSQL Booster for MongoDB



Source: Authors' contribution

Using the connection string, a user connects via NoSQL Booster for Mongo to Cluster0 (as in Figure 11).

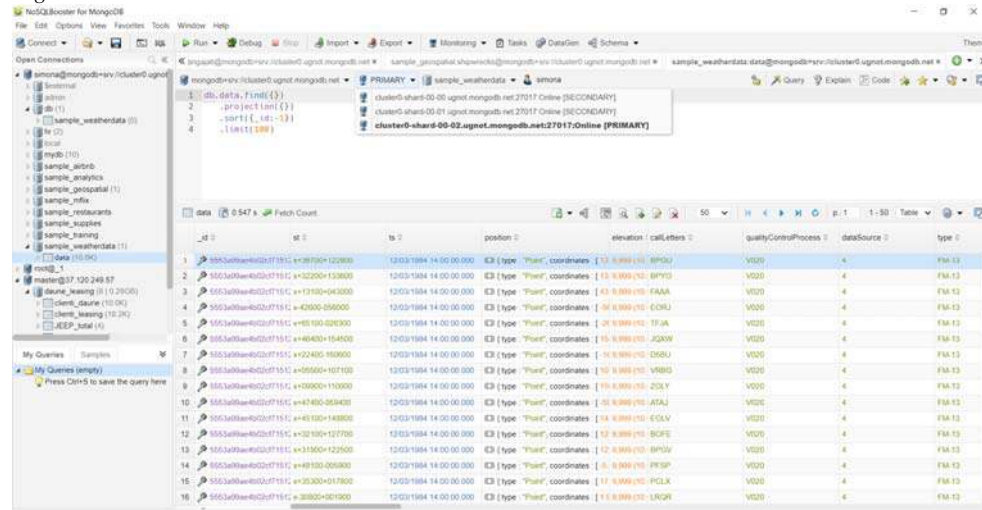
Figure no. 11. MongoDB Atlas



Source: Authors' contribution

In Figure 12, in NoSQL Booster for MongoDB, one node is primary and two are secondary. They ensure data replication in MongoDB.

Figure no. 12. Cluster nodes



Source: Authors' contribution

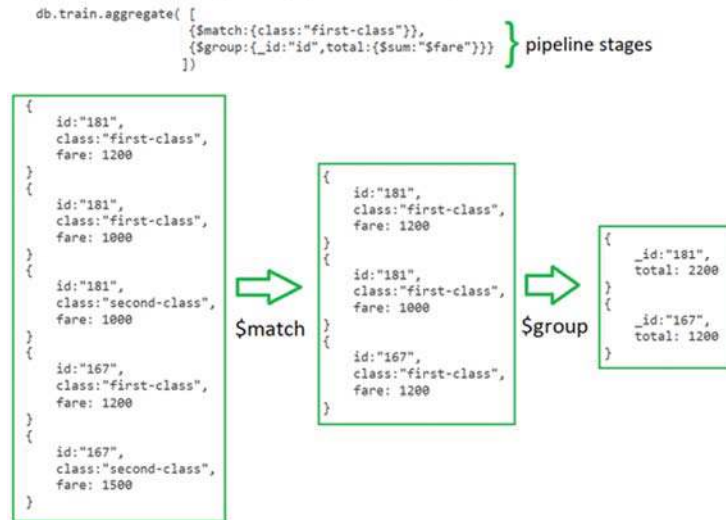
MongoDB includes methods that correspond to SQL statements. For instance, the SQL SELECT statement can be compared with MongoDB *find()* method (as in Table 3).

Table no. 3. SQL SELECT compared with MongoDB *find()* method

SQL SELECT	MongoDB <i>find()</i>
SELECT * FROM client_i_daune	db.client_i_daune.find({})
SELECT _id, MARCA, MODEL, PRET_MANOPERA FROM client_i_daune	db.client_i_daune.find({}).projection( {MARCA: 1, MODEL: 1, PRET_MANOPERA:1})
SELECT MARCA, MODEL, PRET_MANOPERA FROM client_i_daune	db.client_i_daune.find({}).projection( {MARCA: 1, MODEL: 1, PRET_MANOPERA:1, _id: 0 }) //exclude indexul _id
SELECT MARCA, MODEL, TARA_FURNIZOR FROM client_i_daune WHERE TARA_FURNIZOR = 'UK'	db.client_i_daune.find({ TARA_FURNIZOR: "UK" }, {MARCA:1, MODEL:1,TARA_FURNIZOR:1, _id:0})
SELECT MARCA, MODEL, TARA_FURNIZOR FROM client_i_daune WHERE TARA_FURNIZOR in 'UK', 'US' ORDER BY TARA_FURNIZOR desc	db.client_i_daune.find({ TARA_FURNIZOR: {\$in: ["UK", "US"]}, {MARCA: 1, MODEL: 1, TARA_FURNIZOR: 1, _id: 0}) .sort({TARA_FURNIZOR:-1})

Source: Authors' contribution

Figure no. 13. Aggregation pipeline in MongoDB



Source: Authors' contribution

Pipelines as in (Figure 13) can be set to filter and group by various variables the data set.

## 5. Conclusions

A brief evolution of data management and databases was emphasized in this paper along with a comparison between relational and non-relational DB. The NoSQL databases allow the flexible organization of large volumes of data using extensible data schemes (groups of columns, documents, graphs, key-value) compared to modeling data in fixed relational schemes.

They are designed for horizontal scaling through multi-node data distribution models.

It supports different interfaces for data access and advanced analysis as exemplified in MongoDB.

## 6. Acknowledgement

This paper was supported by Academy of Romanian Scientists, Ilfov 3, 050044 Bucharest, Romania, project title: "Soluții informatice pentru analiza impactului rețelelor de social media asupra instrumentelor investiționale cu grad ridicat de risc: cryptomonedă și bursă".

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# Eco-Innovation in the Corporate Sustainability Process and the Entrepreneurs' Vision: Implications and Opportunities for Sustainable Businesses in the Era of Climate Change

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## Abstract

*The impacts of climate change extend across various facets of human existence, exerting widespread effects on all aspects of life. The corporate sector is increasingly recognizing the importance of sustainability and adopting renewable energy sources and eco-friendly practices. Eco-innovation is driving clean energy development and sustainable solutions and can be a win-win solution for both companies and the environment. This paper examines eco-innovation in the corporate sustainability process, emphasizing the advantages of sustainable businesses. It specifically analyzes the business landscape in Moldova, exploring the adoption of sustainable practices and entrepreneurs' perspectives on business sustainability in the face of climate change. The findings reveal that Moldovan companies require support and concrete actions. While there is awareness and understanding of sustainability concepts among entrepreneurs, many companies lack a solid sustainability/eco-innovation strategy. These results highlight the need for increased awareness and proactive measures within Moldova's business community to effectively address sustainability challenges.*

**Key words:** eco-innovation, corporate sustainability, climate change, sustainability strategy, Republic of Moldova

**J.E.L. classification:** Q0, O31, O32

## 1. Introduction

In the early 21st century, humanity found itself on the precipice of an unprecedented global challenge – the era of climate change. As the Earth's climate began to shift and extreme weather events became more frequent and severe, it became abundantly clear that our actions as a species were taking a toll on the planet we call home. The consequences of climate change are far-reaching and affect all aspects of human life.

The Paris Agreement (UNFCCC), signed by nearly every country in the world, stands as a testament to the global recognition of the need for action. It aims to cap the rise in global temperatures significantly below 2 degrees Celsius while making dedicated endeavors to restrict the temperature increase to a more ambitious target of 1.5 degrees Celsius. The agreement also promotes adaptation measures, financial assistance to developing nations, and the transfer of clean technologies.

Transitioning to a sustainable future requires a multi-faceted approach. Governments are implementing policies and regulations to promote renewable energy, reduce emissions, and incentivize sustainable practices. The European Union assumes a pivotal role in facilitating the shift towards a more sustainable global paradigm, that fulfills multiple key functions. It serves as a dynamic force, shaping policies and enforcing regulations as a rule-maker. Furthermore, as a major producer and consumer, it wields significant influence in driving sustainable practices. The EU also acts as a vital source of substantial funding and it plays a pivotal role as a convening power, fostering collaboration among stakeholders. With its innovative spirit, the EU drives transformative change and sets new benchmarks as an innovator and a standard-setter in sustainability (Hedberg et al, 2022). The business sector is recognizing the value of sustainability, embracing renewable energy sources, and implementing eco-friendly practices. Innovations in technology are driving the development of clean energy alternatives and

sustainable solutions. In the Sustainable Development Scenario, the clean energy transition is primarily propelled by technological advancements, although it is not solely reliant on them (IEA, 2020). Consumer behavior also plays a significant role in this scenario, as there is a substantial shift in how much energy services and commodities are consumed, driven by a growing awareness of the negative environmental and societal consequences of current consumption patterns.

The climate change era is undoubtedly a challenging time, but it is also a time of immense opportunity. This era calls for innovation, collaboration, and collective action. By embracing sustainable practices, investing in renewable energy, and prioritizing the well-being of our planet, we can steer humanity toward a future where the adverse effects of climate change are mitigated, and harmonious coexistence with nature is possible.

The business approach to the climate change era has become increasingly crucial as corporations recognize their role in driving both the problem and the solution. Many forward-thinking businesses have embraced the concept of corporate social responsibility and are actively integrating sustainable practices into their operations. Companies that continue to view climate change exclusively through the lens of corporate social responsibility, rather than recognizing it as a fundamental business challenge, face the highest potential repercussions (Porter et al, 2007).

One of the primary drivers for businesses to address climate change is the growing demand from consumers who prioritize environmentally friendly products and services. In response, companies are adopting greener manufacturing processes, reducing emissions, and developing eco-friendly alternatives. This shift not only meets consumer expectations but also enhances brand reputation and fosters customer loyalty. Moreover, businesses are recognizing that embracing sustainability can be a source of innovation and competitive advantage. By investing in research and development, companies are finding creative solutions to reduce their carbon footprint, optimize resource efficiency, and develop renewable energy technologies. These efforts contribute to mitigating climate change and improving cost efficiency and resilience in the face of regulatory changes and market disruptions.

This paper analyzes eco-innovation in the corporate sustainability process and the key benefits of sustainable companies. The research begins with an analysis of business motivation for eco-innovation and sustainability and identifies several reasons starting from different existing studies all over the world. The research continues with a short analysis of the 2021 ESG Index (ESGI) rankings by continent and country. In the paper, the author gives some examples of eco-innovative companies and describes the actions they adopted to become more sustainable. In this context, the author analyzes the sustainable organization model in the vision of several authors, such as Elkington, Hart and Epstein. Also, the author analyzes the business environment in the Republic of Moldova regarding the adoption of sustainable practices and presents some relevant conclusions from the study she carried out regarding entrepreneurs' perception of business sustainability in the context of the climate change era.

## **2. Theoretical background**

In recent years, the urgency to address climate change and promote sustainable practices has become a key concern for businesses worldwide. Corporations are increasingly recognizing the need for eco-innovation within their sustainability processes, while entrepreneurs are embracing a visionary approach to drive sustainable business practices. This section provides a theoretical background on the concept of eco-innovation, and its significance in the corporate sustainability process in the era of climate change.

Eco-innovation is a component of innovation that opens new ways to achieve sustainable economic activities, comprising four essential aspects: economy, environment, society, and politics. And for each of these aspects, organizations' approach to this concept has long-term beneficial effects.

In the context of increasing global concern regarding climate change and environmental degradation, companies are increasingly aware of the need to implement sustainable practices and eco-innovative approaches. Eco-innovation can be a win-win solution for both companies and the environment. The implementation of eco-innovative practices can bring economic benefits by reducing costs and increasing efficiency, but it can also contribute to increasing the social responsibility of companies as well as the brand image.

Eco-innovation represents a crucial element in the transition towards sustainable development, as it enables businesses to reduce their environmental footprint and enhance resource efficiency. Scholars and practitioners have emphasized the importance of eco-innovation as a key driver for achieving corporate



sustainability goals and mitigating the adverse impacts of climate change.

As the concept of eco-innovation is a relatively new one, there are still different definitions in the vision of different authors. According to OECD (OECD, 2009), eco-innovation can be generally defined as "an innovation that results in a reduction of environmental impact, no matter whether or not that effect is intended". Several scholars have extensively cited the works of Ekins (2010), Hellström (2007), Carrillo-Hermosilla and Könnölä (2009; 2010), and Andersen (2008) in the domain of eco-innovation, among others.

Two significant publications have been released by international organizations, namely the OECD's "Green Growth" (2011) and UNIDO's "Policies for supporting green industry" (2011). These publications lay the groundwork for exploring the broader possibilities of green growth. Within the European Union, eco-innovation is recognized as a means to advance the broader goals of the Lisbon Strategy, which focuses on enhancing competitiveness and fostering economic growth. Additionally, the European Commission has initiated its EcoAP (Eco-innovation Action Plan) initiative, reflecting the increasing interest from both policymakers and academia in eco-innovation. This interest is further evidenced by the growing number of academic works focused on eco-innovation. The EcoAP builds on the 2004 Environmental Technologies Action Plan (ETAP) and expands the focus from green technologies to the broader field of eco-innovation (EcoAP, 2011). According to EcoAP, eco-innovation is defined as "the creation, adoption, or utilization of novel approaches in products, production processes, services, or management and business methods". Its overarching objective is to prevent or significantly reduce environmental risks, pollution, and other adverse impacts associated with resource utilization, including energy, throughout the entire lifecycle. The Final report of the "MEI" project, which focuses on measuring eco-innovation (2007), defines the concept as follows: "Eco-innovation refers to the creation, adoption, or utilization of a product, production process, service, or management or business method that is new or novel to the organization involved" (MEI, 2007). The defining attribute of eco-innovation lies in its ability to consistently mitigate environmental risks, pollution, and other detrimental impacts associated with resource consumption, including energy, across its entire life cycle. This sets it apart from comparable alternative approaches by ensuring a superior overall environmental performance. The key differentiation between the two definitions primarily lies in their approach to the purpose and outcome of innovation. Specifically, they address whether environmental benefits can arise from innovation even if they were not the initial intention, and vice versa. The MEI definition demonstrates a greater degree of flexibility in terms of innovativeness, as it considers innovation to be novel as long as it is new to the specific organization. Similarly, it allows for a range of environmental impacts, requiring only a slight reduction compared to alternatives. In contrast, the EcoAP definition emphasizes the necessity of substantial improvement in environmental impact. Paduraru suggests a more complex definition of eco-innovation from the perspective of the organization and the entire value chain and namely "a set of interdependent and interacting processes, activities, resources and decisions within an organization, economic entities, public/private/non-profit organizations that result in the development and implementation of products (goods or services), processes, economic-managerial methods, and tools, development plans and strategies, organizational structures, equipment, etc. new or significantly improved, which results in the achievement of sustainable development by reducing the negative impact of activities on the environment, increasing natural resistance to loads or ensuring greater efficiency and responsibility in the exploitation of natural resources, in cooperation with partners within the entire value chain" (Paduraru, 2022).

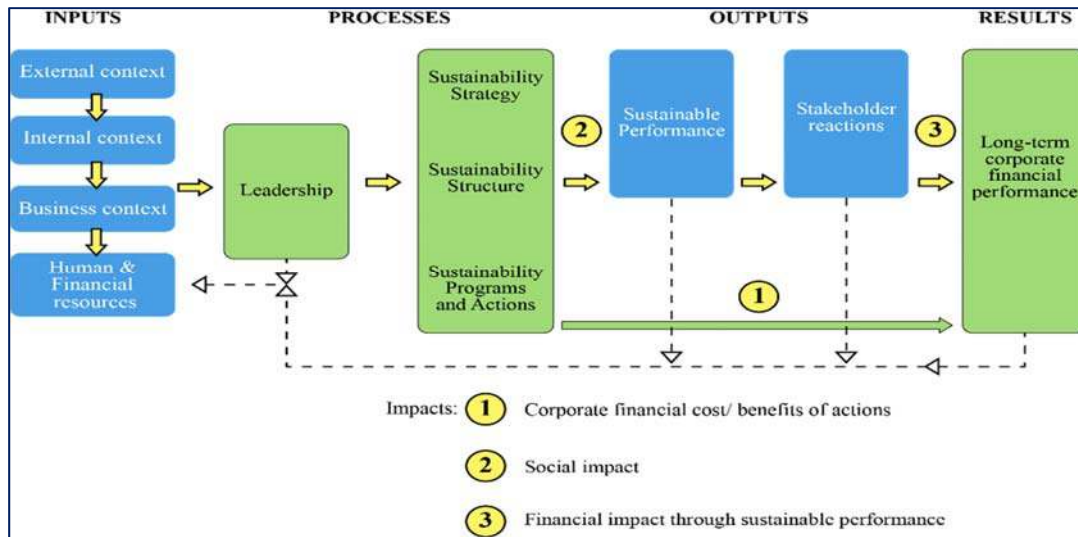
Corporate sustainability entails the integration of social, environmental, and economic dimensions into business strategies and operations. The process involves the identification and management of sustainability challenges, the adoption of sustainable practices, and the pursuit of long-term value creation. Within this context, eco-innovation plays a vital role by providing innovative solutions that enable organizations to achieve sustainability targets, reduce costs, and gain a competitive advantage. By incorporating eco-innovation into their sustainability process, companies can enhance their environmental performance while driving economic growth and social progress (Schaltegger et al, 2011).

The Corporate Sustainability Model has been developed over many years by researchers and specialists in the field of sustainability and management. They analyzed current trends and identified best practices to create an organization that can be sustainable in the long term and that can work harmoniously with the environment, society and economy. One of the authors who contributed to the development of this model is John Elkington, the inventor of the term "triple bottom line". Elkington



introduced the idea that an organization should not only focus on making a profit, but also consider the social and environmental impact of its activities (Elkington, 2018). This approach gave birth to the concept of corporate sustainability and laid the foundation for the corporate sustainability model. Another important author in the development of this model is Stuart Hart, a pioneer in the field of business strategy for sustainability. Hart introduced the concept of "sustainable innovation" and emphasized the importance of involving the supply chain in sustainability efforts (Hart et al, 2016). Another expert and author in the field of corporate sustainability are Marc J. Epstein, who developed a model of the sustainable organization, which helps managers integrate the strategy of sustainable development into their activity and transform this strategy into concrete actions, to improve performance financial and sustainable of the organization (Figure no. 1).

Figure no. 1. The Corporate Sustainability Model



Source: (Epstein et al, 2010)

According to this model, to improve the implementation of the company's sustainability strategy, managers must carefully identify and measure critical performance factors, which include different inputs, processes and outputs. This model helps leaders develop an appropriate sustainability strategy, configure the necessary structures and systems, align programs and take necessary actions. Managerial actions have a direct impact on sustainability performance and stakeholders, ultimately affecting long-term corporate financial performance.

### 3. Eco-innovation in the corporate sustainability process

Eco-innovation has now become an essential approach for companies that want to meet their sustainability goals and remain competitive in the long term. From an economic point of view, material and energy costs are reduced, new products, services, and new markets appear, and last but not least, new sustainable business models appear. The environmental effects of eco-innovation are obvious: sustainable management of natural resources, addressing climate change, and improving biodiversity and ecosystems. In addition, it increases the quality of life and creates new sustainable jobs.

Currently, there is widespread acceptance, globally, of business motivation for eco-innovation and sustainability for several reasons, such as:

- *The global market for products with low carbon emissions is worth billions of dollars.* According to the World Bank's annual State and Trends in Carbon Pricing report, the year 2021 witnessed a substantial surge of close to 60% in global carbon pricing revenues compared to the previous year, amounting to approximately \$84 billion. This considerable influx of funds presents a critical opportunity to bolster a sustainable economic rebound, facilitate broader tax restructuring initiatives, or make significant investments in local communities (Worldbank, 2022);

- *The sustainable supply chain is no longer a trend, but a necessity* to meet consumer demands. For example, the global retailer Walmart developed its own sustainability index in 2009, which is a comprehensive system evaluating the sustainability of the products sold in its stores (Walmart, 2012). The index assesses the environmental and social impact of products and assigns them a score based on various factors such as greenhouse gas emissions, waste reduction and labor practices (Worldbank, 2022);

- *An environmentally friendly business generates financial benefits.* According to the Nielson Global Study 2019, a growing number of consumers (66% of respondents) are displaying an escalating inclination towards natural products and social responsibility in their interactions with sellers and suppliers. They prioritize sustainability and green practices, expressing their willingness to pay a premium for products and services that align with these values and meet these criteria (Green Business Bureau, 2019);

- *Employees look for and appreciate sustainable and environmentally responsible companies.* In a comprehensive study conducted by the Institute for Business Value in 2019, involving 10 countries and 16,000 respondents, it was observed that employees are demonstrating a growing interest in seeking employment with environmentally conscious and sustainable companies. The study revealed that 67% of respondents expressed a higher willingness to apply for positions at such organizations, while 68% were more inclined to accept job offers from them. Moreover, the study found that 35% of individuals who changed jobs in the previous year specifically chose employers they deemed sustainable, while 34% opted for roles where they could directly contribute to driving sustainable outcomes. (Kerencheva, 2022).

The examples given above show the motivation of entrepreneurs and consumers alike, in the development of more sustainable businesses that offer alternative solutions and align with the new behavioral trends of consumers regarding climate change and care for the environment.

To become sustainable and adopt sustainability practices, there are multiple benefits for a company, starting from increasing efficiency, reducing costs and risks, improving reputation on the market and attracting more customers and investors.

Table 1 are exemplified some key benefits for companies according to the OECD, which are divided into 3 large categories, namely: financial performance, excellent business and relations with stakeholders, to which the author made additions to each of them.

By reducing energy and material consumption, companies can reduce costs and save money. Also, by improving production and distribution processes, companies can reduce waste and save financial resources by avoiding fines and taxes. By implementing sustainability practices, companies can improve operational efficiency and generate more revenue by increasing productivity and reducing downtime. Thus, the dependence on materials and resources decreases, and productivity increases, which increases sales and financial performance. Business performance, according to Table no. 1, is characterized by reducing the risks associated with climate change, which helps in strategic business forecasting, improved access to capital and last but not least by proactive attitude and compliance with legal environmental requirements or standards environment and sustainability.

Table no. 1. Key benefits for sustainable companies

<b>Financial performance</b>	<i>Increase sales</i> – by anticipating and meeting environmental and social expectations better than your competitors. <i>Improve efficiency and productivity</i> – by reducing resource use and waste, and by cutting regulatory burdens. <i>Reduce dependence on expensive or hazardous materials</i> – by exploring, innovating and introducing greener alternatives. <i>Increasing operational efficiency</i> – improving production, distribution and sales processes.
<b>Excellence in business</b>	<i>Stay ahead of regulations</i> – by being proactive and shaping best practices, rather than reacting after changes are implemented. <i>Win access to capital</i> – by reducing risks in operations, strategy and the supply chain and by developing innovative solutions and new products for the market. <i>Gain strategic foresight</i> – by anticipating how your business can innovate solutions or adaptations to new added value. <i>Reducing the risks</i> associated with climate change.
<b>Relations with stakeholders</b>	<i>Enhance reputation</i> – by demonstrating green know-how and setting a positive example. <i>Improve employees' morale and retention</i> – by empowering them to contribute to a better environment and more productive business.

	<i>Build better community relations</i> – by demonstrating a responsible and proactive approach to the local environment and people. <i>Increasing attractiveness for investors.</i>
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Source: elaborated and completed by the author based on the source (OECD, 2011, p.6).

On the same note, a sustainable company can gain a better reputation and attract and retain loyal customers by adopting more sustainable practices, such as reducing carbon emissions and negative environmental impact in general. They also have a positive impact on employees by improving their morale and retention. Investors are increasingly interested in and looking to invest in sustainable companies. Therefore, a sustainable company can be more attractive to investors and obtain financing more easily. Last but not least, one of the key benefits for sustainable companies is the building of a better relationship with the community in which they operate, by demonstrating a responsible approach to the environment and the local community. These are just some of the key benefits for companies that want to become sustainable, which can be added: increasing competitiveness, entering new markets, stimulating innovation and eco-innovation, etc.

Due to increasing pressures to improve sustainability, a growing number of companies are committed to finding solutions to the environmental and social problems they face. These companies are evaluated in terms of their sustainability performance by consulting and media firms such as Deloitte, Corporate Knights, as well as by researchers using methodologies such as Environmental, Social and Governance criteria (ESG Environmental, Social and Governance).

In a context where the protection of the environment and human rights are becoming increasingly important, the Global Risk Profile (GRP) has published the 2021 ESG Index (ESGI), which measures environmental, human rights, health and safety risks people all over the world at country level. Europe remained at the top of other world regions with a score of 26.8, well ahead of Oceania, South America, North America, Asia and Africa (GRP, 2021). In 2021, the podium of the ESG ranking is occupied exclusively by Nordic countries, with Finland at the top, followed by Sweden (2) and Iceland (3). Norway ranks fourth, followed by Switzerland (5), whose overall ranking is hampered, like several other European countries, by a poor average score (20th in the corresponding sub-index). In Europe, Germany, France and Italy perform similarly overall, ranking 16th, 17th and 18th in the ESGI, while the UK ranks 26th. Russia (76th) performs poorly on political rights and civil liberties and is held back by its poor human rights score (118th in the human rights sub-index) (GRP, 2022).

Regarding the ranking of sustainable companies, one of the most popular rankings is offered by Corporate Knights. From 2005 until now, it annually publishes the "100 most sustainable companies in the world (Global 100)" report. The purpose of the Global 100 is to strengthen, raise awareness and showcase, annually, the world's leaders in corporate sustainability, including those who have successfully achieved equilibrium in environmental performance, social performance and economic performance while delivering superior returns to investors. In the 2021 list, 46 of the most sustainable corporations are based in Europe; 33 in North America; 18 are in Asia; two are in South America and one in Africa (ENERGY, 2023). These findings can also be seen in the Table below, which presents the list of global leaders in sustainability from 2021.

Table no. 2. Top 10 most sustainable public companies in the world in 2021

	Organization	Country	Field of activity
1	Schneider Electric SE	France	Electric devices
2	Orsted A/S	Denmark	Electricity production
3	Banco do Brazil SA	Brazil	Financial services
4	Neste Oyj	Finland	Oil and gas industry
5	Stantec Inc	Canada	Engineering, Architectural Design
6	McCormick & Company Inc	USA	Processed and packaged goods
7	Kering SA	France	Luxury industry: couture and leather goods, jewelry
8	Metso Outotec	Finland	Manufacture of industrial machinery
9	American Water Works Company Inc	USA	Utilities, Water and Wastewater
10	Canadian National Railway Co	Canada	Rail transport

Source: elaborated by the author based on (2021 Global 100 ranking).

In the context of growing global concerns about climate change and environmental degradation, companies are increasingly aware of the need to implement sustainable practices and eco-innovative approaches. Eco-innovation can be a win-win solution for companies and the environment. The implementation of eco-innovative practices can bring economic benefits by reducing costs and increasing efficiency, but it can also contribute to increasing the social responsibility of companies and their image on the market.

Eco-innovation can also help companies meet the growing demand for environmentally sustainable products and services. Consumers are becoming increasingly aware of the impact of their choices on the environment and are increasingly choosing products and services that align with their values. According to a study conducted by Nielsen (NIQ, 2019) in 2019, 73% of consumers globally say they would definitely or probably change their consumption habits to reduce their impact on the environment. Moreover, eco-innovation can help companies comply with increasingly strict environmental regulations. Governments around the world are implementing policies to reduce greenhouse gas emissions and protect the environment. For example, the European Union has set a target of reducing greenhouse gas emissions by at least 55% by 2030, and the United States has rejoined the Paris Agreement and committed to net zero emissions by 2050 (UNFCCC, 2018).

Currently, we have many examples and models of sustainable companies from all over the world, both from the public and private sectors. A notable example of eco-innovation is in the field of renewable energy supply. Many companies in the energy sector have started investing in renewable energy solutions, such as solar and wind power, to reduce greenhouse gas emissions and meet their sustainability goals. An example of a company that has successfully implemented renewable energy solutions is *Google*. The company is committed to achieving carbon neutrality by 2020 and powering its operations with 100% renewable energy. The US giant has increased its solar and wind portfolio by more than 40% with offers for 1,600 megawatts of electricity (Google, 2019). Over the past decade, Google has purchased more renewable energy than any other company, based on cumulative renewable energy purchased in megawatt-hours, from 2012 to 2021, and plans to run 24/7 on carbon-free energy by 2030 (Our biggest). Another eco-innovative approach is the use of recycled and biodegradable materials in the production process. For example, the footwear company *Allbirds* (Our Approach) uses a wide range of natural materials such as wool, hemp, sugar cane and is committed to reducing its environmental impact, including using recyclable and biodegradable packaging. Similarly, companies can reduce carbon emissions by investing in energy efficiency and optimizing production processes. For example, the sharing economy model, which allows consumers to share resources instead of owning them, has the potential to reduce resource consumption and greenhouse gas emissions. Companies like *Airbnb* and *Uber* have disrupted traditional industries by offering more sustainable alternatives to accommodation and transportation services.

These few examples shown above demonstrate that companies know how to align themselves with the current trends and requirements regarding climate change, they become sustainable through the practices they adopt and through the long-term sustainability plans they undertake. By investing in eco-innovation, companies can reduce their carbon footprint, conserve resources and improve the overall sustainability of their operations. And this can be transposed into the corporate sustainability model.

#### 4. Research methodology

To develop this paper, the author extensively researched theoretical and practical sources, employing diverse research methods including literature analysis and synthesis, comparative analysis, induction, logical deduction and survey method as well. The findings were then disseminated to present a unique perspective. The author drew on a range of information sources, including bibliographic resources, studies, normative acts, official reports, and documents, as well as publications from the Republic of Moldova and other countries focusing on sustainable development, sustainability and eco-innovation. The author also has chosen a quantitative analysis for this investigation, for a better understanding of the entrepreneurs' perceptions regarding sustainability. In this case, the research method utilized for this study is inquiry. Analysis and synthesis are based on processed and summarized data.

## 5. Findings

Entrepreneurs, driven by a vision for positive change, play a crucial role in advancing sustainable businesses. Their innovative thinking, risk-taking propensity, and ability to identify market opportunities enable them to create environmentally friendly products, services, and business models. Moreover, entrepreneurs often challenge existing paradigms and traditional approaches, paving the way for disruptive eco-innovations that transform industries. Their vision for sustainability, coupled with their entrepreneurial skills, drives the adoption of sustainable practices and fosters a culture of innovation within organizations.

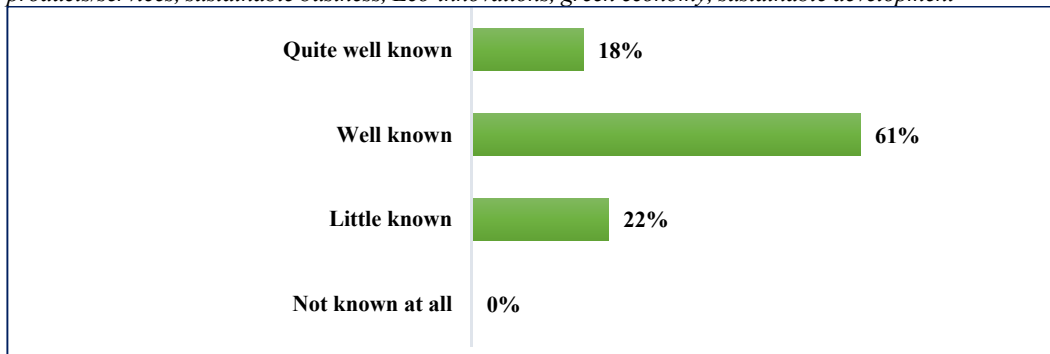
The Republic of Moldova has made significant strides in recent years towards fostering sustainable business practices. With a growing awareness of environmental issues and a commitment to achieving the United Nations Sustainable Development Goals (SDGs) (UN, 2023), Moldovan businesses are pursuing innovative solutions to reduce their ecological footprint and contribute to a greener and more sustainable future. Although modest, the main fields of investments in sustainable projects are the renewable energy sector, industry, manufacturing, organic farming and agriculture, circular economy or waste management.

As a result of investigations aimed at entrepreneurs' perceptions of business sustainability and the assessment of eco-innovation potential, the author did not identify any relevant study conducted in Moldova. For a better understanding of the context from the perspective of the business environment regarding business sustainability in the context of climate change, the author initiated a survey among companies from Moldova (Centre Region and the City of Chisinau). There were selected 200 enterprises from the field of Industry, Agriculture and Services. **Some of the results of the study elaborated by the author show that:**

1. A majority of entrepreneurs have a good level of knowledge regarding concepts such as green products/services, sustainable products/services, sustainable business, eco-innovations, green economy, and sustainable development.
2. The varying degrees of importance placed on different climate change factors by entrepreneurs, with customer demand and cost implications being the most widely recognized, while the influence of civil society organizations appears to have a lower level of significance in their businesses.
3. A significant proportion of entrepreneurs recognize the importance of various climate change factors for their businesses over the past 5 years. 78% of the companies consider increasing customer demand for products that help mitigate or adapt to climate change as very important and 72% perceive the increase in costs or input prices resulting from climate change as a very important factor.
4. A significant portion of companies have yet to establish a concrete sustainability/eco-innovation strategy to reduce their carbon footprint, improve resource efficiency, or minimize negative environmental impact.
5. Most companies that state that they have a sustainability strategy are found in the Agriculture sector (30%), followed by the Industry sector (11%) and the Services sector (9%).

The survey results indicate that a majority of entrepreneurs have a good level of knowledge regarding concepts such as green products/services, sustainable products/services, sustainable business, eco-innovations, green economy and sustainable development, with 61% stating they are well-known. Additionally, it is encouraging to note that none of the respondents reported having no knowledge of these concepts, suggesting a positive level of awareness and understanding among the entrepreneurial community.

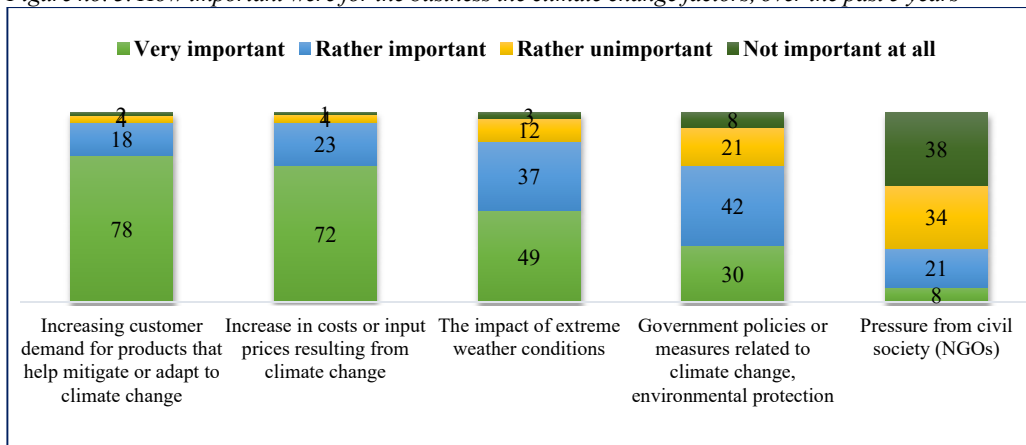
Figure no. 2. Entrepreneurs' degree of knowledge of the concepts: green products/services, sustainable products/services, sustainable business, Eco-innovations, green economy, sustainable development



Source: elaborated by the author

The survey results also indicate that a significant proportion of entrepreneurs recognize the importance of various climate change factors for their businesses over the past 5 years. The majority of respondents (78%) consider increasing customer demand for products that help mitigate or adapt to climate change as very important. Similarly, a significant percentage (72%) perceive the increase in costs or input prices resulting from climate change as a very important factor.

Figure no. 3. How important were for the business the climate change factors, over the past 5 years

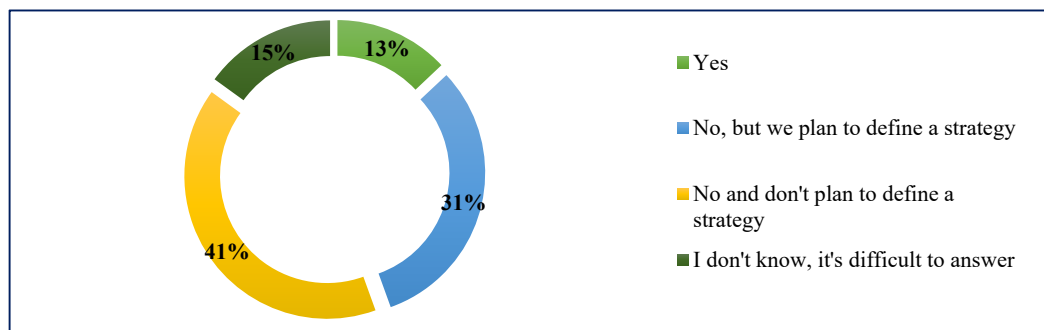


Source: elaborated by the author.

Furthermore, a considerable number of entrepreneurs (49%) recognize the impact of extreme weather conditions as very important, highlighting their awareness of the risks associated with climate change. Government policies or measures related to climate change and environmental protection are also seen as significant by a notable portion of respondents, with 30% considering them very important and 42% considering them rather important. However, there seems to be a lower level of recognition regarding the importance of pressure from civil society (NGOs), with only 8% of respondents considering it very important. A higher percentage (34%) perceive it as rather unimportant, and a substantial number (38%) believe it is not important at all. These results highlight the varying degrees of importance placed on different climate change factors by entrepreneurs, with customer demand and cost implications being the most widely recognized, while the influence of civil society organizations appears to have a lower level of significance.

The survey results indicate that a significant portion of companies has yet to establish a concrete sustainability/eco-innovation strategy to reduce their carbon footprint, improve resource efficiency, or minimize negative environmental impact. The majority of respondents (41%) reported not having a defined strategy and having no plans to develop one. However, it is promising to note that a notable percentage (32%) expressed intentions to define a strategy in the future, indicating a growing recognition of the importance of sustainability.

Figure no. 4. Do companies have a concrete sustainability/eco-innovation strategy to reduce the carbon footprint, make resources more efficient or reduce the negative impact on the environment?



Source: elaborated by the author.

The most interested to define a strategy in the future are the companies from the Industry sector (41% stated that don't have a sustainability strategy, but intend to define it). Additionally, a smaller percentage (13%) of companies reported already having a concrete sustainability/eco-innovation strategy in place. Most companies that state that they have a sustainability strategy are found in the Agriculture sector (30%), followed by the Industry sector (11%) and the Services sector (9%). These findings highlight the need for increased awareness and action within the business community to address sustainability challenges effectively.

## 6. Conclusions

Companies that choose sustainable strategies and practices will have a competitive advantage in the market, obtaining value by increasing revenues due to new goods and services, reducing costs through eco-efficiency and eco-innovation, managing operational risks and complying with more effective regulations. These organizations will have the ability to harness intangible resources like brand equity and reputation, fostering collaborative networks encompassing all stakeholders (customers, employees, partners, competitors, suppliers, etc.), which will accelerate the process of improving sustainability. To support the transition to a low-carbon economy, governments around the world are implementing regulatory frameworks and incentive programs. In response, businesses are adjusting their strategies to align with these policies and capitalize on the associated opportunities. By proactively complying with regulations and anticipating future changes, enterprises can gain a competitive edge by proactively anticipating future trends and strategically positioning themselves for sustained prosperity.

In this context, the vision of entrepreneurs from the Republic of Moldova regarding sustainability and climate change is a positive one, but still needs support and concrete actions. Despite a positive level of awareness and understanding of the sustainability concepts among the entrepreneurial community, a significant portion of companies has yet to establish a concrete sustainability/eco-innovation strategy to reduce their carbon footprint, improve resource efficiency, or minimize negative environmental impact. The results of the research underscore the necessity for heightened awareness and proactive measures within the business community from Moldova to effectively tackle sustainability challenges.

In conclusion, the business approach to the climate change era encompasses a range of strategies and actions. From integrating sustainability into core business practices to fostering innovation, collaboration, and transparency, businesses are recognizing the urgent need to address climate change and are actively working towards a greener and more sustainable future. By aligning economic interests with environmental concerns, the business sector has the potential to drive significant positive change and be a key player in global efforts to combat climate change.

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## Face-to-Face versus Online or Hybrid: How Students Perceive the Educational Framework

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### Abstract

*In the aftermath of the recent pandemic, it became more and more important for the educational system to account for the necessity of designing courses that could be delivered both in an onsite environment and in an online framework. The aim of our study is to investigate perceptions of students about the face-to-face, online and hybrid learning. We conduct a survey to explore the way students perceive the educational frameworks. Our survey is conducted on a sample of students enrolled in the third and fourth year of study at the Faculty of Engineering from Vasile Alecsandri University of Bacau. From 126 respondents, 53% would choose hybrid framework. Moreover, 45% of them would choose to have the possibility of online courses and face-to-face seminars. Furthermore, 77% of the students work and they perceive blended/hybrid learning as a higher chance to participate to courses, without the necessity to physically attend the them.*

**Key words:** online course; distance education; face-to-face learning; hybrid learning; higher education

**J.E.L. classification:** I21, I23

### 1. Introduction

In the light of the recent pandemic, many domains have been put under question and one of the domains that have suffered a lot in the pandemic was the educational system. The institutions that provide educational services have sought different solutions to continue their activity and to diminish as possible the negative effects of the crisis. One of the best solutions that came up in this context was organizing online lectures. Although online education was not new as a framework of delivering lectures, it become more and more important in the context of the pandemic. Since the outbreak of the pandemic, universities have implemented the online system, as well as the blended system and the traditional one. To analyze the extent to which universities may include in their curricula the online framework of courses, we consider that it is of interest to investigate the effects of adopting the online course during the Covid pandemic and the impact of this change on the students' results.

The aim of our study is to analyze the perception of students regarding these three educational frameworks in the light of the discussion regarding the digitalization and the changes that happened in the last decade with respect to the students' market (increased number of students that are working during the university studies).

### 2. Literature review

The purpose of this paper is to evaluate online learning in comparison to face-to-face learning and analyze the perceptions of students regarding the advantages and disadvantages of these educational frameworks.

The body of literature that studies the educational frameworks, face-to-face, online or blended learning, can be divided into papers that analyze this topic before the Covid-19 pandemic and papers that analyze it after the pandemic and take into account the implementation of online or hybrid learning as a measure to tackle the medical crisis and support the measures to maintain physical distance.

Allen and Seaman (2013) analyze the online learning over ten years of implementing it in the higher education from United States through the Massive Open Online Courses. They define online learning as a framework where at least 80% of the content is delivered online, while the blended framework has a proportion between 30% and 80% of the content delivered online. The authors applied the survey annually, from 2003, and their results showed that in 2013, compared to 2003, the percentage of students enrolled at online courses has increased. However, what the survey revealed is that online courses are more demanding for the faculty professors and staff and that one important barrier to the implementation and adoption of online learning by the students is related to the fact that this educational framework requires more self-discipline.

Atchley, Wingenbach and Akers (2013) make a comparative analysis between course completion and student performance in online and face-to-face educational frameworks, also for U.S., and their results show that there are significant differences between the two and that the difference depends on the course discipline that is considered. Moreover, Fischer et al. (2020) conduct a quantitative study about the effects of online courses, compared to face-to-face learning for summer courses and their findings illustrate that, although the participation to online courses is higher due to the degree of flexibility, the students' performance is better in face-to-face setting than in the online one.

For the purpose of our study, it is of high importance the literature that appeared after the covid crisis. For example, Ghasem and Ghannam (2021) study the effects of distance learning on students enrolled at chemical engineering and found that internet connectivity problems is one important disadvantage of online learning, together with the lower mental concentration of students in online courses than in the traditional ones. Furthermore, Asfour and Alkharoubi (2023) found that the sense of isolation is an important disadvantage of online learning identified by the students and the authors consider that, at least for their study sample, which is formed by students enrolled in architecture courses, a form of blended learning could be more suitable than online learning. Regarding the advantages of online learning, Hofer, Nistor and Scheibenzuber (2021) discuss the possibility of many students to benefit from courses at very good universities and that the pandemic was a starting point regarding the development of digitalization and online delivery of academic courses.

One of the aims of our survey is to assess the students' perceptions regarding the results obtained in the online setting, compared to the face-to-face one. Existing evidence suggest that there is a small difference between the results obtained in the online learning versus the ones obtained in the onsite learning. Kabashi et al. (2022) conducted an empirical study to analyze if there are significant differences between the results obtained in the two educational frameworks for higher education in mathematics and found that students' results were better in the online setting than in the face-to-face one.

An important topic for our research is related to the blended or hybrid learning. Huizinga et al. (2022) illustrate that the hybrid framework could be a good solution in order to attract students and enhance the flexibility of university studies. Moreover, higher flexibility is documented in the study of Mushtaha et al. (2022) who found that this is the most important advantage of online courses. However, their study shows that lack of socialization and the sense of isolation are important disadvantages of this educational framework. The effects of the online learning adopted as an urgent measure at the beginning of the pandemic are investigated are also investigated in Roman and Ploeanu (2021) for the economics universities in Romania and their results show that there are some factors that made the online studies to be seen as less effective by students, like connectivity problems, anxiety regarding the effects of the pandemic or insufficient working time and space at home.

Based on the related studies and the existing literature, the aim of our research is to investigate the advantages and disadvantages of online learning, compared to the face-to-face learning and to assess students' perception regarding the results obtained in the two educational frameworks.

### 3. Research methodology

The aim of the study is to analyze the perceptions of students regarding the online courses versus the face-to-face courses or blended courses. Our study sample consists of students from the Faculty of Engineering of the „Vasile Alecsandri” University of Bacau, enrolled in the 3<sup>rd</sup> and 4<sup>th</sup> year of study. We have chosen this sample because the 3<sup>rd</sup> year students enrolled in summer 2020, in the middle of the pandemic, while the 4<sup>th</sup> year students enrolled in summer 2019, before the pandemic. We consider that this sample is representative for our analysis because the students from the sample experienced face-to-face learning, as well as online or blended learning.

The methodology we use to analyze the students' perceptions about the three educational frameworks (face-to-face, online or hybrid/blended) is a survey that we create in order to investigate their perceptions. The questionnaire consists of 11 open-ended questions regarding the educational system they would prefer, the advantages and disadvantages of both face-to-face and online/hybrid learning, the suitable ratio between face-to-face and online/hybrid learning in case of a mixt educational system, or the level of preparation of professors for the online/hybrid courses.

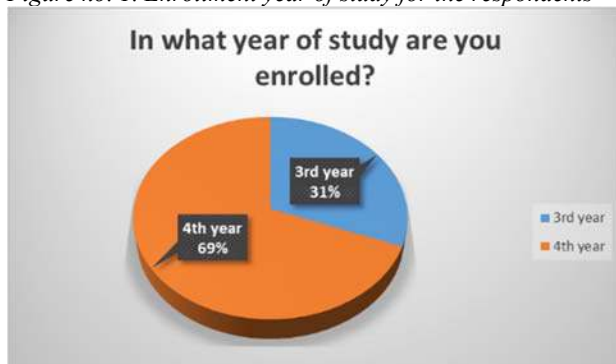
We have created and applied the survey online, through the Microsoft Forms platform, because all the students in the sample have university accounts on this platform. We obtained 126 responses and all the respondents have responded to all 11 questions. Further on, we analyze the responses by calculating, for each question and for each choice, the response rate, which we illustrate using pie charts or bar charts, depending on which is the most appropriate. Also, we constantly use a comparative approach, in order to emphasize the differences between face-to-face and online/hybrid educational frameworks.

### 4. Findings

The aim of the study is to explore how students perceived the lectures before and after the pandemic, in the onsite or the online experiences. In this section we present and analyze the results of the survey.

The first question of the survey has the purpose of establishing in what year of study is the respondent enrolled. The results are represented in Figure 1, and they show that 31% of the respondents are enrolled in the 3<sup>rd</sup> year of study, while 69% of them are enrolled in the 4<sup>th</sup> year of study.

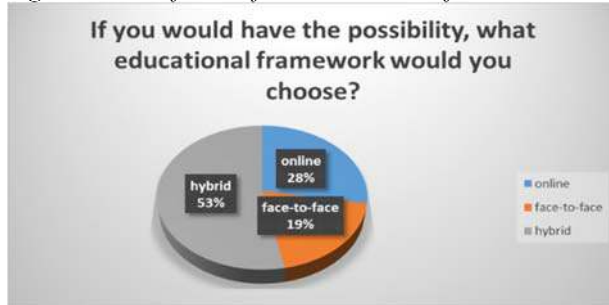
Figure no. 1. Enrollment year of study for the respondents



Source: author' computations

According to the participants' responses to the question about what educational framework they would choose if they had the possibility, only 19% of the respondents would prefer the face-to-face framework, whereas 28% of the respondents would choose the online framework and the majority of 53% would prefer a blended educational framework. These results are illustrated in Figure 2.

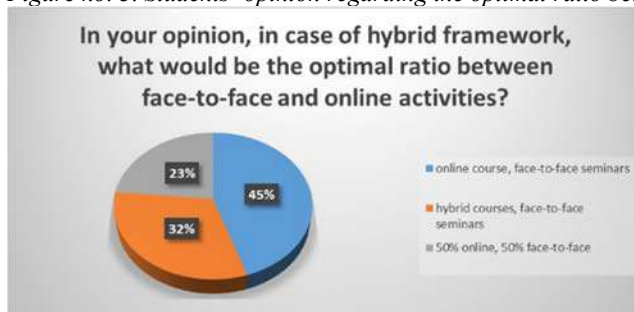
Figure no 2. Preference for an educational framework



Source: author' computations

Question related to students' opinion regarding the optimal ratio between face-to-face and online activities revealed that 45% of the respondents consider that courses should be online, while seminars should be face-to-face. Also, 32% of the respondents are in favor of hybrid courses and face-to-face seminars, whereas 23% of them chose the option with 50% online courses and 50% face-to-face seminars. We consider that the majority of the survey's participants would prefer the online framework for courses and face-to-face framework for practical activities (seminars) because this option would give them a higher level of flexibility when it comes to cope with both faculty and job responsibilities. The results related to this question are presented in Figure 3.

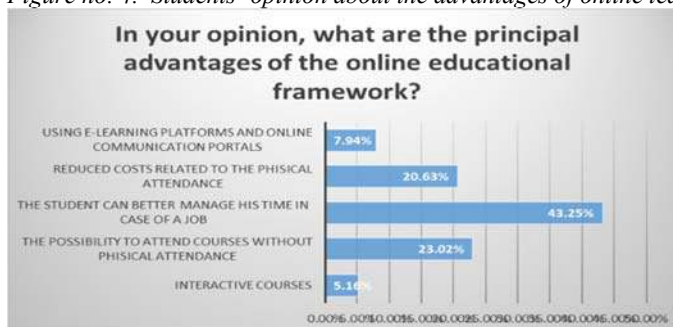
Figure no. 3. Students' opinion regarding the optimal ratio between face-to-face and online activities



Source: author's computations

When students evaluate the advantages of online learning, 43.25 of them consider that the principal advantage is that they can better manage their time in case of a job, while 23.02% of the respondents rated the possibility to attend the courses without physical attendance as the main advantage of the online educational framework. Also, 20.63% of respondents consider that the main advantage regards the reduced costs related to the physical attendance, whereas 7.94% of respondents underlined the use of e-learning platforms and online communication portals as the principal advantage of online learning and 5.16% of respondents highlight the fact that courses are more interactive as the main advantage. The results are illustrated in Figure 4.

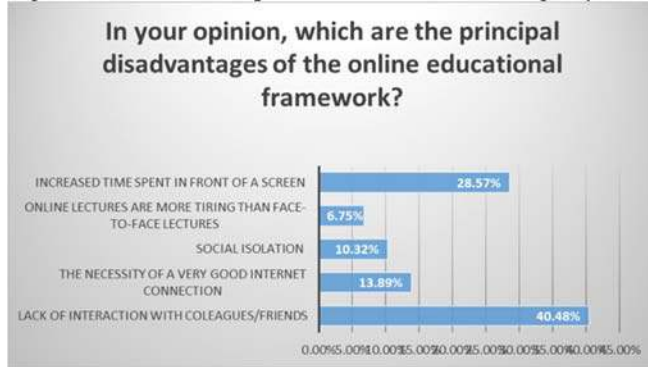
Figure no. 4. Students' opinion about the advantages of online learning



Source: author's computations

Based on the data collected, regarding the disadvantages of online learning, 40.48% of the participants to the survey consider that the main disadvantage is the lack of interaction with colleagues/friends, while 28.57% of them underline the increased time spent in front of a screen. Also, 13.89% of the students chose the necessity of a very good internet connection as an important disadvantage of the online educational framework, whereas 10.32% of them rated social isolation as a principal disadvantage and 6.75% believe that online lectures are more tiring than face-to face lectures. Results are exhibited in Figure 5.

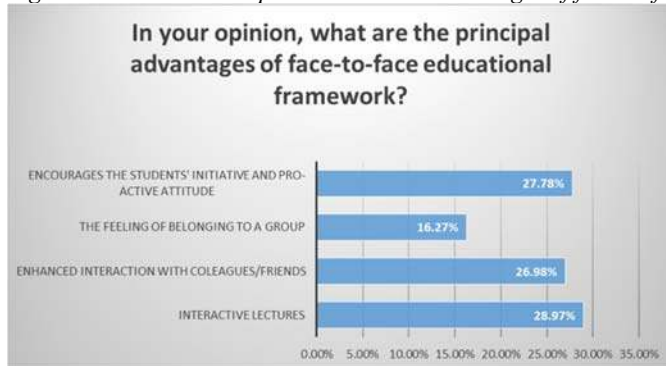
Figure no. 5. Students' opinion about the disadvantages of the online learning



Source: author's computations

When it comes to the advantages of face-to-face learning, most of the respondents consider that it is interactive (28.97%), that it encourages the students' initiative and pro-active attitude (27.78%) and that it enhances the interaction with colleagues/friends. Also, 16.27% of the surveyed students underlined that the main advantage is related to the feeling of belonging to a group. These results are illustrated in Figure 6.

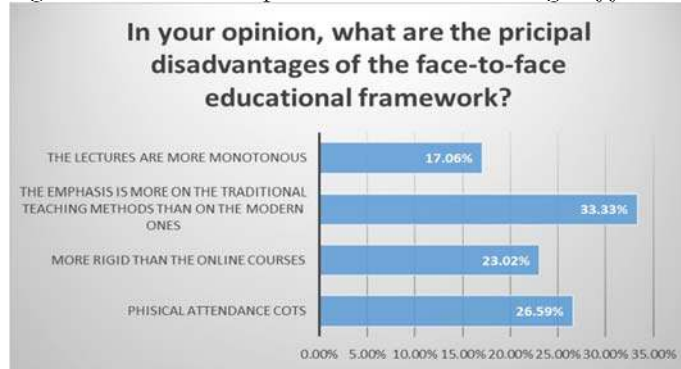
Figure no. 6. Students' opinion about the advantages of face-to-face learning



Source: author's computations

The responses to the question related to the disadvantages of face-to-face learning revealed that 33.33% of the students consider that in the face-to-face framework the emphasis is more on the traditional teaching methods than on the modern ones and they believe that this is the main disadvantage. Also, another disadvantage that obtained 26.59% of the responses relates to the physical attendance costs. Moreover, 23.02% of the participants chose as the main disadvantage the fact that face-to-face learning is more rigid than the online learning, while 17.06% of the students believe that the main disadvantage is related to the monotony of the face-to-face educational framework. The results are exhibited in Figure 7.

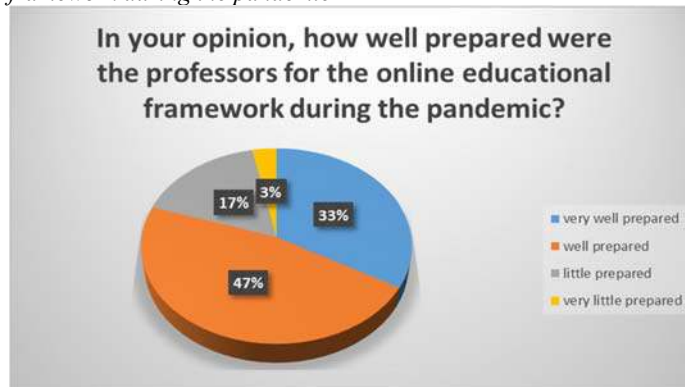
Figure no. 7. Students' opinion about the disadvantages of face-to-face learning



Source: author's computations

Participants in this research highlighted that the professors were well prepared for the online educational framework, 47% of the responses confirming this result. Moreover, 33% of the students consider that they were very well prepared, while 17% of them believe that they were little prepared and only 3% consider that they were very little prepared, as illustrated in Figure 8.

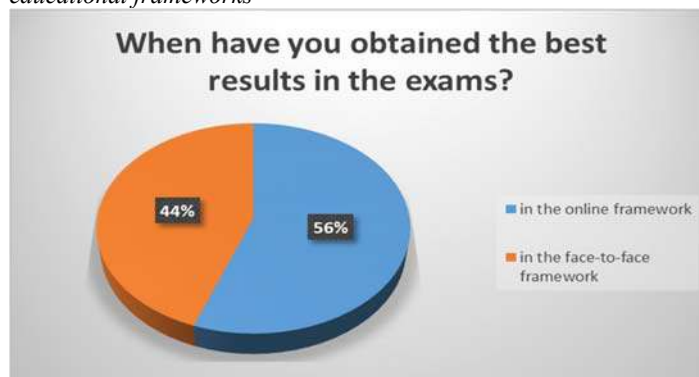
Figure no. 8. Students' opinion about the level of preparations of professors for the online educational framework during the pandemic



Source: author's computations

In terms of when they have obtained the best results at the exams, 56% of the students responded that in the online framework and 44% of them in the online educational framework, as illustrated in Figure 9. Our results are in line with Kabashi et al. (2022).

Figure no. 9. Students' opinion about academic results obtained in the online versus face-to-face educational frameworks



Source: author's computations



According to the participants' responses to the question about when they gained more knowledge and form more competencies, 54% of the students consider that the face-to-face framework allowed them to achieve these results, while 46% of the participants chose the online educational framework. The results are presented in Figure 10.

Figure no. 10. Students' opinion about the level of knowledge and competencies gained in the online versus face-to-face educational frameworks

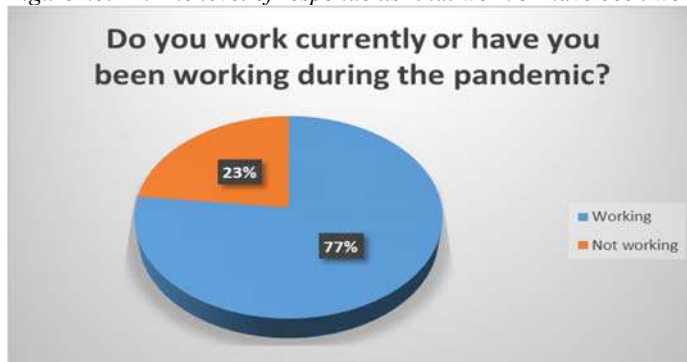


Source: author's computations

The question regarding the employment status of the participants revealed that the significant majority of participants, 77% of them, were working during the pandemic or were working at the moment of the survey, while the rest of 23% of them were not working. This result is very important when analyzing and discussing the results obtained based on the data collected. The reason for this is that students who are working consider that the online educational framework can offer them a higher degree of flexibility to cope with both university and work.

Our results are in line with Huizinga et al. (2022) and Mushtaha et al. (2022) who illustrate that higher degree of flexibility is an important factor that students perceive as advantage for the online educational framework. This result is important for the educational policymakers who are interested in assessing the effects of online or blended learning in order to design the most suitable university programmes and adapt the curricula to meet the students' requirements. Also, our results represent a contribution to the literature in the light of the discussion about digitalization.

Figure no. 11. The level of respondents' that work or have been working during the pandemic



Source: author's computations

## 5. Conclusions

The aim of this study is to assess the perception of students regarding the three educational frameworks: face-to-face learning, online learning, and blended learning. Our findings suggest that most of the participants to our survey would embrace the existence of a form of blended learning, that could give them the possibility to participate online at the courses, having a more flexible schedule in which they could take care of the work responsibilities. However, this result is influenced



by the fact that the students included in our sample are enrolled in the 3<sup>rd</sup> and 4<sup>th</sup> year of study and, as Figure 11 illustrates, most of them are working.

Turning to the results on the comparative analysis of the advantages and disadvantages of face-to-face and online learning, our results show that the most important advantages of face-to-face educational framework are related to the fact that they are interactive, and they encourage students' initiative and pro-active attitudes. However, in students' opinion, face-to-face learning has the principal disadvantage of using more the traditional teaching methods than modern ones and being more rigid than online learning. Moreover, based on the data collected, our results show that the participants in the survey consider that the most important advantage of online learning is that students can better manage their time in case of a job. In our opinion, this is because nowadays we witness a shift in the students' market with respect to their employment status during university studies, with more and more students that are part-time or even full-time working during their studies.

Based on the data collected and the results obtained, we consider that an important topic for future research would be the analysis of the effects of the pandemic on the academic results of the students, by extending this study in two directions. Firstly, it would be of interest to this analysis to extend the methodology by considering an econometric model and, secondly, we could extend the sample and conduct an econometric analysis by including in the sample more students from technical universities in Romania, as Roman and Plopeanu (2021) did for higher education in economics in Romania.

Our results contribute to the literature that analyze the effects of the pandemic on the educational system, but they also offer some insights regarding the discussion about digitalization that was even more promoted after the outbreak of the Covid pandemic.

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# **The Gender Pay Gap: A Roadblock to Gender Equality and Sustainable Development**

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## **Abstract**

*The gender pay gap is a significant obstacle to achieving gender equality and sustainable development around the world. The purpose of this research is to explore the gender pay gap and its impact on gender equality and sustainable development. By examining the causes and consequences of the pay gap, the study aims to raise awareness of this issue and its effects on women's empowerment and economic growth. This research will involve the analysis of specialized literature, the findings will be used to develop a framework of best practices to overcome the challenges faced by women. The research seeks to provide recommendations that can support efforts to bridge the gender pay gap. This paper represents a comprehensive synthesis of existing literature examining the gender pay gap. By analyzing areas of research that have been more fully explored and those that require further investigation, this study suggests avenues for future research.*

**Key words:** gender pay gap, gender equality, sustainable development, economic opportunities, social mobility.

**J.E.L. classification:** G38

## **1. Introduction**

Gender inequality is a pervasive issue in societies worldwide, with women often experiencing discrimination and inequality in various domains of life, including education, healthcare, and labor markets. The gender pay gap is one such area where women continue to face significant disparities and face challenges in accessing equal opportunities for growth and development. The gender pay gap refers to the unequal pay that women receive compared to men for similar work or jobs of equal value. Despite increased awareness and efforts to address this issue, gender inequality in pay remains a significant impediment to achieving gender parity and sustainable development.

The purpose of this research is to explore the gender pay gap and its impact on gender equality and sustainable development. The article aims to identify the factors that contribute to the pay gap, analyze its consequences for women's empowerment and economic growth, and provide recommendations to bridge the gap and promote gender equality as a key driver of sustainable development.

The gender pay gap remains a significant barrier to achieving gender equality and sustainable development worldwide. This research emphasizes the need for concerted efforts to address the underlying causes of the pay gap and promote equal opportunities for women. The research will provide recommendations to bridge the gender pay gap, including the development of inclusive policies, the promotion of women's leadership, and the elimination of discriminatory practices in the workplace. These measures implemented, have the potential to facilitate gender equality, reduce inequality, and promote inclusive and sustainable development.

## **2. Literature review**

The gender pay gap has been a persistent issue for women around the world, despite progress made towards gender equality in the workplace. This gap is fueled by a range of factors, including occupational segregation, discrimination, and bias against women that limits their economic

opportunities and social mobility. Existing research suggests that the increasing number of women in the workforce has not translated into pay parity, as women continue to earn less than their male counterparts in most industries and sectors.

A study conducted by the International Labor Organization revealed that the global gender pay gap was 16%, with women earning on average 84 cents for every dollar earned by men (ILO, 2018). The gap increased to 19.6% in lower to middle-income countries, highlighting the need for urgent action. The research showed that the gender pay gap is more pronounced in high-paying sectors such as finance, technology, and management, which reinforces inequality across the professional spectrum. Moreover, studies have also documented that occupational segregation plays a significant role in the gender pay gap, with women being underrepresented in high-paying professions such as engineering, medicine, and law. The gender pay gap has been a topic of concern for many countries around the world as it persists across different sectors, industries, and occupations. Gender pay gap refers to the difference in earnings between men and women in the same job or similar jobs. Despite significant progress in gender equality, the gender pay gap has remained persistent, hindering sustainable development efforts.

In addition to occupational segregation, discrimination and bias against women perpetuate the gender pay gap. According to research by the American Association of University Women, women earn between 78% and 82% of what men earn, even after factors such as education and experience have been taken into account. The AAUW also found that women of color, on average, earn significantly less than white women, further highlighting the intersectional nature of the gender pay gap (AAUW, 2018).

The impact of the gender pay gap goes beyond individual women, as it limits economic growth and development in many countries. The World Economic Forum reported that closing the global gender pay gap could add \$12 trillion to the world economy by 2025. Moreover, the gap also contributes to a lifetime earnings gap, which can limit women's financial autonomy, savings, and retirement benefits (WEF, 2019).

The OECD has been a key institution in championing gender equality across its member countries. It has played a significant role in promoting policies aimed at reducing the gender pay gap. The OECD's report on "Closing the Gender Pay Gap: Actions to Improve Equality" highlights the need for policies that address the root causes of the gender pay gap (OECD, 2012).

Another OECD report 2017, "The Pursuit of Gender Equality: An Uphill Battle" further discusses the challenges and opportunities for achieving gender equality across different domains, such as education, employment, health and political representation (OECD, 2017).

In addition to its gender equality work, the OECD also supports member countries in promoting inclusive economic growth and reducing inequality. Its 2018 report, "A Broken Social Elevator? How to Promote Social Mobility" identifies policies and measures that can help reduce inequalities in income, wealth, and opportunities across generations (OECD, 2018).

In conclusion, existing literature on the gender pay gap highlights the persistence of gender inequality in many industries and economies around the world. The research suggests that efforts to promote gender equality and reduce the gender pay gap can have a positive impact on sustainable economic development. This study provides a foundation for building a framework of best practices to support women's empowerment and advance gender equality in the workplace.

### 3. Research methodology

This research employs a mixed-methods approach, combining the analysis of best practices and specialized literature. The analysis of existing literature involves an extensive review of academic literature, government reports, and policy documents on the gender pay gap. Best practices will be analysed from official sources such as the International Labor Organization (ILO), the Organization for Economic Co-operation and Development (OECD), and the World Bank. The data will be analyzed using descriptive and inferential assessment to highlight the patterns and trends of the gender pay gap across countries, regions, and sectors.

- Literature Review: A thorough review of existing literature and research studies related to gender pay gap, gender equality, and sustainable development will be conducted. The review will include academic articles, books, reports, and other relevant sources.

- **Best Practices Analysis:** The collected of best practices will be analyzed using quantitative and qualitative methods. Descriptive statistics will be used to identify patterns and trends in the data, while thematic analysis will be used to identify key themes and issues that emerge from the data.
- **Recommendations and Implications:** The research will provide recommendations for bridging the gender pay gap and promoting gender equality as a key driver of sustainable development. The implications of the research findings for policy and practice will also be discussed.

#### 4. Findings

A range of policies and initiatives have been implemented globally to address the gender pay gap. These include equal pay legislation, gender pay reporting, and gender-sensitive recruitment and promotion practices. Organizations that prioritize diversity, inclusion, and equal pay have been shown to be more successful, innovative, and productive than those that do not. The gender pay gap remains a significant challenge for sustainable development efforts globally. Addressing this issue requires a concerted effort from governments, employers, civil society, and individuals. Through a collaborative approach, the possibility of a world with equal pay and gender equality can be achieved.

The OECD has been a key institution in championing gender equality across its member countries. It has played a significant role in promoting policies aimed at reducing the gender pay gap. The OECD's report on "Closing the Gender Pay Gap: Actions to Improve Equality" highlights the need for policies that address the root causes of the gender pay gap. The report suggests that labor market regulations, minimum wage policies, and parental leave programs are important tools that can help reduce the gap. The report also identifies the importance of enforcing legislation to ensure equal pay for equal work and offers recommendations to improve data collection and monitoring of the gender pay gap.

The OECD report 2017, "The Pursuit of Gender Equality: An Uphill Battle" further discusses the challenges and opportunities for achieving gender equality across different domains, such as education, employment, health and political representation. The report acknowledges that progress has been made in many areas, but highlights persistent gaps that require urgent action, such as the gender pay gap and underrepresentation of women in leadership positions.

In addition to its gender equality work, the OECD also supports member countries in promoting inclusive economic growth and reducing inequality. Its 2018 report, "A Broken Social Elevator? How to Promote Social Mobility" identifies policies and measures that can help reduce inequalities in income, wealth, and opportunities across generations. The report highlights the need for policies to address both economic and social barriers, such as access to quality education, affordable housing, and healthcare. The report also emphasizes the importance of addressing structural barriers, such as discrimination and bias, that limit opportunities for individuals from certain socioeconomic backgrounds or marginalized groups.

Overall, the gender pay gap is a complex issue with many contributing factors. Addressing these factors will require a multifaceted approach, including policy changes, cultural shifts, and individual action. Policy changes could include implementing equal pay laws and stronger enforcement mechanisms, providing paid family leave and affordable child care to promote work-life balance, and increasing transparency in hiring and promotion processes. Cultural shifts could involve challenging gender stereotypes and biases and promoting more inclusive workplaces where diverse perspectives are valued and celebrated. Individual action can also play a role, such as negotiating for fair pay and opportunities, seeking out mentors and role models, and advocating for change within companies and communities. Addressing the gender pay gap is critical not just for economic justice, but also for the overall well-being of society. When women are paid fairly and have access to equal opportunities, families and communities thrive, and the economy becomes stronger and more productive. Closing the gender pay gap can also help to reduce poverty and inequality, as women make up a significant portion of low-wage workers and are more likely to experience economic insecurity.

Furthermore, promoting gender equality in the workforce can increase innovation and creativity, as diverse perspectives lead to new ideas and approaches. Companies that embrace diversity and inclusion have also been shown to have better financial performance and higher employee satisfaction. In summary, the gender pay gap is a complex issue that requires a multifaceted approach. By implementing policies, changing cultural norms, and taking individual action, we can work towards a more equitable and just society, where everyone has the opportunity to reach their full potential.

Women face several challenges in accessing equal opportunities for growth and development, including:

- **Gender Stereotypes:** One of the biggest challenges that women face is gender stereotypes that limit their ability to grow and develop. These stereotypes can lead to discrimination in hiring, promotion, and access to resources.
- **Lack of Access to Education:** Women often face barriers to education, limiting their ability to learn new skills and advance their careers. This can result in limited job opportunities and a lack of economic independence.
- **Pay Gap:** There is still a significant pay gap between men and women, with women earning less for the same work. This financial disparity can limit women's ability to invest in their own growth and development.
- **Glass Ceiling:** The glass ceiling refers to the invisible barrier that prevents women from reaching the highest levels of leadership and management in organizations. This can be due to gender biases, lack of mentorship and sponsorship, and systemic discrimination.
- **Work-Life Balance:** Women often face greater responsibility for caregiving and household tasks, which can limit their ability to dedicate time and energy to professional development opportunities or pursuing their career goals (Robu Mariana).
- **Sexual Harassment and Discrimination:** Women may experience sexual harassment or discrimination in the workplace, which can create a hostile work environment and hinder their ability to grow and develop in their careers.
- **Lack of Role Models:** Women may lack visible role models or mentors to guide and inspire them in their careers, which can limit their belief in their own abilities and potential for success. This lack of representation can also perpetuate gender stereotypes and biases in the workplace.
- **Pay inequality:** Women often earn less than their male counterparts for doing the same job or have limited access to higher-paying roles, which can contribute to a gender pay gap over time.
- **Limited Networking Opportunities:** Women may face limited networking opportunities and exclusion from male-dominated social circles, which can limit their ability to connect with influential people in their industries and advance their careers.
- **Stereotyping and Bias:** Women may face unconscious bias and stereotyping from both colleagues and leadership in their organizations, which can negatively impact their career opportunities and advancement.

The causes of the gender pay gap are complex and multifaceted. Women are often overrepresented in low-paid and undervalued jobs, while men dominate high-status, high-paying jobs. Research indicates that the gender pay gap has negative implications for both the economy and individuals. Women face reduced lifetime earnings, pensions, and social security benefits, increasing their vulnerability to poverty in old age (Robu, 2019). The gender pay gap also reduces economic growth, productivity, and competitiveness as it creates labor market inefficiencies and fails to use human resources to their full potential.

There are several factors that contribute to the salary difference between men and women:

- **Gender Discrimination:** Discrimination based on gender is one of the primary factors that contribute to salary differences between men and women. Women may be paid less than men for doing the same job or for jobs with similar responsibilities and qualifications.

- **Occupational Segregation:** There is a significant occupational segregation between men and women, with men more likely to be employed in high-paying professions such as engineering, law, and medicine. Women, on the other hand, are more likely to be employed in lower-paid professions such as education, social work, and healthcare.
- **Family Responsibilities and Work-Life Balance:** Women are more likely to take on family responsibilities such as caring for children and elderly parents, which can affect their ability to work full-time or to invest time in career advancement. This can result in lower salaries for women who have to balance work and family responsibilities compared to men who do not have the same responsibilities.
- **Negotiation Skills:** Studies have shown that men tend to negotiate their salaries more effectively than women, which may lead to higher salaries for men. Women are often socialized to be less assertive and to avoid confrontation, which may affect their ability to negotiate their salaries.
- **Implicit Bias:** Implicit biases are unconscious associations and stereotypes that can influence behavior and decision-making. These biases can result in women being perceived as less competent or less committed to their careers, which can affect their opportunities for advancement and salary. Women may also face discrimination in the workplace, such as being passed over for promotions or not being given the same opportunities as their male counterparts.
- **Lack of Female Role Models:** The lack of women in leadership positions can also play a role in the gender pay gap. When women don't see other women in high-paying leadership positions, they may feel discouraged from pursuing those roles themselves.

The pay gap between women and men is one of the most persistent and prevalent forms of gender inequality in the world. It is a key driver of economic inequality and undermines efforts to achieve sustainable development, promote gender equality, and reduce poverty. The long-term impact of the pay gap can be seen in several ways:

- **Reduced economic empowerment of women:** The pay gap means that women earn less than men for the same work, which often leads to women being economically disadvantaged. This can limit their ability to invest in education, healthcare, and other areas that can help them achieve their full potential.
- **Higher levels of poverty:** The pay gap contributes to poverty, particularly among women who are the sole earners or head of households. Women who earn less than men are more likely to live in poverty, struggle to pay bills or provide for their families, and have limited access to economic opportunities.
- **Inability to save for the future:** Lower earnings for women also mean they have less ability to save for their future, whether it's for retirement, emergencies or other long-term goals. This can perpetuate a cycle of financial insecurity and contribute to the overall gender wealth gap.
- **Impact on future generations:** The pay gap can also impact the next generation by limiting the resources and opportunities available to families. When women earn less than men, their children are also more likely to experience economic disadvantage, which can lead to negative outcomes such as poor health, limited education, and lower social mobility.
- **Lost opportunities for economic growth:** When women are not paid fairly for their work, it limits their ability to contribute to the economy and can lead to lost opportunities for economic growth. By closing the gender pay gap, businesses can tap into a larger pool of talent and boost productivity and innovation.
- **Unequal representation in leadership positions:** The gender pay gap can also contribute to unequal representation of women in leadership positions. When women are not paid fairly for their work, it can limit their ability to advance in their careers and secure leadership roles. This can perpetuate the notion that women are less suited for leadership roles, leading to a lack of diversity and perpetuating unequal power dynamics.
- **Negative impact on mental and physical health:** Financial insecurity due to the gender pay gap can have a significant impact on mental and physical health. Women who are paid less than their male counterparts may struggle to make ends meet, leading to stress, anxiety,

and depression. Financial stress can also lead to physical health issues, such as high blood pressure and heart disease.

- **Increased reliance on government assistance:** When women are not paid fairly for their work, they may be forced to rely on government assistance programs, such as food stamps and Medicaid. This can put a strain on government resources and lead to higher taxes for everyone.
- **Inter-generational poverty:** The gender pay gap can contribute to intergenerational poverty. If a mother is paid less than her male counterparts, she may not be able to provide her children with the same opportunities as other families. This can lead to a cycle of poverty, as the children may struggle to access education and other resources that could help them break out of poverty in the future.
- **Decreased economic growth:** Finally, the gender pay gap can have a negative impact on economic growth. When women are not paid fairly, they may have less money to spend, which can lead to lower consumer spending and decreased economic activity. This is especially true since women make up a large portion of the workforce and are therefore a significant driver of economic growth. By reducing the gender pay gap and ensuring that women are paid fairly, we can boost economic growth and improve the lives of everyone in our society.

The gender pay gap is a significant challenge that women face in the workplace. It refers to the difference in pay between men and women who hold the same position and have similar qualifications and skills. The gender pay gap is a result of various issues, including discrimination, lack of women in leadership positions, and societal norms. To overcome the challenges faced by women due to the gender pay gap, the following framework of good practices can be developed:

- **Increase Transparency:** Companies should ensure transparency in their pay policies to identify and rectify any discrepancies between men and women's pay. This might include regular assessments of the company's pay structure and the establishment of guidelines to assess and correct pay disparities where necessary.
- **Encourage Flexibility:** Many women experience challenges balancing work and personal responsibilities. By providing flexible working options, companies can help women manage their work-life balance and improve their job satisfaction, making it easier for them to stay in the workforce.
- **Provide Training and Mentorship:** Companies can provide training and mentorship programs to help women develop the skills and confidence they need to achieve leadership roles. By investing in their development, companies can build a pipeline of talented women who are well-prepared to take on senior positions.
- **Encourage Work-Life Integration:** Rather than seeing work and personal responsibilities as separate entities, companies can encourage work-life integration. This means creating a culture where employees can bring their whole selves to work, including their families and personal interests. When employees are supported in this way they tend to be more productive, engaged, and committed to their work and the company.
- **Address Bias and Discrimination:** Companies need to address any bias and discrimination that may be preventing women from advancing in their careers. This includes addressing pay gaps, providing equal opportunities for promotion, and creating a safe and inclusive workplace where everyone feels respected and valued.
- **Implement Family-Friendly Policies:** Companies can implement family-friendly policies such as parental leave, childcare support, and flexible working hours to support women who have caregiving responsibilities. By doing so, they can help women balance their work and family responsibilities and reduce the burden of childcare and other caregiving tasks.
- **Set Clear Diversity and Inclusion Goals:** Finally, companies need to set clear diversity and inclusion goals and track their progress towards achieving them. This includes setting targets for increasing the representation of women in leadership roles and establishing metrics to measure progress towards these goals. By holding themselves accountable and making diversity and inclusion a priority, companies can create a culture of equity and opportunity for all employees. In conclusion, companies have a crucial role to play in advancing gender

equality in the workplace. By promoting equal opportunities for women, addressing bias and discrimination, implementing family-friendly policies, and setting clear diversity and inclusion goals, companies can create a more diverse, equitable, and inclusive workplace that benefits everyone. In doing so, they can also improve their business performance, attract and retain top talent, and create a more just and equitable society.

By following these steps, organizations can create a culture of gender equality and ensure that all employees have equitable opportunities to succeed and advance. This is not only the right thing to do ethically, but it also has a positive impact on the bottom line. Studies have shown that diverse and inclusive organizations tend to be more innovative, productive, and profitable. In summary, achieving gender equality in the workplace requires a concerted effort from all levels of an organization. It requires a commitment to eliminating bias, fostering an inclusive culture, and providing equal opportunities and support for all employees. By taking a proactive and ongoing approach, organizations can create a workplace where everyone can thrive and reach their full potential.

Promoting women's leadership and eliminating discriminatory practices at work have a number of advantages for organizations and society as a whole including (Robu, 2023):

- **Increased diversity of thought and innovation:** Women often bring unique perspectives and ideas to the table, which can help organizations become more innovative and effective.
- **Better decision-making:** Research has shown that diverse teams make better decisions than homogeneous teams, as different viewpoints lead to greater analysis and consideration of all potential outcomes.
- **Improved performance:** Companies with more women in leadership positions have been shown to outperform those with fewer women, indicating that promoting women's leadership can positively impact overall organizational performance.
- **Higher employee engagement and retention:** When women feel valued and supported in their professional development, they are more likely to be committed to their work and stay with the organization for longer periods of time. This can reduce turnover costs and improve employee morale.
- **Enhanced reputation:** Organizations that are committed to gender equality and promoting women's leadership are often seen as more socially responsible and progressive, which can improve their reputation both internally and externally.
- **Contributing to a more equal society:** Beyond the immediate benefits to organizations, promoting women's leadership is an important step towards creating a more equal and just society, where everyone has the opportunity to reach their full potential regardless of gender. Overall, promoting women's leadership is not only the right thing to do, but it can also lead to tangible benefits for organizations and society as a whole. By creating inclusive and supportive environments, organizations can to unlock the full potential of all their employees, regardless of gender, and contribute to a more diverse, productive, and innovative workforce. To achieve this, organizations can implement various measures, such as recruiting and promoting women into leadership positions, providing training and development opportunities, establishing flexible work arrangements, addressing unconscious bias, and promoting a culture that values diversity and inclusion. By doing so, organizations can reap the benefits of gender equality and help create a more equitable and prosperous future for all.

## 5. Conclusions

After analyzing specialized literature, this research sheds light on the persistent issue of the gender pay gap and its detrimental impact on gender equality and sustainable development. Occupational segregation, discrimination, and bias against women in the workplace are identified as key factors that perpetuate this cycle of inequality. The findings of this study suggest the need for the implementation of best practices to overcome these challenges faced by women, including policies that promote pay transparency, diversity, and inclusion.



The paper also highlights that gender equality is a crucial driver of sustainable development, and bridging the gender pay gap can contribute significantly to empowering women and driving economic growth. Future research in this area could explore the effects of the gender pay gap on intersectional categories such as race, ethnicity. Overall, this paper underlines the urgency of prioritizing gender equality and bridging the gender pay gap to promote sustainable development globally. In addition to policy changes within organizations, there is a need for broader societal attitudes to shift towards valuing women's contributions in the workforce. This includes challenging traditional gender roles and stereotypes, and promoting education and awareness around gender equality. Furthermore, addressing the gender pay gap is not only a moral imperative, but also makes economic sense. Studies show that having more women in leadership positions and reducing the gender pay gap can lead to increased productivity, improved organizational performance, and a more diverse and innovative workplace. Governments, civil society, and the private sector must work together to prioritize gender equality and ensure that policies and practices are in place to eliminate the gender pay gap. This includes investing in education and training for women, promoting work-life balance, and providing equal opportunities for advancement.

To address the gender pay gap and advance gender equality, policymakers and businesses must take a range of measures. These may include promoting equal pay for work of equal value, promoting women's access to education and training, and providing support for women's entrepreneurship and self-employment (Robu Mariana, 2023). Additionally, governments can strengthen legal frameworks and institutions to better protect women from workplace discrimination.

Furthermore, research suggests that closing the gender pay gap is essential for achieving sustainable development, since it has direct implications for poverty reduction, economic growth, and social inclusion. For example, closing the gender pay gap can increase female labor force participation, decrease inequality, and promote economic growth. Therefore, addressing the gender pay gap must be a central focus of global efforts to promote gender equality and sustainable development. The gender pay gap is a critical roadblock to achieving gender equality and sustainable development worldwide. Through cross-sectoral cooperation and a multipronged approach, progress can be made to close the wage gap, empower women in the workplace, and foster sustainable development for all.

In conclusion, this research highlights the urgent need to address the gender pay gap and its impact on gender equality and sustainable development. The implementation of best practices is critical to overcoming these challenges and empowering women in the workforce. By prioritizing gender equality, we can drive economic growth, promote social inclusion, and contribute to a more sustainable future for all.

Following the analysis, it is recommended some measures that decision-makers can take to address the wage gap and promote gender equality:

- Conduct a comprehensive analysis of the organization's pay structure and identify any discrepancies between male and female employees' remuneration.
- Develop and communicate a clear pay equity policy that ensures equal pay for equal work, irrespective of gender.
- Encourage and support women to participate in leadership and decision-making roles within the organization.
- Introduce flexible working arrangements that allow women to balance work and family responsibilities.
- Provide equal opportunities for training and development for all employees regardless of their gender.
- Foster an inclusive workplace culture that values diversity and promotes gender equality, including zero tolerance for discrimination, harassment, and bias.
- Monitor and regularly review the organization's progress towards achieving gender equality, and make necessary adjustments to policies and practices as needed.
- Partner with external organizations and networks focused on promoting gender equality and closing the wage gap to learn best practices and share knowledge.
- Provide parental leave and other family-friendly policies that support the needs of working parents, including mothers and fathers.

- Finally, engage in ongoing communication with employees on pay equity, gender equality, and the organization's efforts to address these issues. This can include regular town halls, surveys, and other feedback mechanisms to ensure that employee concerns and suggestions are integrated into the organization's policies and practices.
- Offer professional development opportunities and support for women and other underrepresented groups to help build a diverse pipeline of talent within the organization.
- Establish mentoring and coaching programs to support the advancement and development of women and other underrepresented groups within the organization.
- Develop and implement internal training programs focused on unconscious bias and diversity and inclusion, to help employees identify and address their own biases and promote a more inclusive workplace culture.
- Conduct regular pay equity analyses to identify and rectify any gender-based wage disparities within the organization.
- Finally, publicly commit to achieving gender equality and closing the wage gap, and hold leadership accountable for progress towards these goals.

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## Exploring the Wage Gap in the Republic of Moldova: A Vital Issue of Elderly System

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### Abstract

*Gender wage gap remains a crucial issue in many countries around the world, including the Republic of Moldova. The purpose of this article is to explore the wage gap and its impact on the elderly population. The research aims to identify the factors that contribute to the wage gap and assess the extent to which the wage gap affects the economic security and well-being of the elderly population. We will analyze the policies and interventions that have been implemented in other countries to address the wage gap and identify good practices to recommend potential strategies that can be adopted in the Republic of Moldova. This paper represents a comprehensive synthesis of existing literature examining the wage gap and its impact on the elderly population. By analyzing areas of research that have been more fully explored and those that require further investigation, this study suggests avenues for future research.*

**Key words:** gender wage gap, factors contributing to wage gap, elderly population, impact, poverty alleviation.

**J.E.L. classification:** G38

### 1. Introduction

Gender wage gap refers to the difference in earnings between men and women in the same occupation or job. Despite significant efforts to close the gender wage gap, it remains a persistent and pervasive problem in many countries, including the Republic of Moldova. Women continue to earn lower salaries than men for comparable work, which impacts their lifetime earnings and economic security. This phenomenon has far-reaching implications, particularly on the elderly population, who are often disproportionately affected by the wage gap.

The elderly population in Moldova is a vulnerable group that faces severe economic challenges. According to the National Bureau of Statistics of Moldova, the poverty rate among the elderly was 29.8% in 2019, a rate that is higher than the national average 25.2% (NBS, 2019). The economic vulnerability of the elderly population in Moldova is exacerbated by factors such as limited access to healthcare, social services, and food security. In addition, elderly women face specific challenges due to gender inequalities, such as a lack of access to education and fewer employment opportunities.

This article will examine the gender wage gap in Moldova and its impact on the economic security and well-being of the elderly population. The objectives of the research are to identify the factors that contribute to the wage gap in Moldova and evaluate the extent to which the wage gap affects the economic security and well-being of the elderly population. The article will begin by examining the current state of the gender wage gap in Moldova, followed by a discussion of its causes. Finally, the article will explore the impact of the gender wage gap on the elderly population and offer recommendations to address this issue.

Overall, the study aims to raise awareness of the gender wage gap in Moldova and the importance of reducing it for the benefit of the elderly population. By exploring the economic challenges faced by elderly women and the factors contributing to the gender wage gap in Moldova, policymakers and stakeholders can develop effective strategies to address this issue and improve economic security for all.

Furthermore, the objectives of this study are to investigate the extent to which the wage gap affects the economic security and well-being of the elderly population. Elderly individuals often experience a decline in income due to reduced earning potentials and increased healthcare costs. The wage gap worsens their financial situation, which can lead to a decrease in quality of life, poverty, and low social status. Therefore, by understanding the impact of the wage gap on the elderly population, we can make significant contributions to addressing the urgent needs of this vulnerable population.

Moreover, the study seeks to identify the best practices and policies that have been implemented in other countries and assess their potential for adoption in the Republic of Moldova. The Republic of Moldova has made progress in addressing gender inequality over the past few decades. However, the wage gap remains a key issue that needs to be addressed to ensure economic security and well-being for all populations in Moldova.

The analysis presented in this study uses both primary and secondary sources of data to achieve the research objectives. Primary data will be collected through interviews with elderly individuals, policymakers, and representatives of organizations serving the elderly population. Secondary data will be obtained from published literature, surveys, and statistical databases. By using a mixed-methods approach, this study aims to provide a comprehensive account of the wage gap and its impact on the elderly population in the Republic of Moldova.

In conclusion, the gender wage gap continues to pose challenges to the economic security and well-being of the elderly population in Moldova. This study will contribute to the existing literature by identifying the factors that contribute to the wage gap, assessing its impact on elderly individuals, and proposing potential strategies that can be adopted by policymakers to address this issue. By doing so, we hope to make significant strides towards eliminating the wage gap and promoting equality and economic security for all individuals, regardless of gender or age.

## **2. Literature review**

Although this subject is little studied nationally and internationally, in order to propose solutions for the Republic of Moldova, a concise and focused analysis of the literature covering the key aspects of the gender wage gap and its impact on the elderly population was made. The gender wage gap has been a topic of interest in many countries for decades. Women have historically been paid less than men for doing the same job, and this has been documented in various studies. Research suggests that factors such as education level, occupation, industry, and work experience all contribute to the gender wage gap (Budig, 2021). In addition, the persistent gender wage gap is attributed to discrimination and implicit bias against women in the workplace (Blau, 2017).

The impact of the gender wage gap on the elderly population is significant. Women typically earn less than men throughout their lifetime, which affects their ability to save for retirement. This, in turn, translates into lower pension benefits and social security payments in their later years (England, 2001). Women are also more likely than men to live in poverty in their old age due to the gender pay gap, caregiving responsibilities and longer life expectancy (Ferrant, 2014).

Various policies and interventions have been implemented in countries around the world to address the gender wage gap. These include affirmative action policies, pay transparency, and gender-neutral job evaluation systems. Some countries have also introduced laws that require employers to report on gender pay gaps (Holmes, 2017). Research suggests that these policies can be effective in reducing the gender wage gap, although their impact varies depending on the context and implementation (Manger, 2012).

In Moldova, the gender wage gap is reported to be significant. According to the Moldovan National Bureau of Statistics, women in Moldova earn 68.6% of what men earn per hour (NBS, 2021). This gap is particularly relevant for the elderly population, who are more likely to rely on pension benefits and social security. Policies and interventions that address the gender wage gap could have a significant impact on the economic security and well-being of Moldovan women in their later years.

In summary, the gender wage gap is a significant issue that affects women throughout their lifetime, including in their old age. The factors that contribute to the wage gap are complex, and multiple interventions are required to address it. Policy interventions such as affirmative action, pay transparency, and gender-neutral job evaluation systems have been introduced in several countries

to combat the gender wage gap. The impact of these policies and interventions varies depending on the context and implementation. Future research is needed to explore the effectiveness of these interventions in the Moldovan context and to identify additional strategies that could be effective in reducing the gender wage gap.

### **3. Research methodology**

A comprehensive review of existing literature on the wage gap in Republic of Moldova it is conducted. This involves a thorough search of academic journals, government reports, and other relevant sources to gather information on the causes and consequences of the wage gap in the country.

Primary data are collected through desk review and statistical analysis of data on employees and employers in different sectors of the economy. The paper is designed to gather information on factors such as education, experience, job type, and gender, which are known to influence wages. Results will be published for employees to understand their perspectives on the wage gap and their efforts to address it.

The collected data will be analyzed using statistical methods to identify patterns and trends in the wage gap. Desk review analysis will be used to determine the extent to which factors such as education, experience, and job type contribute to the wage gap. Qualitative data will be analyzed using content analysis to identify themes and patterns in employer perspectives on the wage gap.

The research will also involve an analysis of existing policies and initiatives aimed at addressing the wage gap in republic of Moldova. This will involve a review of government policies, labor laws, and other relevant documents to identify gaps and areas for improvement.

Based on the findings of the research, recommendations will be made for policies and initiatives that can help reduce the wage gap in Republic of Moldova. These recommendations will be based on evidence from the data analysis and will be aimed at addressing the root causes of the wage gap in the country.

### **4. Findings**

Based on the literature review, several key findings emerge regarding the gender wage gap and its impact on the elderly population.

Firstly, the gender wage gap persists globally, and Moldova is no exception. Women in Moldova earn significantly less than men, which affects their ability to save for retirement and leads to lower pension benefits and social security payments in their later years. This, in turn, leads to economic insecurity and poverty among elderly women in Moldova.

Secondly, multiple factors contribute to the gender wage gap. These include education level, occupation, industry, and work experience. Discrimination and implicit bias against women in the workplace also play a significant role in perpetuating the gender wage gap.

Thirdly, policies and interventions have been implemented in several countries to address the gender wage gap. These policies range from affirmative action to pay transparency and gender-neutral job evaluation systems. While these policies have been effective in reducing the gender wage gap in some contexts, their impact varies depending on the implementation and context.

Fourthly, elderly women are particularly vulnerable to the effects of the gender wage gap. Due to their lower earnings throughout their working lives, they are more likely to rely on pension benefits and social security payments in their later years. This, combined with longer life expectancies and caregiving responsibilities, puts elderly women at a higher risk of poverty and economic insecurity.

Based on these findings, several recommendations emerge for addressing the gender wage gap in Moldova and its impact on the elderly population. Firstly, policies and interventions that have been successful in other countries should be examined to identify potential solutions for Moldova. This could include measures such as affirmative action, pay transparency, and gender-neutral job evaluation systems. Secondly, more research is needed to identify the factors that contribute to the gender wage gap in Moldova and the effectiveness of different policy interventions. Thirdly, measures should be taken to ensure that elderly women in Moldova are adequately supported and protected, such as increasing pension benefits and addressing caregiving responsibilities. Overall, the literature review highlights the urgency of addressing the gender wage gap in Moldova and its

impact on the elderly population. Addressing this issue requires a multi-faceted approach that involves policy interventions, research, and support for elderly women. By taking action to reduce the gender wage gap and support elderly women, Moldova can work towards creating a more equitable and just society for all.

Furthermore, it is essential for policymakers to recognize the intersectionality of gender and other social identities, such as race, ethnicity, class, and sexuality, in addressing the gender wage gap. For example, women who belong to the Roma minority in Moldova face multiple forms of discrimination, with significantly lower levels of access to education and employment opportunities. Therefore, policies should be designed with an intersectional lens to ensure that women from all backgrounds in Moldova receive equitable treatment in the workplace. In addition, addressing the gender wage gap requires a cultural shift towards valuing women's labor and equally recognizing their contributions in the economy. Education and awareness programs can play a crucial role in promoting gender equality and challenging implicit biases against women in the workplace. It is also important to acknowledge the critical role of civil society organizations, labor unions, and women's rights advocates in advocating for gender equality and holding the government accountable for policies and interventions. Therefore, these actors should be actively engaged in the policy-making process to ensure that their perspectives and experiences are reflected in policy decisions.

In conclusion, addressing the gender wage gap and its impact on the elderly population in Moldova is a complex and ongoing process that requires a comprehensive approach. While many challenges remain, addressing this issue can lead to significant progress in promoting gender equality, reducing poverty and economic insecurity among elderly women, and creating a more just and equitable society for all.

There are several factors that contribute to the gender wage gap in Moldova, which in turn impact the economic security and well-being of the elderly population. These factors include:

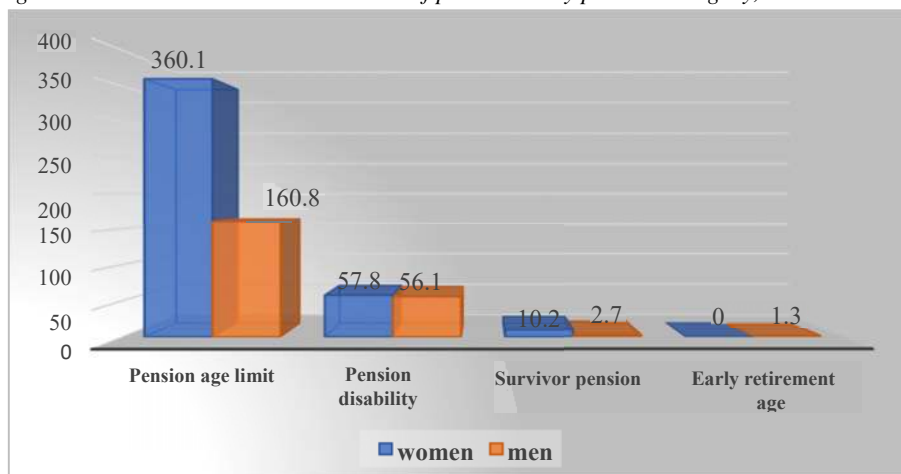
- **Occupational segregation:** Women tend to be concentrated in lower-paying industries and occupations, such as education, healthcare, and social services, while men are more likely to work in higher-paying sectors such as finance and technology.
- **Discrimination:** Women often face discrimination in the workplace, including bias in hiring, promotion, and pay decisions. This is compounded by cultural attitudes that undervalue women's work and prioritize men's employment opportunities.
- **Caregiving responsibilities:** Women are disproportionately responsible for caregiving and household duties, which can limit their availability for paid work and result in lower earnings over time.
- **Lack of access to education and training:** Women in Moldova face barriers to accessing education and training opportunities, which limit their ability to enter high-paying industries and occupations.
- **Informal work arrangements:** Women are more likely to work in informal and precarious work arrangements, such as part-time or temporary work, with fewer benefits and lower pay.

First of all, it should be mentioned that in the Republic of Moldova there is a redistributive system, based on the principle of solidarity between generations, according to the fact that the collected contributions are based immediately for the payment of pensions ("Pay-as-you-go"). When calculating the pension, this system takes into account the following elements: contribution period, average insured monthly income and retirement age. In Moldova, there is not exist Pylon II or III of pensions, which would link a person's direct contributions over the same lifetime to the size of the pension at retirement age. At the moment, in the Republic of Moldova for the year 2019, there is a gap of approximately 21% between the average pension of men and that of women. We will analyze this gap in detail a little below.

According to the estimates of the National Bureau of Statistics, 2021 (NBS), there are 92 men for every 100 women aged 35-64. ratio differs significantly according to these age groups. Males predominate in the 0-14 age group, with a ratio of 105 males to 100 females. In the 15-34 age group, the number of men and women is roughly equal. The differences are more pronounced in the case of the population aged 35-64 years and 65 years and over, with 91 men and 61 men respectively for 100 women. The most important form of income for people over 65 is the old-age pension. Of the total number of pensioners, 64.2% are women. Depending on the category of pensioners, the share of women in the category of beneficiaries of survivors' pensions is 3,8 times higher than that of men,

for pensioners for the age limit women are 2.2 times more, and for disability beneficiaries the share of women and men is approximately equal. Fig. 1 below the share of women in relation to men of pensionable age.

Figure no. 1. Women in the total number of pensioners by pension category, 2022



Source: Developed by the author after <http://statbank.statistica.md/>

As women get older, wage differences deepen, and as economic activity slows down, their position gradually decreases to a lower level. According to data from the National Bureau of Statistics (NBS), the average life expectancy in the Republic of Moldova in 2020 was 65.9 years for men and 73.9 years for women, respectively women live on average 8 years longer than men. This gap is due to the higher level of premature mortality among men, especially those of working age.

Women being less present on the labor market, working fewer hours and in lower paid fields, in the end they have lower pensions because their social contributions were lower, respectively when they reach retirement age they have a lower age pension than men and because they have a longer life expectancy, they end up being exposed to a higher risk of poverty compared to men. Thus, women end up living alone and financially unsecured in their old age. In rural areas, the situation of the elderly registers the greatest risks of poverty, women over 75, regardless of where they live, are the poorest. Differences in salary remuneration during the period of contribution to the state social insurance fund also determine differences in the average size of the pension for the age limit for men and women. Women receive only 82% of the pension value of men. As a result, occupational segregation continues and the over-representation of women in the lowest paid sectors ultimately leads to lower pensions for women.

Figure no. 2. Pension age limit, 2022



Source: Developed by the author after <http://statbank.statistica.md/>

All of these factors contribute to the gender wage gap, which in turn has significant implications for the economic security and well-being of the elderly population. When women earn less than men, they have fewer resources to save for retirement, pay for healthcare, and cover basic needs such as food and housing. This can lead to higher poverty rates among elderly women, who are more likely to rely on social security and pensions for income. Addressing the gender wage gap is therefore essential to ensuring the economic security and well-being of the elderly population in Moldova.

After analyzing policies and interventions adopted in other countries to address the wage gap, we can recommend several good practices that could be implemented in the Republic of Moldova. These include:

- **Pay transparency:** Encouraging employers to disclose information about pay scales and benefits can help to identify and address pay disparities based on gender or other factors.
- **Pay equity legislation:** Implementing laws that require employers to provide equal pay for equal work can help to eliminate gender-based pay discrimination and ensure that employees are paid fairly.
- **Strengthening labor laws:** Moldova could introduce or strengthen laws that prohibit gender-based discrimination in the workplace, including in hiring, promotion, and pay. This could include implementing penalties for employers who engage in discriminatory practices.
- **Family-friendly policies:** Implementing policies that support work-life balance, such as parental leave, flexible schedules, and teleworking opportunities, can help to reduce the impact of caregiving responsibilities on women and promote gender equality in the workplace.
- **Investment in education and training:** Providing access to education and skill-building programs for women can help to increase their earning potential and enable them to enter higher-paying Occupations.
- **Gender-sensitive recruitment practices:** Encouraging employers to use gender-sensitive recruitment practices can help to eliminate bias in hiring and ensure that women have equal opportunities for employment and advancement.
- **Support for women entrepreneurs:** Providing support for women entrepreneurs, such as access to funding, business training, and networking opportunities, can help to increase women's participation in higher-paying sectors of the economy.
- **Monitoring and evaluation:** Regularly monitoring and evaluating the effectiveness of policies and interventions can help to identify areas for improvement and ensure that progress is being made towards reducing the wage gap.
- **Increasing public sector representation:** Women in Moldova are underrepresented in public sector jobs, which typically offer better wages and benefits. Increasing representation of women in the public sector through affirmative action policies could help narrow the wage gap.

By adopting these good practices, the Republic of Moldova can take concrete steps towards addressing the gender wage gap, promoting gender equality in the workplace, and improving the economic security and well-being of the elderly population.

It is important to note that these strategies are not mutually exclusive and should be implemented in tandem for maximum impact. Additionally, it is crucial to engage and collaborate with stakeholders such as employers, trade unions, civil society organizations, and government agencies to ensure their buy-in and support for these interventions.

Furthermore, it is essential to spread awareness about the issue of the wage gap and its impact on women and society to create a sense of urgency to address it. This can be done through public campaigns, media, and educational programs.

Finally, sustaining these interventions requires political will, financial resources, and commitment from stakeholders. Therefore, it is vital to ensure that the necessary resources are allocated and the momentum of these interventions is sustained over the long term.

In summary, the best practices identified from other countries show promise in addressing the wage gap and can be adapted to suit the context of the Republic of Moldova. Adopting these practices, alongside other measures, can contribute significantly towards increasing gender equality and promoting inclusive social and economic development.



## 5. Conclusions

After conducting thorough research on the wage gap in the Republic of Moldova, it is clear that it remains a pressing issue for the elder system. Despite the progress made towards gender equality, disparities in pay still exist between genders, with women receiving lower salaries than their male colleagues. The Government of Moldova has taken steps to reduce the gender wage gap, including implementing various laws and regulations, as well as investing in education and awareness campaigns. In addition, some businesses have adopted measures such as introducing salary negotiation tools and compensation structures that are more equitable for employees of all genders. However, more needs to be done to ensure that the wage gap is addressed in a meaningful way. Further research should be conducted to fully understand the underlying factors contributing to the gender pay gap such as job segregation and discrimination, in order to devise effective solutions. Additionally, policymakers need to continue to provide support and resources to employers in order to create a workplace environment where gender pay gaps are less likely to exist. Ultimately, reducing the gender wage gap in the Republic of Moldova is essential for promoting social equality and justice, as it will provide both genders with equal access to economic opportunities.

Following the analysis it is recommended some measures that decision-makers can take to address the wage gap and its impact on retirement age.

- **Conduct pay equity analysis:** Organizations should conduct a thorough pay equity analysis to identify disparities in pay that effect employee's ability to save for retirement. This analysis should consider various factors such as gender, ethnicity, and job title. This understanding will help to inform policy changes.
- **Implement fair pay policies:** Decision-makers should ensure that their organizations have fair pay policies that guarantee employees are given equal pay for equal work. This can help address the pay gap and enable employees to save enough for retirement.
- **Encourage salary transparency:** Decision-makers should encourage transparency around salaries. This practice can help employees better understand their earnings and ensure open discussions around compensation.
- **Provide retirement education:** Decision-makers should provide education and resources to employees, highlighting the importance of retirement planning and ways to save for retirement. This can help close the retirement savings gap and ensure that all employees are prepared for life after work.
- **Expand benefits:** Organizations can provide employees with additional retirement benefits such as matching contributions, retirement savings plans, and pensions. These benefits can help make up for the pay gap and assist employees in saving for their future.
- **Promote diversity and inclusion:** Decision-makers should promote diversity and inclusion in the workplace, which can lead to increased opportunities for employees from marginalized groups and improved pay equity. This can help address the pay gap and decrease its impact on retirement age.
- **Encourage flexible work arrangements:** Many individuals, especially women, may have to leave the workforce or reduce work hours to attend to caregiving responsibilities. Offering flexible work arrangements such as part-time work, job sharing, telecommuting, and sabbaticals can help ensure these workers can make meaningful contributions to their retirement savings. Another advantage would be that this can encourage more women to enter and remain in the field and help to achieve gender parity.
- **Address ageism:** Ageism, or discrimination based on age, can impact workers' ability to earn a fair wage, receive promotions, and contribute to their retirement saving. Decision-makers must take steps to address ageism in the workplace by creating a culture of respect and valuing the experience of older workers.
- **Monitor and evaluate progress:** Organizations should monitor and evaluate progress on pay equity and its impact on retirement savings. Evaluation can help identify areas for improvement and ensure that the initiatives put in place are effective.

- **Advocate for policy changes:** In addition to internal measures, decision-makers can advocate for policy changes that support pay equity and retirement savings. This includes supporting legislative efforts to increase the minimum wage, strengthen equal pay laws, and establish retirement savings programs for workers without access to an employer-sponsored plan.

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## Aspects of Digitalization within Caraş-Severin Local Communities

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### Abstract

*We live in a society where things change rapidly, both individuals and organizations having to keep up the pace with this constant transformation. Multitasking has become a sine qua non condition, especially if one wants to keep things at a high level. Thus, performing certain tasks remotely or with just a few clicks is a huge advantage, not only in terms of saving money, time and energy, but also by centralizing data and making related statistics. The idea of carrying out various activities using specific platforms was accelerated by the Coronavirus Pandemic, people realizing, more than ever, that some things can be done this way, simpler, faster, better and less expensive. The paper aims to present aspects regarding digitization in several localities in Caraş-Severin county, by carrying out a research that starts from elements regarding the material base, the training of human resources and the openness of citizens to these services so necessary for a functioning society.*

**Key words:** digitalization, good governance, development, public administration

**J.E.L. classification:** H70, H83, O43

### 1. Introduction

Digitization is a phenomenon that allows an easy, remote use of the information we need, simplifying administrative procedures in order to bring citizens closer to public administration. The advantages of digital transformation regardless of the segment we refer to, represent an imperative of the future strategy in order to achieve good governance, starting from the desideratum according to which information is the oxygen of democracy (Ibrahim & Benabdelhadi, 2021). There is a vast literature in magazines with contributions in the field, related to the phenomenon of digital transformation and e-government, analysing the influencing factors that leave their mark on this desired, and it is necessary to also identify the obstacles that may arise in the digitalization path, thus preventing the objective assessment of the effectiveness and efficiency of this transformation that is so necessary today.

Before adopting the digitization strategy, we must take into account the existing resources, the social context, the specifics of the country, of the region where it is implemented, the conditions offered to citizens, their access to technology, the existing infrastructure, the organizational culture of public institutions, etc., so that we obtain the appropriate organizational strategy for the success of digitization and the creation of an approach with public value (Ibrahim & Benabdelhadi, 2021).

### 2. Theoretical background

Nowadays we talk about the digitization of the public service, through the use of digital technology. This article tries to present a narrative review of the specialized literature that deals extensively with the problem of the governance of digital public services. From this perspective we

can underline the study *A Systematic Review of the Literature on Digital Transformation: Insights and Implications for Strategy and Organizational Change*, which based on 279 articles provide a multi-dimensional framework synthesizing what is known about digital transformation. It discerned two important thematical patterns: digital transformation is moving firms to malleable organizational designs that enable continuous adaptation, and this move is embedded in and driven by digital business ecosystems. From these two patterns, the authors derived four perspectives on the phenomenon of digital transformation: technology impact, compartmentalized adaptation, systemic shift and holistic co-evolution providing managerial implications for strategy and organizational change and concluding that the nature of digital transformation is only partially covered by conventional frameworks on organizational change. (Hanelta et.al., 2021)

A general review of a systematic literature on digital transformation was also within the article *A systematic literature review on digital transformation*. (Gebayew et al., 2018)

In Romania the digital transformation implies a change in the organizational culture, the emphasis falling on innovation and on the paradigm shift from the point of view of the professional experience of the employees. (National Agency of Public Servants, 2021)

There are operational programs dedicated to the digitization of the economy and society one of which, for the period 2021-2027, being the "Smart Growth, Digitization and Financial Instruments" Operational Program (POCIDIF) that includes 3 priorities which directly aim at the digitization of society and the economy of Romania. Both at the national and regional level, the strategic, operational and financial premises have been created to accelerate the digitization process of the economy and society. That was done either through the development of infrastructure and technical capabilities or through the development of new digitized services and solutions by increasing the level of digital skills of the population, in general, and of the economically active generations, in particular. Although the COVID-19 pandemic, strongly affected the regional economy and the daily life of citizens, it has imposed substantial adaptations and transformations of economic and social activities, especially through digitization. Somehow this pandemic situation proves out to be a good opportunity to recover some of the gaps that separate us from the other European regions.

The Digital Economy and Society Index 2021 and 2022, ranks Romanian on the last positions in terms of human capital. Thus, the levels of at least elementary digital skills and at least elementary software skills place Romania in 27th places among EU member states, with a score of 30.6 points in 2022 (the average EU score being 52.3 points). In 2021 only 31% of 16-74 year olds have at least basic digital skills (56% in the EU as a whole), while 35% have at least basic software skills (compared to an EU average of 58%). (ADR - Centru, 2021).

Figure no. 1. Digital Economy and Society Index



Source: Digital Economy and Society Index (DESI): Shaping Europe's digital future (europa.eu)

Although we cannot totally discuss about a legislative framework for digital public services, the relevant actors have assiduously started to collaborate and co-create solutions with other private partners, such as citizens or the academic or business sector. The clear delimitation between concepts such as digitalization, digital transformation or digitization is very well spotted with the article *From digitalization to digital transformation in Romania*. The authors try to present the differences

between these concepts and provides a pragmatic understanding of the definition of transformation digital.

The study deals with the topic of digital public services referring to the fragmentation identified both at the territorial level and at the decision-making level. The digital transformation can be more successful in cities, where the use accurate data and local intelligence can lead to the co-creation of impactful long-term digital solutions. Digitization refers to the conversion of analog formats into digital ones, thus digital transformation leading to the creation of a digital organization. Digital transformation cannot happen without digital skills development, the need to invest smartly in supporting digital inclusion being crucial (Durach et al, 2021). According to the article *Digitization, digitalization and digital transformation*, the digitization process marks the beginning of the fourth industrial revolution with significant implications in industry, economy, science and society (Tănase & Paraschiv, 2018). Last but not least we can mention the article e-Government. The impact of e-government in public administration. Challenges and liabilities of digital governance, that reveals the importance of having a citizen-centricity in any digital transformation (Anghel-Drugărin, 2022).

### 3. Connections between digitalization, transparency and good governance

In order for the citizens to be able to trust the rulers and, in general, the politicians, there must be transparency, a process without which civil society cannot get involved in the political life and even in the act of governance and without which there can be no talk of the modernization of public administration through easy access of citizens to complete and transparent information.

In a society considered democratic, the authorities manage the affairs of the state for and on behalf of the citizens, in line with the digital goals for 2030 of the Digital European Decade, Europe must prepare its citizens for a sustainable digital future centered on the human factor.

Therefore, the power belongs to the people, there is a need to know that public authorities have a democratic duty to decide transparently and respond to requests for information, because the information they hold belongs to the citizens.

On May 9<sup>th</sup> 2021, the European Commission presented its vision and perspectives for the digital transformation that is prefigured for Europe by 2030. The European Commission's proposal consisted of a "compass for the digital dimension of the EU", which is configured around of four cardinal points (European Commission, 2021):

- basic digital skills;
- secure and sustainable digital infrastructures;
- digital transformation of enterprises;
- digitization of public services.

The lack of transparency, as well as other shortcomings of the legislative activity, forcefully lead to the decrease of trust in the importance of normative acts of the society, which leads to an increased legislative instability. If, indeed, decision-making transparency were to apply, this could lead to greater public confidence in laws and regulations, given that they could be consulted by those interested and involved, and only then be adopted.

Transparency is considered an essential element of good governance and not just a necessity for citizens. Along history, we have a number of examples where misrule through secrecy and authoritarianism have led states to proliferate abuse, corruption and inefficiency, ultimately leading to regime failure.

Therefore, the digitization of public administration and implicit transparency provide citizens with easy access to information on issues of common interest, an aspect that must be the rule in all stages and procedures of the administrative decision, and confidentiality must be an exception regulated by law. Governments must adopt a digital transformation action plan and strategy after having previously analysed the revolutionary changes it imposes on the public sector.

We find with amazement that the enthusiasm for digitization generated by the pandemic is no longer at the same levels, although the great digitization projects await their implementation. However, in order to be able to take advantage of the opportunities conferred by the digital transformation strategy, a clear set of laws is needed to regulate this issue in detail. On a closer look, we find that the legislation is not adapted to the alleged needs of the digital transformation and there is increasingly intense talk of the act that "will block the digitization of Romania for 20-30 years",

because the state wants to centralize all digitization software of public institutions under the umbrella of a single authority (Deacu, 2022). "On March 17<sup>th</sup>, the Authority for the Digitization of Romania (ADR) launched for public debate a draft emergency ordinance by which it prepares to operationalize the Government Cloud, a project meant to replace the IT systems of ministries and public authorities, which will be financed with 500 million euros from the National Recovery and Resilience Plan (PNRR)". The government cloud will bring many digitalization benefits through the interoperability of public systems, making it easier for citizens to access all public services by using forms available in the cloud. (European Parliament, 2021)

This is why decision-making transparency and access to information of public interest constitute basic principles of public administration in democratic states allowing the improvement of the quality of public services, facilitating transparency and responsibility, as well as the profitability of the provision of public services and the functioning of the governing act in the interest of citizens, of the law, leading, therefore, to the increase of life standards quality.

Another crucial idea is forwarded by the European Transparency Initiative, which was debated by the representatives of the European Union in 2005, being adopted in the same year. The actual concept of the EIT was created "as a response to the need to reconnect Europe with its citizens and cover both the gaps, physically and mentally, because of which people hardly understand what Europe does and why it matters " (Popescu, 2007).

The European Transparency Initiative (ETI) is established with the intention of promoting transparency in policy making by: increasing access and openness to EU institutions; making the EU institutions accountable to the public; awareness about the use of the EU budget.

When the administration meets the citizens with information, considered as national assets, about what was happening within it, that process is called transparency. This publicly accessible information about activities, policies and decisions tells us that the public administration is transparent.

Involving citizens in the decision-making process generates a series of advantages. At the same time, the degree of involvement of citizens leads to greater accountability of public officials, with citizens having the right to be held accountable. Towards officials as well as a full and optimal functioning of the public administration. The wishes and aspirations of citizens are respected so that the public administration can receive full trust in front of the citizens. A study carried out by the Irish Presidency of the Council of the European Union within the European Network of Public Administration - EUPAN shows that social media tools have grown considerably in public administration.

#### **4. Research methodology**

In order to see the level of digitization within Caraş-Severin's towns and communes, we conducted a survey based on a questionnaire, applied to all 78 UATs of the county.

The main objective of the research was to study the level of digitization in the Mayor's Offices of Caraş-Severin county.

To achieve the objective, a questionnaire was created and distributed within the UATs of Caraş-Severin, in the online environment. The period of the survey was November - December 2022, addressing people from the UATs in Caraş-Severin county.

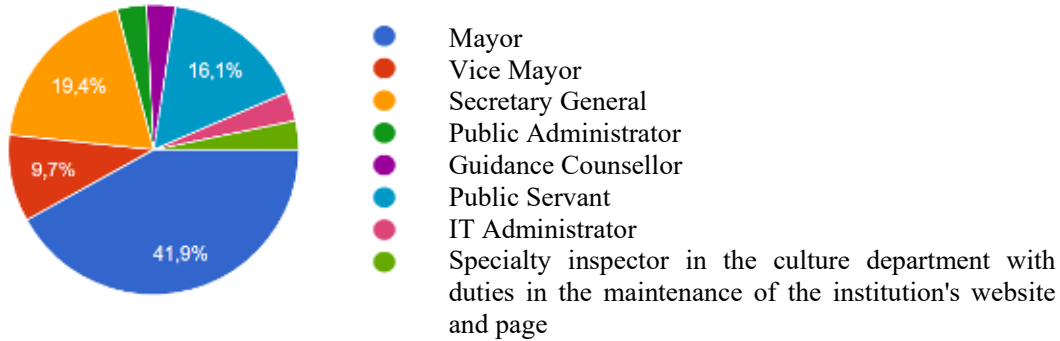
The structure of the questionnaire is complex, comprising both closed questions with single or multiple answer options, and questions based on measurement scales, with respondents giving a score for the proposed criteria, according to the Likert scale, from 1 to 5.

The questionnaire consisted in a number of 22 questions, of which 18 were about content and 4 about identifying the respondent, the studied sample consisting of 31 respondents. Of these, 83.9% were from rural areas, and 16.1% from urban areas. Regarding the number of inhabitants of the respondents' UATs, 77.4% of the UATs have a number of inhabitants between 1000-5000, 12.9% have below 1000 inhabitants, 3.2% have over 40,000 inhabitants, like those with a number of inhabitants between 5001-10000, 10001-20000. The respondents are from localities such as Anina, Oravița, Ocna de Fier, Turnu Ruieni, Glimboca, Măureni, Fârliug, Slatina Timiș, Bucoșnița or Băuțar.

## 5. Findings

The personnel who responded to the applied questionnaire hold the positions of mayor (41.9%), deputy mayor (9.7%), secretary general (19.4%), and others are civil servants (16.1%). There were also respondents who hold the position of public administrator, advisor, IT administrator or specialty inspector (3.2%).

Figure no. 2. The position held by the respondents within the UATs

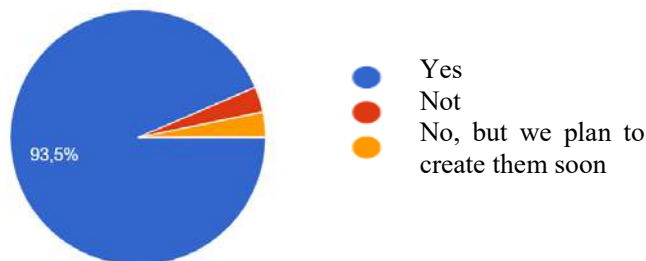


Source: Realised by authors

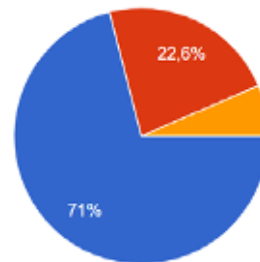
As regards the existence of the web pages and the presence on the social networks of the Mayor's Offices, the situation is somewhat gratifying. 93% of respondents stated that their organizations have a website/URL, only 3.2% currently do not have such a system and the same percentage state that they intend to have one in the near future.

Figure no. 3. Existence of a website/URL in the Mayor's Offices

Figure no. 4. The existence of a Facebook/Instagram account in the Mayor's Offices



Source: Realised by authors



As for the presence on the social networks Facebook, Instagram, etc., 71% of the respondents state that they are connected with the community also through these methods, 22.6% declare they currently have no such preoccupations, and 6.5%, although they are present on these networks, intend to become more active in the near future.

Figure no. 5. Subjects' perception of the impact of the pandemic on the digitization of the administrative system

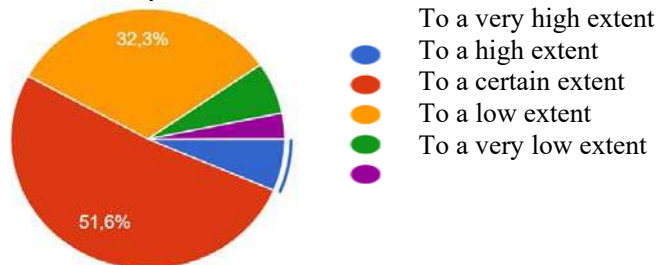
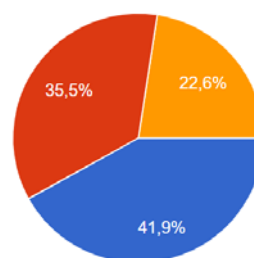


Figure no. 6. Subjects' perception of the impact of digitization on decision-making transparency



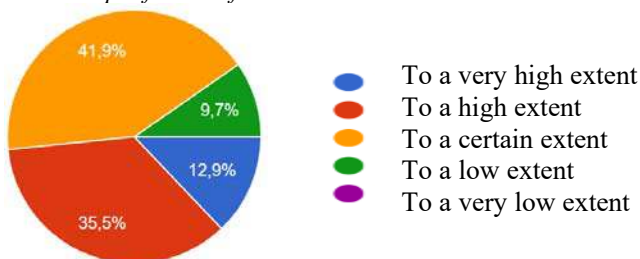
Source: Realised by authors

The respondents believe that the pandemic contributed to the digitization of the administrative system (51.6%), only 6.5% considering that it greatly influenced the mentioned aspect. Almost a third of the respondents (32.3%) declared that the Coronavirus pandemic influenced the digitization process to a certain extent (fig. no.5).

Furthermore, it should be noted that the respondents believe to a very high extent (41.9%) and to a high extent (35.5%) that digitization influences decision-making transparency, only 22.3% being of the opinion that it has a relative impact on it (fig. no 6).

The subjects believe that the human resources in the organizations in which they work are to a certain extent (41.9%) prepared to access various databases/software or special platforms, and just over a third (35.5%) believe that they are prepared to a high extent measure. On the other hand, only 12.9% declare that the human resource is very prepared in this regard, and 9.7% state that it is prepared to a low extent for accessing various databases/software/platforms (fig.no 7).

Figure no. 7. Subjects' perception regarding the preparation of human resources for accessing databases/platforms/software



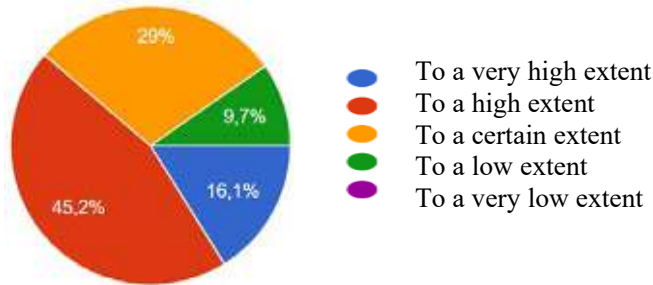
Source: Realised by authors

Also related to human resources, the respondents declare that the current skills of the employees in the organizations they belong to, related to the use of IT equipment, are at a high (45.2%) and medium (48.4%) level, only 6.5% of them being of the opinion that the human resource has low skills in this regard.

Respondents largely believe (45.2%) that employees under 45 have higher skills in using IT equipment, 16.1% of them strongly believe this. 29% of respondents believe to a certain extent that younger employees have higher skills in the use of IT equipment, and 9.7% believe to a low extent that younger employees (under 45) have higher skills in the use of IT equipment (fig. no 8).



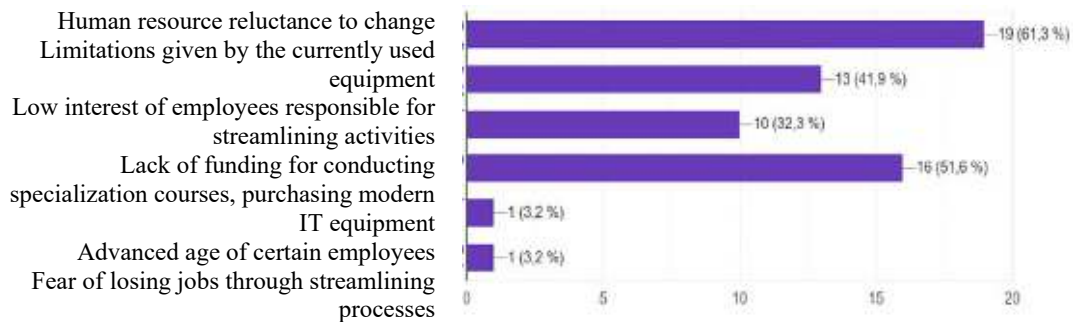
Figure no. 8 Respondents' perception of the differences between younger employees (under 45 years) and the other employees, in possessing skills regarding the use of IT equipment



Source: Realised by authors

Moreover, as regards the human resource in the organization, the subjects also identified some barriers that slow down the development of its skills. Thus, 61.3% of the interviewees identify the reluctance of human resources to change as an obstacle in the development of skills, 51.6% identify the lack of funding for carrying out specialization courses, the purchase of modern IT equipment, 41.9% choose the limitations given by the equipment currently used, and 32.3 % consider the low interest of employees responsible for streamlining activities as a barrier. On the opposite pole, only 3.2% believe that old age of employees or the fear of losing their job due to the efficiency of processes represent obstacles in the development of the skills of the staff in the organization they belong to (fig. no. 9).

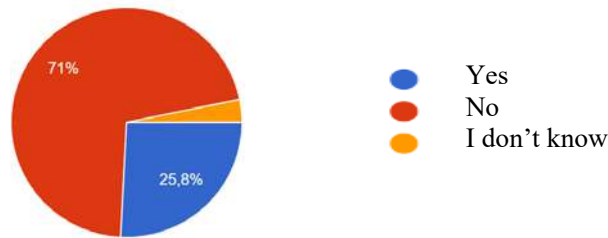
Figure no. 9 Respondents' perception of the barriers that slow down the development of staff skills in the organization they belong to



Source: Realised by authors

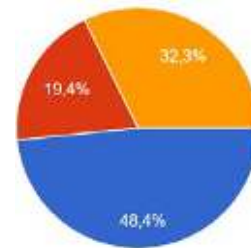
Unfortunately, only 25.8% of respondents stated that trainings for the development of digital skills were held in their organization in the last 5 years, 71% stating that no such courses were held in their organization. 3.2% specified that they do not know the situation regarding this aspect (fig. no. 10). However, it should be noted that almost half of the people surveyed would be willing to pay for digital skills development courses from their own sources. Almost 1/3 of the subjects are undecided regarding the mentioned subject, and 19.4% would not be willing to pay for such courses from their own sources. (fig. no. 11)

Figure no. 10. Digital skills development trainings held in the organization in the last 5 years



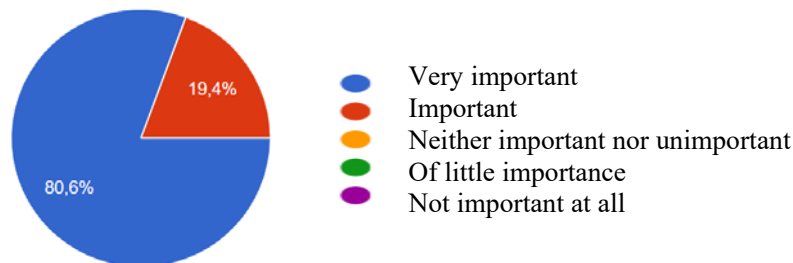
Source: Realised by authors

Figure no. 11. Respondents' availability as regards conducting digital skills development courses from their own sources



As for the provision of the organization with IT equipment, 80.6% of the respondents and 19.4% respectively consider it very important and important (fig. no. 12).

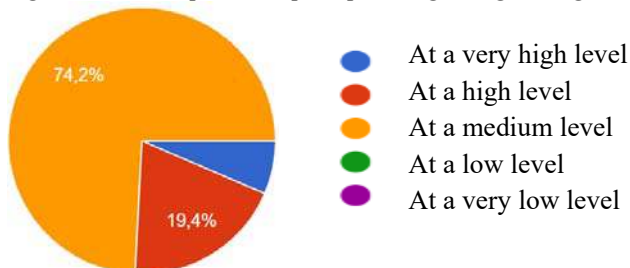
Figure no. 12 Respondents' perception regarding the importance of equipping the organization with IT equipment



Source: Realised by authors

At the time of the questionnaire application, the autumn of 2022, 74.2% of the subjects considered that the endowment with IT equipment of the organization to which they belong is at an average level, 19.4% considered it at a high level and only 6.5% were of the opinion that the organization it is equipped with IT equipment at a very high level (fig. no. 13).

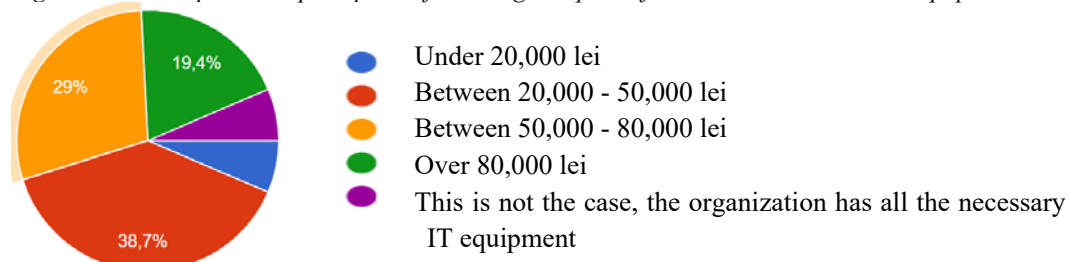
Figure no. 13. Respondents' perception regarding the organization's endowment with IT equipment



Source: Realised by authors

It seems that most of the respondents (38.5%) consider that the funds they would need for the appropriate endowment with IT equipment of the organization are between 20,000 and 50,000 lei, 29% believe that they would need amounts between 50,000 and 80,000 lei, and 19% of the respondents would need amounts over 80,000 lei for an appropriate endowment. At the opposite pole, with a weight of 6.5%, are the respondents who believe that they would need amounts below 20,000 lei for an appropriate endowment, but also those who declare that the organization they belong to has all the necessary IT equipment (fig. no.14).

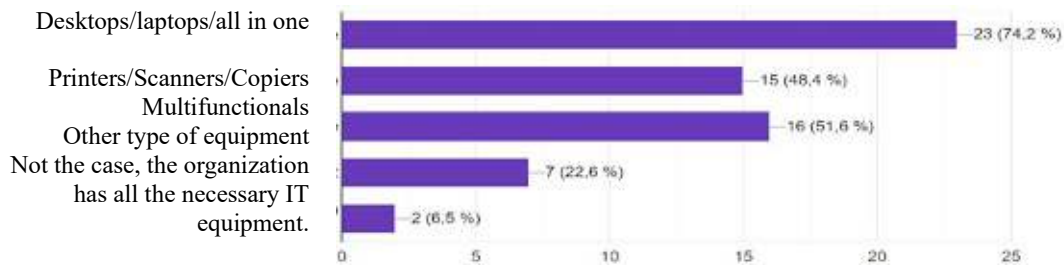
Figure no. 14. Respondents' perception of the budget required for the endowment with IT equipment



Source: Realised by authors

The budget allotted for the IT equipment for endowing the organization, according to the respondents, would be intended for desktops/laptops/all in one in proportion of 74.2%, for multifunctionals (51.6%), for printers, scanners, copiers in proportion of 48.4%, and for other types of equipment - 22.6%. Only 6.5% of the respondents believe that it is not necessary to purchase IT equipment because the organization they belong to already has all the necessary equipment.

Figure no. 15. Respondents' perception of the IT equipment they would need in the organization

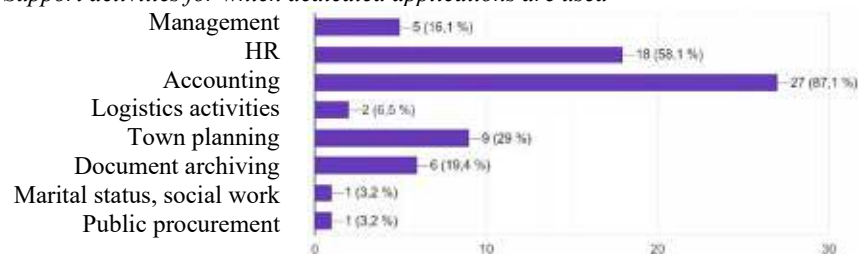


Source: Realised by authors

When it comes to the dedicated applications and the support activities for which they are used, most respondents (87.1%) state that they use them for accounting services, human resources (58.1%), urban planning (29%), document archiving (19.4%) or management (16.1%). Dedicated applications are used the least for logistics activities (6.5%) or public procurement and civil status and social assistance services (3.2%) - fig. no.16.

Also, a number of services provided by the Mayor's Offices show a higher or lower degree of digitization. Thus, according to the answers of the respondents, the least digitized services are requesting, tracking and obtaining various documents, obtaining authorizations/agreements/notices, but especially online appointments. Although still at a low level, according to the respondents, the payment of fiscal obligations, as well as the registration and tracking of the status of the resolution of requests/notifications, are somewhat more digitized.

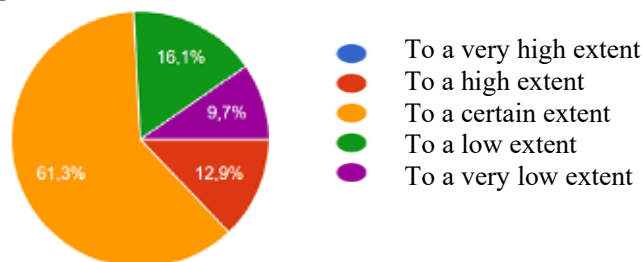
Figure no. 16. Support activities for which dedicated applications are used



Source: Realised by authors

We know that it is not enough for Mayor's Offices to offer digitized services, but citizens must also support it by opening up about the use of various platforms to access public services. Thus, from the centralized answers, it seems that the availability of citizens to use various platforms is at an medium level (61.3%), 16.1% consider the availability of citizens to access the platforms low and 9.7% think it very low. Only 12.9% believe that citizens would be willing, to a high extent, to use various platforms to access the services provided by the Local Public Administration (fig. no. 17).

Figure no. 17. Respondents' perception about the availability of citizens regarding the use of various platforms



Source: Realised by authors

In this respect, some of the Mayor's Offices would have ongoing programs to educate citizens in order to use IT equipment (6.5%), and over a quarter intend to hold such courses in the future (25.8%).

So, in order to have the desired results in terms of digitization, the involvement of both parties is needed: the service provider, on the one hand, and their beneficiary, on the other hand. The way in which they manage to find the middle way to create a win-win relationship depends on the level of education of the beneficiary, but also on good communication from the Mayor's Offices. Digitization can simplify our lives, but it can also complicate it if we fail to adapt, in a minimal way, to the demands of the 21st century.

## 6. Conclusions

Society is constantly evolving, and each of us must keep the pace. This applies to all entities, from individual to individual, from individual to organization. If the two sides fail to find a common denominator to solve the various issues, the problems, already enough, will multiply and make our lives even more difficult.

All the changes that have come over time have had the role of facilitating our various activities. Thus, if we have moved from the manual performance of various tasks to mechanization, evolution taking its course, in the 21st century it is the time of computers, of artificial intelligence, so it is time to use technology properly.

In the idea of facilitating activities, digitization is present everywhere around us. We are one click away from buying a trip to the other side of the world, buying plane tickets, clothes, household appliances, making a payment to an acquaintance or accessing other services that are available through the Internet. Everything is interconnected, and if we know how to use this to our advantage, we will enjoy more free time, and also benefit from the ease of purchases.

Our study proves once again that digitalization can make our work easier and allows us to access various services in a moment, however there should be availability and openness within each of us. If LPAs make digitized services available, it is up to us to use them to our advantage.

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## Considerations to Eco-Innovation and Its Relationship with Economic Growth

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### Abstract

*In the present paper we aim to study the relationship between eco-innovation and economic growth at the European Union level, using the eco-innovation index and indices of real GDP per capita growth, and to verify whether progress in eco-innovation is improving the performance of the European economy. Using longitudinal and cross-sectional methods, we have monitored progress in eco-innovation over the last decade for the three country groups: Leaders group, Performers group and Catching group.*

*In the current context, innovation is an important source of growth and development, both at national and regional level. Eco-innovation is the path to sustainability because it combines environmental impact with positive achievements in the economy and society. We conclude that Eco-innovation optimises economic growth and contributes to achieving sustainable development goals.*

**Key words:** eco-innovation, sustainability, economic growth, eco-innovation index

**J.E.L. classification:** O30, O44, Q01

### 1. Introduction

One of the goals the European community has set itself is to have a climate-neutral, circular economy. To this purpose, it has successively established in the Europe 2020 Strategy and then in the Europe 2030 Strategy a series of measures to create the conditions for smart and sustainable growth based on knowledge and learning, where resources are used efficiently and ecologically.

The Europe 2020 strategy adopted by the European Commission in 2010 brings to the foreground the concept of Eco-innovation in the context of the objective to make Europe's economic growth sustainable and to manage efficiently the resources at our disposal with a minimum effect on the environment. Therefore, the European community recognizes the role that Eco-innovation can play in resource efficiency and identifies a set of EU policy instruments to support the circular economy. Eco-innovation covers technological and non-technological changes throughout the life cycle of the product whose manufacture needs to be sustainable.

The approach to the problem is an ambitious one, with the EU proposing a strategy based on a new way of production, sustainable resource use and climate neutrality. Consequently, the Eco-Innovation Action Plan has been developed, covering four principal directions: environmental technologies, organisational innovation to introduce organisational methods to solve environmental problems, product and service innovation with environmental benefits, respectively alternative production and consumption systems with reduced environmental impact, such as eco-friendly agriculture or the use of renewable resources for energy production.

To monitor the progress in sustainability and green innovation, the European Commission calculates the eco-innovation index, a composite indicator based on five dimensions, whose performance is measured with different indicators published by Eurostat, EEA or OECD. These five dimensions are eco-innovation inputs, eco-innovation activities, eco-innovation outputs, resource efficiency and socio-economic outcomes.

At the European level in the period 2013-2022, the eco-innovation index has been steadily increasing, with all 5 dimensions showing positive trends. It is notable that the best performance was represented by the increase in resource efficiency, especially the decrease in GHG emissions per unit of GDP. (Al-Ajlani et al, 2021; Al-Ajlani et al, 2022)

## 2. Literature review

"Eco-innovation is any innovation that makes progress towards a more green and sustainable economy by reducing environmental pressures, increasing resilience or using natural resources more efficiently" (EC, 2022)

A study released at European level in 2021 showed that eco-innovation helps countries to improve their economic growth potential and indicated that eco-innovation has multiple positive effects such as ensuring compliance with environmental sustainability criteria, more efficient use of resources, better waste recycling. This creates an enabling environment for companies to reap multiple economic benefits. Differences between EU Member States have also been identified, resulting that eco-innovation has increased and diversified only in some UE Member States, while in others it has stagnated or even decreased. (Mačiulytė-Šniukienė, 2021)

In 2019, Andabaka et al, investigated the impact of Eco-innovation on economic growth, quality of institutions and municipal waste recycling and found that higher rates of economic growth and higher trust in institutions at EU level have a positive impact on Eco-innovation. Also, institutional support and innovation incentive mechanisms encourage the expansion of Eco-innovation, underpinned by recycling which is an activity that paves the way to a circular economy. (Andabaka et al, 2019)

A series of research studies provide best practice examples of the impact eco-innovation has on resource efficiency, energy consumption reduction, how it contributes significantly to waste reduction, as well as how eco-innovation contributes to improving business performance. (Bartoszczuk, 2015; Cheng, 2014, Agan, 2013; Cai, 2018; Sukri, 2023)

Other studies highlight the importance of environmental management systems (EMS) in stimulating eco-innovation (Horbach et al, 2013; Wagner, 2008)

Using econometric models and panel data for 30 provinces in China for the period 2000-2019 on the link between economic growth and carbon emissions, it was concluded that there is a non-linear relationship between the two variables and that eco-innovation significantly reduces carbon emissions. In addition, the analysis of this link over time shows that the positive effects of economic growth on carbon emissions are decreasing. So, the path to sustainable economic development is based on the widespread use of green technologies. (Nan et al, 2022)

## 4. Research methodology

Methodologically, we studied longitudinally and cross-sectionally the progress made by EU Member States in terms of eco-innovation. In addition, we used comparative methods to check if the economic growth in EU countries is sustainable and if the eco-innovation index is changing in the same direction and with the same intensity as the index of change in real GDP per capita.

## 5. Findings

Since 2010, the European Commission calculates the eco-innovation index for EU countries. It is a composite index based on 16 other indicators covering multiple sectors of eco-innovation in close relation to resource efficiency. These indicators are divided into 5 domains eco-innovation inputs, eco-innovation activities, eco-innovation outputs, resource efficiency outcomes and socio-economic outcomes. The EU average is assigned a score of 100, for countries with above average eco-innovation performance the scores are higher than 100, and for countries with below EU average performance, the index is less than 100.

To make comparisons between Member States and to see if countries with high levels of economic growth also register high level of eco-innovation, we used the relative levels of real GDP per capita compared to the EU average.



Table no. 1 Eco-Innovation Scoreboard for Leaders group

	EU-27	LU	FI	AT	DK	SE	DE	FR	IT	NL
Eco-Innovation Index 2013	100	150.74	168.67	137.27	151.84	152.99	109.83	109.58	102.55	95.1
Eco-Innovation index 2022	121.47	179.02	178.01	173.06	167.19	160.95	141.18	130.65	129.39	118.78
Percentage Change 2022 compare to 2013 for Eco-Innovation Index (%)	21.47	18.76	5.54	26.07	10.11	5.20	28.54	19.23	26.17	24.90
Real volume GDP per capita 2013 (EU=100)	100	329	138	144	177	162	133	124	102	152
Real volume GDP per capita 2022 (EU=100)	100	261	109	125	137	120	117	102	102	129
Percentage Change 2022 compare to 2013 for GDP per capita (%)	0.00	-20.67	-21.01	-13.19	-22.60	-25.93	-12.03	-17.74	0.00	-15.13

Source: [https://green-business.ec.europa.eu/eco-innovation\\_en](https://green-business.ec.europa.eu/eco-innovation_en); [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=GDP\\_per\\_capita\\_consumption\\_per\\_capita\\_and\\_price\\_level\\_indices](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=GDP_per_capita_consumption_per_capita_and_price_level_indices)

For the European countries that are part of the Leaders group, we note that in the period 2013-2022 considerable efforts have been made to turn eco-innovation a priority in their development policies and to maintain this status. We note that the position in the hierarchy in terms of economic growth has been maintained, but the rate of change has decreased across the group. However, even in 2022, as in 2013, the countries record GDP per capita values above the European average, the leaders being Luxembourg, Austria and Denmark.

In terms of eco-innovation, Luxembourg currently tops the ranking, followed by Finland and Austria. Italy and the Netherlands have more modest scores, but it is worth noting the effort made by the Netherlands to move from a score below the European average to a score above the average.

Their position as leading countries and their commitment to sustainable development is also reflected in the average Eco-innovation score, which has changed from 127.85 in 2013 to 149.97 in 2022.

Table no. 2 Eco-Innovation Scoreboard for Performers group

	EU-27	ES	SI	EE	CZ	IE	PT	LV	LT	EL
Eco-Innovation Index 2013	100	104.47	89.74	98.59	92.61	77.28	82.18	80.06	66.24	55.94
Eco-Innovation index 2022	121.47	116.43	115.86	115.52	110.98	110.39	105.69	105.37	103.75	101.59
Percentage Change 2022 compare to 2013 for Eco-Innovation Index (%)	21.47	11.45	29.11	17.17	19.84	42.84	28.61	31.61	56.63	81.61
Real volume GDP per capita 2013 (EU=100)	100	87	50	50	60	148	64	40	43	66
Real volume GDP per capita 2022 (EU=100)	100	85	92	87	91	233	77	74	89	68
Percentage Change 2022 compare to 2013 for GDP per capita (%)	0.00	-2.30	84.00	74.00	51.67	57.43	20.31	85.00	106.98	3.03

Source: [https://green-business.ec.europa.eu/eco-innovation\\_en](https://green-business.ec.europa.eu/eco-innovation_en); [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=GDP\\_per\\_capita\\_consumption\\_per\\_capita\\_and\\_price\\_level\\_indices](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=GDP_per_capita_consumption_per_capita_and_price_level_indices)



For the countries in the Performers group, we have seen considerable efforts in eco-innovation over the last 10 years, with all making progress in this area. The values recorded for the Eco-innovation index are currently above 100, even though some of them recorded values significantly lower than 100 in 2013, such as Ireland, Lithuania and Greece.

In terms of economic growth, with the exception of Ireland, for all other countries the position of real GDP per inhabitant is below average but shows a clear and steady upward trend, reflecting their efforts towards sustainable economic development.

*Table no. 3 Eco-Innovation Scoreboard for Catching-up group*

	<b>EU-27</b>	<b>BE</b>	<b>CY</b>	<b>SK</b>	<b>HR</b>	<b>RO</b>	<b>HU</b>	<b>MT</b>	<b>PL</b>	<b>BG</b>
<b>Eco-Innovation Index 2013</b>	100	75.91	68.3	68.13	64.16	86.16	52.64	51.58	46.45	25.18
<b>Eco-Innovation Index 2022</b>	121.47	99.78	94.65	94.41	88.81	84.59	81.15	79.76	67.37	57.73
<b>Percentage Change 2022 compare to 2013 for Eco-Innovation Index (%)</b>	21.47	31.45	38.58	38.57	38.42	-1.82	54.16	54.63	45.04	129.27
<b>Real volume GDP per capita 2013 (EU=100)</b>	100	134	82	53	42	27	41	70	40	22
<b>Real volume GDP per capita 2022 (EU=100)</b>	100	120	91	68	73	77	77	102	80	59
<b>Percentage Change 2022 compare to 2013 for GDP per capita (%)</b>	0.00	-10.45	10.98	28.30	73.81	185.19	87.80	45.71	100.00	168.18

Source: [https://green-business.ec.europa.eu/eco-innovation\\_en](https://green-business.ec.europa.eu/eco-innovation_en); [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=GDP\\_per\\_capita\\_consumption\\_per\\_capita\\_and\\_price\\_level\\_indices](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=GDP_per_capita_consumption_per_capita_and_price_level_indices)

For the last group, the catching-up group, the results show that the vast majority of these countries have made efforts to catch up in the field of eco-innovation. In this respect, they have made important progress in the last decade in the field of environmental policies and their implementation, but despite these efforts significant gaps remain between them and the leading countries. Further efforts are needed to bring the Eco-innovation index closer to those of the performers and leaders.

Despite the improvement of the Eco-innovation index values most of the countries in the group, the gap in terms of the index has not decreased significantly compared to the European average. Bulgaria, Hungary and Malta recorded significant increases in the Eco-innovation index, while the other countries in the group showed modest increases. Unfortunately, for Romania, the results recorded are negative, being the only country in the group that had a deterioration of this index.

In terms of the relative position of GDP per capita for these countries, only Belgium has regressed, with all the other eight countries making progress. Croatia, Bulgaria, Poland and Romania have made progress. For Romania, progress is more than significant in terms of economic growth, but we recommend that public policies take into account that unsustainable growth cannot be maintained in the long term. The country needs to work towards sustainable development, which focuses on the efficient use of resources and the preservation of environmental quality.

## 6. Conclusions

In the current economic context, threatened by crises and uncertainties, the transition to the green economy and Eco-innovation on a large scale provides opportunities and potential for business development. Eco-innovation requires new business models that will generate increased investment, increased productivity, expanded markets and increased ability to be competitive. Moreover, increased productivity will also increase the profitability of businesses, and the economies will be less exposed to changes in environmental regulation. As a result, it will be able to maintain their competitive advantage.

For all these reasons, Eco-innovation reinforces sustainability and creates the opportunity to fundamentally revolutionize certain economic sectors. The results of the study can be a source of inspiration for policy makers in the field of innovation and sustainable development.

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## Knowledge Vulnerabilities: Definitions and Interpretations

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### Abstract

*Although many studies have been carried out in the knowledge domain, knowledge vulnerabilities is still a less explored field, difficult to analyze, full of challenges, with areas of high interest especially in the current times of unpredictable changes. The paper aims to study knowledge vulnerabilities, focusing on their definitions and interpretations. We propose an analysis on the existing publications dealing with knowledge vulnerabilities and knowledge risks. A critical analysis shows that the concept of knowledge vulnerabilities is used in some complex studies like those focusing on climate change, but not in the knowledge management systems. That is a significant knowledge gap for the knowledge management systems considering that already researchers focus on knowledge risks. The findings demonstrate the importance of introducing this concept in the analysis of knowledge risks and in elaborating strategies for reducing the probabilities of their emergence and of mitigating the associated possible consequences.*

**Key words:** knowledge, knowledge vulnerabilities, knowledge management, knowledge risks

**J.E.L. classification:** D83, G32, D81

### 1. Introduction

Nowadays, we wonder how challenging can be for the knowledge management all the changes around the world, especially for the knowledge risks management. Constant changes are marked by unpredictability, including the global pandemic crisis, military tensions between the United States of America and China, Turkiye and Greece, the Israeli and Palestinian conflict, Russia and Ukraine, insurgencies in Africa and other parts of the world, as well as energy crisis, global food crisis, financial crisis, warming climate crisis, and cybersecurity war, "given the fact that organizations have less time to manage all the uncertainties and that they are constrained to continuously develop new strategies to assure healthy management of knowledge risks" (Ursache, 2022b).

Even if in the last 20 years the number of research topics in the knowledge domain has increased and become more and more diversified, the concepts of *knowledge vulnerabilities* and *knowledge risks* have not been analyzed in depth. In fact, there is a notable knowledge gap concerning the study of knowledge vulnerabilities, although they are at the root of any possible risk. The concept of knowledge vulnerabilities has already been introduced in other science domains like climate change and health systems, but not in the knowledge management systems yet. Understanding knowledge vulnerabilities help managers and leaders to identify much better the possible knowledge risks and design strategies to mitigate their consequences (Bratianu, 2002; Bratianu & Bejinaru, 2022; Durst & Henschel, 2020; Durst & Zieba, 2017; Durst & Wilhelm, 2013).

The first stage of our research is to identify the main significant definitions of the *knowledge vulnerabilities* and to understand their semantic domains. If we cannot find such definitions, we should look for the definitions given to *vulnerabilities* in other domains and to think how we can adopt them for the knowledge management systems. The current work seeks to conduct a systematic analysis of current academic research to find some relationships between knowledge management, knowledge risks and knowledge vulnerabilities. We can state our research question as follows:

*RQ: What is the relationship between knowledge vulnerabilities and knowledge risks in the knowledge management systems?*

The structure of the current paper is as follows. Following this brief introduction, we present a critical literature review, we explain the methodology, and present our findings. Finally, we present the main conclusions of our research and its limitations.

## **2. Literature review**

### **2.1. Knowledge management**

Knowledge is intangible and nonlinear, distinguishing this way clearly from tangible resources like physical objects, including monetary resources (Bratianu, 2007, 2023; Bratianu & Bejinaru 2023; Nonaka & Takeuchi, 1995). Knowledge management emerged as a necessity of dealing with organizational intangible resources for which the classical management based on tangibility and linearity does not work anymore. Knowledge management (KM) encompasses all activities and processes dealing with data, information and knowledge, including knowledge creation, acquisition, transfer, retention, and knowledge sharing. Databases, portals, and collaboration tools are just a few examples of the knowledge management systems (KMS) and technologies that are frequently used to support these operations.

An excellent example of how knowledge powers firms could be unicorns. They are start-up firms that, in a short time, reach the value of 1 billion dollars, surpassing traditional companies that already have experience in the market. For a unicorn, market experience, tradition, and classic business models do not even matter. All that matters is the knowledge they possess, how they use it and how they create value through knowledge in the new economy, where technological innovations and opportunities are everywhere, including associated risks (Bratianu et al., 2020; Massingham, 2020; Tiwana, 2002; Ursache, 2022a).

In the current corporate environment, KM has grown in significance as firms are under greater pressure to innovate and boost performance in order to keep up with rapid global change. Businesses that can manage their information efficiently can compete and adjust to shifting market conditions. In this way, organizations will gain a new competitive edge that will separate strong from weak organizations by managing knowledge vulnerabilities and assessing correctly knowledge risks.

A reference point in the knowledge research domain is the SECI model that describes the dynamics of organizational knowledge creation (Nonaka & Takeuchi, 1995, 2019). This model contains three main components: the SECI knowledge cycle, the dynamic context Ba, and the knowledge vision. The SECI (Socialization, Externalization, Combination, and Internalization) cycle shows how knowledge created at the individual level is integrated in an evolving spiral into organizational knowledge along the ontological dimension (Nonaka & Takeuchi, 1995, 2019). The model explains the dynamics between tacit knowledge and explicit knowledge. Tacit knowledge is that knowledge we obtain through direct experience and it can be expressed only by using body language (i.e. wordless knowledge). Explicit knowledge, often referred to as codified knowledge, is the opposite. It is knowledge that can be simply articulated, shared, and documented in a symbolic form, such as text, numbers, images, or sounds. Documents, databases, and other physical or digital material contain it. Research on explicit knowledge in management and organizational studies has centered on how businesses can efficiently manage and use their explicit knowledge assets, such as papers, databases, and other digital and physical media formats. Additionally, researchers have looked at how explicit might boost competitiveness, creativity, and organizational success.

Bratianu and Bejinaru (2019, 2023) extended the dyad of tacit-explicit knowledge into a triad rational-emotional-spiritual knowledge in their theory of knowledge fields. Adopting a thermodynamics perspective, Bratianu (2023), and Bratianu and Bejinaru (2019) elaborated a new knowledge dynamics model. The model shows that any form of knowledge can be transformed into another form of knowledge. For instance, emotional knowledge can be transformed into rational knowledge or spiritual knowledge, and vice-versa.

## 2.2. Knowledge vulnerabilities and knowledge risks

So far, vulnerabilities have been analyzed in areas like disaster management, geography, climate change, economics, information security, and, more recently in cybersecurity founding various academic research, but the identification and analysis of knowledge vulnerabilities, in a more comprehensive way, have not yet been the topic of research in the knowledge domain (Alexander, 2013; Chambers, 1989; Cutter, 1996; Dow, 1992; Gabor & Griffitch, 1980; Kaspersen, Kaspersen & Dow, 2001; Turner II et al., 2003).

The concept, which has its roots in the Latin word *vulnus* and then evolved into *vulnerabilis* and most recently into *vulnerability*, has been used for centuries and has been defined in different ways since it first came into use. Vulnerabilities indicate in general some weaknesses in the knowledge management systems. However, there are many practical situations in which managers are not aware of these weaknesses and thus they cannot reduce the potential for their knowledge risks (Bratianu & Bejinaru, 2022).

The topic is complicated since diverse definitions, methods for measuring, and evaluations of vulnerabilities are used by experts in a variety of fields, including public health, psychology, geography, and development studies, among others. It involves a variety of traits that make individuals and communities more susceptible to harm and less able to prevent, avert, and reduce the probability distribution of the knowledge risks.

## 3. Research methodology

The present research represents the result of a critical literature analysis in the domain of knowledge management and other domains where the concepts of vulnerabilities and risks are studied, like climate change, health systems and information systems with their cybersecurity. It is a semantic analysis aiming at explaining the meanings associated to the concept of knowledge vulnerability and its relation with knowledge risk. We extracted from literature some of the most important definitions and compare their semantic power.

## 4. Findings and discussion

Oxford Advanced Learner's Dictionary (OALD, 2000) defines the adjective *vulnerable* as being a "weak and easily hurt physically or emotionally". It results that *vulnerability* reflects a weakness of an individual or a system. That weakness constitutes a potential for the generation of one or several risks under certain internal and external conditions. The concept of risk is defined (OALD, 2000) as being "the possibility of something bad happening at some time in the future". Applying these general definitions to knowledge management systems we obtain the meaning for *knowledge vulnerability*, and for *knowledge risk*, respectively.

Because we could not find in the knowledge management literature the concept of *knowledge vulnerability*, we identified some of the most cited definitions of *vulnerability* in the larger domain of complex systems research. The results are presented in Table 1.

Table no. 1 Vulnerabilities definitions available in the literature

Definition	Year	Author
" <i>Vulnerability</i> represents the potential harm incurred by a person, asset, activity or assemblage of items that is at risk. The risk is motivated by natural, technological, social, intentional, or complex hazards and the potential outcome is a disaster. As it is mainly the result of social, economic, political, and cultural factors in decision making, <i>vulnerability</i> is constructed socially".	2013	Alexander, D., p. 980
Generalized " <i>vulnerability</i> is a characteristic of the poorest of the poor in every society, especially those who not only suffer income poverty [but] are also politically marginal (no voice in decisions that affect them), spatially marginal (resident in urban squatter settlements or in remote rural locations), ecologically marginal (livelihoods based on access to meager natural resources or living in degraded environments), and economically marginal (poor access to markets)".	2013	Wisner, 2013a, p. 258
" <i>Vulnerability</i> defines the extent to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. It depends not only on a system's sensitivity but also on its adaptive capacity".	2007	IPCC, 2007, p. 869
By " <i>vulnerability</i> we mean the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard. It involves a combination of factors that determine the degree to which someone's life and livelihood are put at risk by a discrete and identifiable event in nature or in society".	2004	Wisner et al., 2004, p. 11
" <i>Vulnerability</i> is the degree to which a person, system or unit is likely to experience harm due to exposure to perturbations or stress".	2001	Kasperson, R. Kasperson, J. & Dow, K., p. 253
" <i>Vulnerability</i> is conceived as both a biophysical risk as well as a social response, but within a specific areal or geographic domain. This can be geographic space, where vulnerable people and places are located, or social space who in those is most vulnerable".	1996	Cutter, S., p. 529
" <i>Vulnerability</i> is defined as the extent to which a natural or social system is susceptible to sustaining damage from climate change. Vulnerability is a function of the sensitivity of a system to changes in climate and the ability to adapt to systems to changes in climate. Under this framework, a highly vulnerable system would be one that is highly sensitive to modest changes in climate".	1996	Intergovernmental Panel on Climate Change (PCC). World Meteorological Organisation.
" <i>Vulnerability</i> is defined in terms of exposure, capacity and potentiality. Accordingly, the prescriptive and normative response to vulnerability is to reduce exposure, enhance coping capacity, strengthen recovery potential and bolster damage control (i.e., minimize destructive consequences) via private and public means".	1993	Watts, M.J., & Bohle, H., p. 43

" <i>Vulnerability</i> is the differential capacity of groups and individuals to deal with hazards based on their positions within physical and social worlds".	1992	Dow, K., p. 417
" <i>Vulnerability</i> is operationally defined as the inability to take effective measures to insure against losses. When applied to individual's vulnerability is a consequence of the impossibility or improbability of effective mitigation and is a function of our ability to detect the hazards".	1989	Bogard, W., p. 147
" <i>Vulnerability</i> is the potential for loss".	1989	Chambers, R., p. 3
" <i>Vulnerability</i> is the degree of loss to a given element or set of elements at risk resulting from the occurrence of a natural phenomenon of a given magnitude".	1982	United Nations Disaster Relief Organization (UNDRO).
" <i>Vulnerability</i> is the degree to which a system acts adversely to the occurrence of a hazardous event. The degree and quality of the adverse reaction are conditioned by a system's resilience (a measure of the system's capacity to absorb and recover from the event)".	1981	Timmerman, P., p. 1
" <i>Vulnerability</i> is the threat (to hazardous materials) to which people are exposed (including chemical agents and the ecological situations of the communities and their level of emergency preparedness). Vulnerability is the risk context".	1980	Gabor, T., & Griffitch, T., p. 323

Source: Authors' own research.

As can be noted, vulnerabilities have been identified in several domains, and a form has been developed that can aid in our best understanding of the notion. The common semantic feature of those definitions given in Table 1 is that *vulnerability* represents a potential for generating risks under some specific conditions from inside and from the external environment.

For example, in the area of information security, cybersecurity and privacy protection, according to ISO 27005, vulnerability notion has been defined as: "a weakness of an asset or group of assets that can be exploited by one or more threats, where an asset is anything that has value to the organization, its business operations, and their continuity, including information resources that support the organization's mission"; and on ISO/IEC 29147:2018(en) Information technology, security techniques, vulnerability disclosure, define that a "vulnerability can be thought of as a weakness or exposure that allows a security impact or consequence".

Considering the analyzed definitions, we may state that *knowledge vulnerability* represents a weakness in securing the human value, knowledge, individual or by group that can be exploited through one or more threats if the weakness is known and exposed. The vulnerability has an impact on the individual, the group, or the knowledge management system with consequences which can result in the generation of a knowledge risk.

In Table 2 we present the main vulnerabilities we could identify in the knowledge management systems which may lead to generation of knowledge risks. In general, a knowledge vulnerability may represent a potential for more possible knowledge risks.

Table no. 2 Knowledge vulnerabilities

Knowledge vulnerabilities as potentials for generating knowledge risks		
<ul style="list-style-type: none"> <li>• Lack of effective knowledge base maintenance vulnerabilities</li> <li>• Knowledge stealing vulnerabilities</li> <li>• Declining organizational creativity and innovation vulnerabilities</li> <li>• Ineffective management vulnerabilities</li> </ul>		
<ul style="list-style-type: none"> <li>• Knowledge transfer vulnerabilities</li> </ul>		
<ul style="list-style-type: none"> <li>• Knowledge gap vulnerabilities</li> </ul>		
<ul style="list-style-type: none"> <li>• Knowledge articulation vulnerabilities</li> <li>• Knowledge outsourcing vulnerabilities</li> <li>• Knowledge acquisition vulnerabilities</li> <li>• Knowledge continuity vulnerabilities</li> </ul>		
<ul style="list-style-type: none"> <li>• Unlearning knowledge vulnerabilities</li> <li>• Forgetting knowledge vulnerabilities</li> </ul>		
<ul style="list-style-type: none"> <li>• Knowledge waste vulnerabilities</li> <li>• Knowledge hoarding vulnerabilities</li> <li>• Knowledge hiding vulnerabilities</li> <li>• Knowledge attrition vulnerabilities</li> <li>• Knowledge obsolescence vulnerabilities</li> </ul>		
Knowledge Risks Treated in the literature	Authors	Year
<ul style="list-style-type: none"> <li>➤ Knowledge waste risk</li> <li>➤ Knowledge hoarding risk</li> <li>➤ Knowledge hiding risk</li> <li>➤ Knowledge attrition risk</li> <li>➤ Knowledge obsolescence risk</li> </ul>	Bratianu, C. et al.	2020
<ul style="list-style-type: none"> <li>➤ Knowledge risks due to unlearning</li> <li>➤ Knowledge risks due to forgetting</li> </ul>	Durst, S. & Zieba, M.	2017
<ul style="list-style-type: none"> <li>➤ Knowledge articulation risks</li> <li>➤ Knowledge outsourcing risks</li> <li>➤ Knowledge acquisition risks</li> <li>➤ Knowledge continuity risks</li> </ul>	Lambe, P.	2013
<ul style="list-style-type: none"> <li>➤ Knowledge gap risk, <i>which may hinder the company in fulfilling its objectives.</i></li> </ul>	Perrot, B. E.	2007
<ul style="list-style-type: none"> <li>➤ Knowledge transfer risks <i>are concentrated at the level of operational business practices.</i></li> </ul>	Bayer, F., & Maier, R.	2006
<ul style="list-style-type: none"> <li>➤ Lack of effective knowledge base maintenance</li> <li>➤ Knowledge stealing</li> <li>➤ Risk of declining organizational creativity and innovation</li> <li>➤ Ineffective management</li> </ul>	Jamieson, R., & Loeng, D.	2003

Source: Authors' own research.



## 5. Conclusions

The aim of the present paper is to critically assess the role of knowledge vulnerabilities in the literature dedicated to knowledge management systems. Unfortunately, we could not find significant papers on this subject, although there are some interesting studies focusing on knowledge risks. That stimulated us to search for the vulnerabilities in other research domains and we could find some those papers related to climate change, health systems, and information systems, especially cybernetics.

Today, when knowledge becomes essential to every organization and frequent disruptions leave organizations with less time to manage change, most of them are almost forced to evolve. New strategies to deal with the challenges of the ever-changing business environment, and the identification of knowledge gaps requires opening new directions of research to increase resilience and the sustainability of organizations. Knowledge vulnerabilities and knowledge risks represents such a new research perspective.

Following our research, we can say that knowledge vulnerabilities will play a larger role in the current knowledge domain given the unrestricted access to information and improvements in academic research, and new techniques will be accessible to evaluate and prioritize the knowledge vulnerabilities.

The main limitation of the present research is that it focused only on the semantic dimensions of the concept of knowledge vulnerabilities within the knowledge management systems. This research should be extended in the near future to include also the knowledge risks and the knowledge strategies managers can develop to mitigate the possible negative consequences of these knowledge risks.

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# Understanding Customers' Opinion using Web Scraping and Natural Language Processing

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## Abstract

*The web offers large volumes of data that is unstructured and fails to be further processed if not extracted and organized into local variables or into databases. In this paper, we aim to extract data from the Internet using web scraping and analyse it with Natural Language Processing (NLP). Our purpose is to understand customers' opinions by extracting reviews and investigating them in Python. The positive or negative insight of the reviews, along with the word cloud offer additional tools to understand the customers, predict their behaviour and underpin problems signalled in the reviews. TextBlob and BERTweet are applied to analyse the reviews. To enhance the comprehension of the outcomes, a comparison is drawn between the classifications generated by the BERTweet model and those provided by the TextBlob API, a widely used Python library for performing various NLP tasks. Furthermore, the reviews are pre-processed to clean them from line breaks, punctuation characters etc. and a n-grams analysis is performed to better understand the positive and negative reviews. The frequency of the reviews displays the concrete problems faced by customers visiting the hotel in various seasons. It helps decision makers to take measures and improve the quality of the hotel services.*

**Key words:** web scraping, booking, customers opinions, natural language processing

**J.E.L. classification:** Z13, C55, C81

## 1. Introduction

Extracting and analysing data from web along with Google Analytics have become significant to understand customers' opinion and visualize metrics that reveal more insights about customers' requirements. A survey on web scraping techniques and tools were provided in (Saurkar and Gode, 2018) underlying the vast volume of data that has to be extracted and processed to obtain useful information. Simply copying data from the web is not always possible, especially when data is structured so that copying the entire data set is not possible. Or instead of repeating the extraction operation manually, a Python script can be scheduled to run at a certain hour using Node-RED or other techniques and collect the fresh data from web. Web scraping is described into three steps in (Niu et al., 2023): understanding the page source structure, creating regular expression to extract data and design the scraper tool for extracting the news from web, blogs and image data.

Various web scraping libraries do exist (Anon., 2020) in several programming language such as Python – Scrapy, BeautifulSoup, Selenium (Thomas and Mathur, 2019), R (Bradley and James, 2019), PHP, etc. Scraping data for academic purposes is frequently performed to create new data sets, extract information from data and bring more insights from web, especially from the human-computer interactions. The speed of the events is another factor that stimulates web scraping as most of the data repositories do not contain meaningful data and are therefore obsolete. Scraping is at least

equally important in marketing (Boegershausen et al., 2022), (Shankar and Parsana, 2022), banking, electronic markets, e-commerce, politics, elections, etc.

Usually, web data is unstructured and requires selection, filtering to allow further processing (Sirisuriya, 2015). The necessity for web scraping comes from different areas: social, security, academic, educational and financial. Therefore, web scraping transforms unstructured data into structured data that can be organized into a database such as SQLite or MongoDB. One can extract various time series and merge them to create relevant data sets using them furthermore for prediction. Natural Language Processing (NLP) gains more importance as it can analyse and process the human language including reviews and customers' opinion. The state of the art, recent trends and challenges are described in (Khurana et al., 2023), emphasizing on an interesting discussion, models and assessing metrics for NLP. NLP is also useful to analyse speeches and evaluate their impact on the economies, prices, stock markets, etc.

A better interaction and interface between humans and computers are ensured by NLP (Patel and Patel, 2021). It is used in spam detection and machine translation, learning from experience like humans. NLP and deep learning algorithms (such as: Convolutional Neural Networks - CNN, Recurrent Neural Networks - RNN, attention model for NLP) (Alshemali and Kalita, 2020) offer many applications of computational linguistics. The state of the art, current trends and ideas for future research are provided by (Otter, Medina and Kalita, 2021).

## 2. Literature review

Numerous scientific research papers approached web scraping and NLP, analysing opinions and reviews of the customers. (Arbane et al., 2023) applied bidirectional Long Short-Term Memory (LSTM) to create a social media-based COVID-19 sentiment classification model. NLP assisted various fields including management research (Kang et al., 2020) and software testing, providing a systematic mapping of the literature in (Garousi, Bauer and Felderer, 2020). Limited data learning in NLP can be a challenge. (Chen et al., 2023) investigated this challenge, proposing a review for data augmentation considering limited data learning in NLP, providing appropriate augmentations recommendations in different settings. They also discussed the challenges and future directions in this area. Online reviews are investigated (Biswas et al., 2022), offering a critical evaluation of customers' reviews using a hybrid NLP methodology. The effects of various reviews are investigated. Shannon's Entropy Theory, Dual Process Theory and text mining are used to analyse the helpfulness of reviews. The study provides interesting insights on electronic commerce using NLP and its implications.

Usually, customers choose a product or accommodation based on the reviews, but the number and diversity of the reviews can be overwhelming. Thus, the right choice cannot be a facile one for customers. Websites for e-commerce may use algorithms such as the Naïve Bayes classifier, Logistic Regression and SentiWordNet algorithm to classify reviews. COVID-19 pandemic increased the online shopping and interactions of customers with web platforms (Burlacioiu, 2023). Reviews for telecom and utilities services are investigated emphasizing NLP tools to assess the customers' opinions.

After the lockdowns were removed, many people have intensified their traveling activities. NLP has been applied to tourism research (Álvarez-Carmona et al., 2022) providing a systematic survey of 227 most relevant studies and future research directions in this field. Six major topics in applying NLP to tourism issues were identified: Sentiment analysis, Travel, Recommendation systems, Destination branding, Sentiment analysis for hotels, and Destination recommendation. The results showed that countries like China, the United States, Thailand and Spain have similar tourism challenges. The authors answered the following concerns: the NLP techniques applied in tourism industry, NLP algorithms applied for tourism issues, data requirements for NLP in tourism.

In booking, the impact of latent topic extracted from online purchasing reviews for the accommodation industry was analysed in (Sim, Lee and Sutherland, 2021). 400,000 reviews for accommodation in South Korea were investigated using Latent Dirichlet Allocation (LDA) in order to identify the topic of the review content. With CNN, the authors identified the valence of the reviews, whereas with the spatial probit models, they identified the impact of the review content and valence on booking intention. Positive and negative reviews on several variables such as the

ambiance, service, accessibility, surrounding neighbourhood and room space lead to higher/lower booking intentions. LDA and fuzzy C-Means clustering were applied in (Geethalakshmi et al., 2021) to extract the opinion from hotel reviews. An interesting evaluation of sentiment analysis on smart entertainment and devices reviews was provided in (Gamal et al., 2019). Scoring tourist attractions based on sentiment lexicon was furthermore analysed in (Ding et al., 2017).

### 3. Research methodology

The subsequent section proposes an approach for generating classifications of reviews obtained from the Booking.com website, a case study regarding hotel services located in Dubai.

Initially, the process entails leveraging the web-scraping library BeautifulSoup alongside the Python programming language to retrieve pertinent data from the Booking website. The procedure involves iteratively traversing 30 pages of the hotel's website section and parsing user-specific data, including the reviewer's name, the publication date of the review, the human-annotated rating, the user's positive and negative reviews and its general review based on its experience. Subsequently, the parsed data is structured and stored in a specialized data structure, Pandas DataFrame, in which the columns represent the identified information mentioned above.

Upon incorporating the data into the Pandas DataFrame, the next step involves passing the column comprising the user's general review to a sentiment analysis pipeline that utilizes the "transformers" Python library provided by Hugging Face.

Hugging Face is an AI-centered community which promotes the values of open-source contributions. Its primary aim revolves around the creation and refinement of the models belonging to Natural Language Processing, Computer Vision, and other relevant subfields of Artificial Intelligence. The models developed by the Hugging Face community are presently being employed in various practical applications, including Language Modelling, Sequence Classification, Sentiment Analysis, Question Answering, and several other domains (Wolf et al., 2019). In the present study, the Sentiment Analysis pipeline is being implemented to classify the users' general reviews, as outlined on the hotel's Booking page.

The default model used in the pipeline is the pre-trained bertweet-sentiment-analysis model, which has been finetuned on the SemEval 2017 dataset, comprising approximately 40.000 scraped tweets. This model was initially developed for Twitter sentiment analysis, with its base model being BERTweet - a RoBERTa model trained on English Tweets.

Upon processing the data through the Sentiment Analysis pipeline, the method generates a Python list of dictionaries, where each dictionary contains two primary elements: the assigned label (positive, negative, or neutral) for each general commentary, along with the corresponding classification score. To enhance the comprehension of the outcomes, a comparison is drawn between the classifications generated by the BERTweet model and those provided by the TextBlob API, a widely used Python library for performing various NLP tasks.

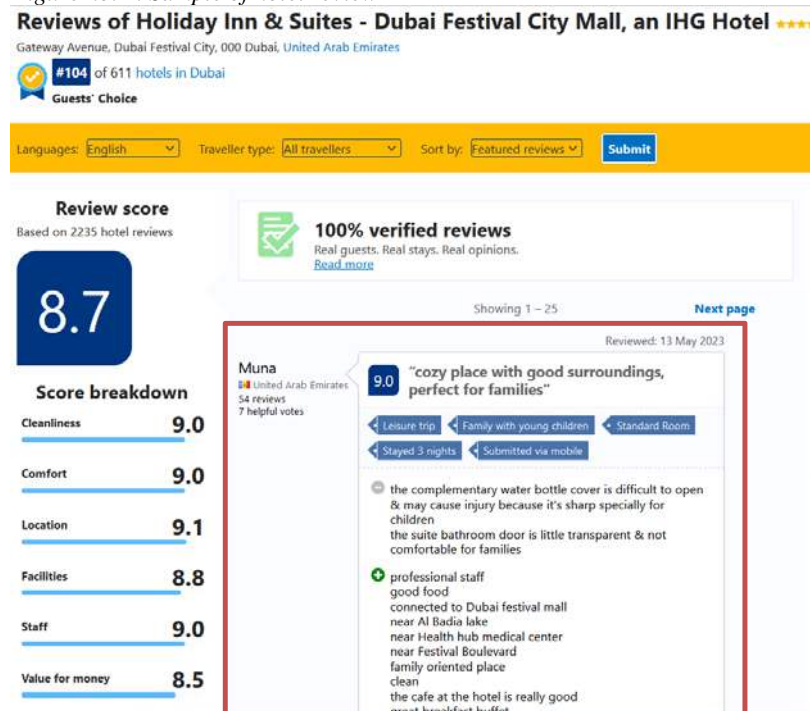
In the domain of sentiment analysis concerning text data, the key performance metrics are typically characterized by the semantic orientation and intensity of each word contained in a given phrase. These metrics include polarity, which ranges between -1 (indicating negative sentiment) and 1 (indicating positive sentiment), and subjectivity, which gauges the degree of personal opinion expressed within a sentence. In certain cases, polarity may also provide insights into neutral commentaries left by users (Montoyo, Martínez-Barco and Balahur, 2012). The TextBlob library provides both polarity and subjectivity indicators, which are particularly useful for simpler cases, such as general user reviews.

To know the general customers' opinion regarding hotel services is a useful goal, but equally important is to identify the issues and concerns that customers may have. Such issues are voluminous in terms of data and requires special NLP techniques such as n-grams analysis of text. Furthermore, to better understand the reviews of customers, a n-grams analysis is performed to identify the issues encounters during their stay. The n-gram analysis is usually performed after the text is cleared from line breaks, punctuation etc. and consists in extracting n consecutive words and counting their frequency. The script is run weekly to extract the sentiment and provide fresh and useful information to the hotel manager.

## 4. Findings

Following the extraction of data from the Booking hotel's website, 748 instances of user reviews were retrieved. 30 pages were investigated, one page may have 24-25 reviews. One sample of such reviews is displayed in Figure 1.

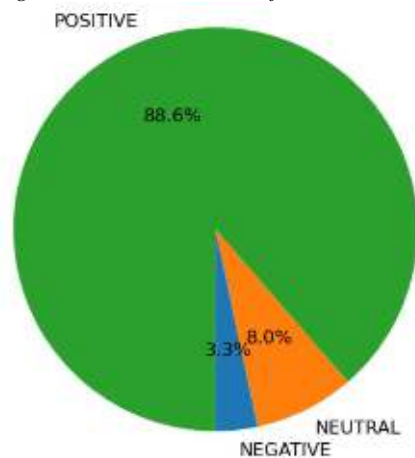
Figure no. 1. Sample of hotel review



Source: Authors' contribution

The distribution of sentiment analysis using BERTweet model revealed that a majority of the reviewers had a positive experience staying at the hotel, as depicted in Figure 2.

Figure no. 2. Distribution of user reviews - BERTweet model

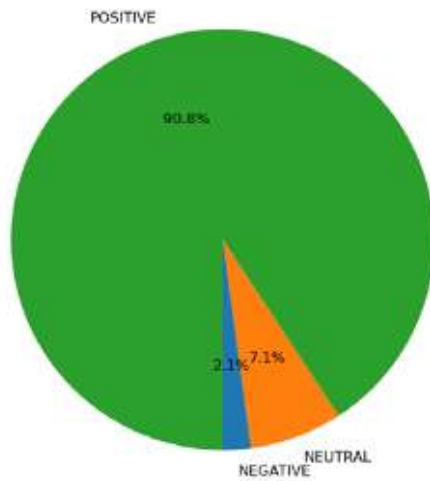


Source: Authors' contribution



On the other hand, the TextBlob approach produced comparable results (as in Figure 3), categorizing a higher number of reviews as positive than the BERTweet model.

Figure no. 3. Distribution of user reviews - TextBlob

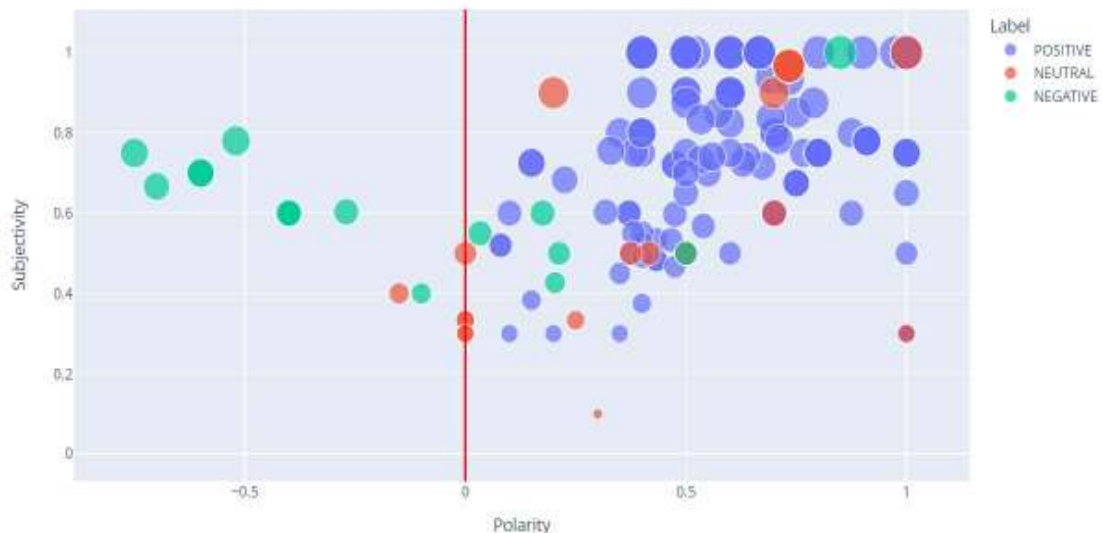


Source: Authors' contribution

The small variations between the TextBlob and BERTweet models originate from the methodology used to determine the polarity of sentences in the TextBlob approach. The polarity is computed as the weighted average sentiment score of all the words in the sentence. It is possible that the presence of certain words, such as "but" and "good", in the sentence can change the overall sentiment of the sentence and may lead to incorrect assumptions about the sentiment of the reviews, due to the way TextBlob calculates polarity as the weighted average sentiment score over all the words in the sentence.

57 instances exhibited differences in sentiment classification results between the TextBlob approach and the BERTweet model. The majority of these instances revealed TextBlob's inclination to classify the reviews as NEUTRAL, while BERTweet correctly assigned them as either POSITIVE or NEGATIVE. In order to illustrate this disparity, a scatter plot was generated and is presented in Figure 4. The BERTweet model's classification was considered to be the true label for each review, and the points were plotted using the Polarity and Subjectivity coordinates of the TextBlob approach.

Figure no. 4. Disparity of points in the Polarity and Subjectivity coordinates



Source: Authors' contribution

The vertical median line in the scatter plot partitions the two side-planes, with the negative reviews mostly falling on the left and the positive reviews on the right. Reviews that are classified as neutral are represented by the points that lie on the median line. The TextBlob approach's method of calculating polarity results in most of the misclassified points being represented as neutral (indicated by red dots) on both sides of the scatter plot.

Using the n-gram analysis, we investigate the content of the review and their frequency in order to identify the complaints that customers may have. For instance, using a 4-gram review analysis, most relevant frequencies are between 2 and 3. In Table 1, a sample of reviews and their frequencies are displayed. Therefore, the manager can see the concrete positive and negative opinions that appeared more than twice. In the first rows of the table, the manager notices some positive aspects – the fact that the hotel is well located from the airport and shopping centres, good quality of breakfast etc. While in the last rows of Table 1, the manager can notice some complaints regarding complementary water bottle and the bathroom door. Furthermore, he/she is able to take measures and correct the issues identified by means of n-gram analysis.

*Table no. 1 Results of n-gram analysis in terms of reviews and their frequency*

<b>4-gram Review</b>	<b>Frequency</b>
LOCATION CONVENIENT FOR SHOPPING	2
CONVENIENT FOR SHOPPING AT	2
FOR SHOPPING AT FESTIVAL	2
SHOPPING AT FESTIVAL CITY	2
AT FESTIVAL CITY MALL	2
FESTIVAL CITY MALL NOT	2
CITY MALL NOT FAR	2
MALL NOT FAR FROM	2
NOT FAR FROM THE	3
FAR FROM THE AIRPORT	3
OVERALL VERY GOOD.STAYED IN	2
VERY GOOD.STAYED IN MAY	2
GOOD.STAYED IN MAY NOTHING...EVERYTHING...STAYED	2
IN MAY NOTHING...EVERYTHING...STAYED IN	2
MAY NOTHING...EVERYTHING...STAYED IN MAY	2
NOTHING...EVERYTHING...STAYED IN MAY GREAT	2
IN MAY GREAT VALUE	2
MAY GREAT VALUE FOR	2
GREAT VALUE FOR MONEY	3
VALUE FOR MONEY VERY	2
FOR MONEY VERY GOOD	2
MONEY VERY GOOD BREAKFASTSTAYED	2
VERY GOOD BREAKFASTSTAYED IN	3
GOOD BREAKFASTSTAYED IN FEBRUARY	3
THE COMPLEMENTARY WATER BOTTLE	2
COMPLEMENTARY WATER BOTTLE COVER	2
WATER BOTTLE COVER IS	2
BOTTLE COVER IS DIFFICULT	2
COVER IS DIFFICULT TO	2
IS DIFFICULT TO OPEN	2
DIFFICULT TO OPEN MAY	2
TO OPEN MAY CAUSE	2
OPEN MAY CAUSE INJURY	2
MAY CAUSE INJURY BECAUSE	2
CAUSE INJURY BECAUSE ITS	2
INJURY BECAUSE ITS SHARP	2
BECAUSE ITS SHARP SPECIALLY	2
ITS SHARP SPECIALLY FOR	2
SHARP SPECIALLY FOR CHILDREN	2
SPECIALLY FOR CHILDREN THE	2



FOR CHILDREN THE SUITE	2
CHILDREN THE SUITE BATHROOM	2
THE SUITE BATHROOM DOOR	2
SUITE BATHROOM DOOR IS	2
BATHROOM DOOR IS LITTLE	2
DOOR IS LITTLE TRANSPARENT	2
IS LITTLE TRANSPARENT NOT	2
LITTLE TRANSPARENT NOT COMFORTABLE	2
TRANSPARENT NOT COMFORTABLE FOR	2

Source: Authors' contribution

Several combinations of 2 to 7 words were extracted, but the 4 consecutive words revealed the customers' opinion.

## 5. Conclusions

In this paper, we analysed the text generated by customers of hotel services. It can be applied to other economic activities. Two NLP analysis were performed. First, we classified and analysed the positive and negative reviews. Two approaches were included: BERTweet and TextBlob. Additionally, we cleared the text from line breaks and punctuation and applied n-gram analysis to investigate the content of the reviews and identify the main complaints.

Most of the reviews traversing 30-page website were around 90% positive. 57 instances exhibited differences in sentiment classification results between the TextBlob approach and the BERTweet model. The points were analysed using the Polarity and Subjectivity coordinates of the TextBlob approach. Moreover, applying 4-gram analysis, we identified short combinations of 4 consecutive words that reflected the customers' opinion providing knowledge to correct the problems.

## 6. Acknowledgement

This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS-UEFISCDI, project number PN-III-P4-PCE-2021-0334, within PNCDI III.

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## Romanian Agricultural Exports– Recent Trends and Performance Issues

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### Abstract

*This study aims to examine the sustainability of the Romanian agri-food economy, focusing on markets, supply chains, and agri-food policies. The research investigates the current state of the agri-food sector, identifies challenges and opportunities, and proposes measures for enhancing sustainability. The study employs a comprehensive methodology, including a literature review to establish the theoretical framework and identify research gaps. Data collection involves the use of official statistics, reports, interviews with industry experts, and other primary and secondary sources.*

*The findings reveal the recent trends and developments in the Romanian agri-food sector, highlighting its potential for growth and competitiveness. The study examines the share of agricultural exports in total exports, the destination markets, and the opportunities for expansion. It also addresses the challenges faced by the sector, such as infrastructure limitations, quality and safety standards, and the need for skills development and innovation.*

**Key words:** agri-food economy, markets, supply chains, agri-food policies

**J.E.L. classification:** Q13

### 1. Introduction

Agricultural exports represent an important pillar of the Romanian economy, playing a significant role in the development of the agricultural sector and the overall national economy. This study proposes a detailed analysis of trends, performance, and opportunities associated with Romanian agricultural exports, based on relevant statistical data and graphs. The aim is to provide a deeper understanding of the evolution of agricultural exports and to identify key directions for strengthening competitiveness and promoting sustainable development of the Romanian agricultural sector (Calin, A. & Georgescu, G., 2019).

The agricultural sector constitutes a crucial pillar of the Romanian economy, and agricultural exports play a significant role in its development and growth. In the context of globalization and the opening of international markets, agricultural exports present a major opportunity for Romanian producers to expand their businesses and contribute to the country's economic growth. The purpose of this paper is to conduct an in-depth study on Romanian agricultural exports, with a focus on identifying performances, trends, and challenges encountered in this field (Constantinescu, C. & Ilie, L., 2018).

Within this research, we will analyze the evolution of Romanian agricultural exports in recent years, highlighting the main agricultural products exported and the most important destination markets. Additionally, we will explore factors influencing agricultural exports, such as national and international agricultural policies, market conditions, logistical infrastructure, and production capacities. Furthermore, we will examine the advantages and challenges faced by Romanian

agricultural exporters and identify opportunities for the development and improvement of Romanian agricultural export performance.

Through this study, we make a relevant contribution to the understanding and promotion of Romanian agricultural exports, supporting the sustainable development of the agricultural sector and the strengthening of Romania's position in the international market.(Ministry of Agriculture and Rural Development, 2022).

## **2. Theoretical background**

The market refers to the interaction between buyers and sellers, where goods, services, and resources are exchanged. The Romanian market is characterized by a diverse range of sectors and industries, including agriculture, manufacturing, services, and retail. The market dynamics are influenced by factors such as consumer demand, competition, government regulations, and economic conditions. The Romanian market offers opportunities for both domestic and foreign businesses to engage in trade, investment and entrepreneurship (Bădin, L. & Popescu 2020).

Imports involves the purchase and acquisition of goods or services from foreign sources for domestic consumption or distribution. It enables the country to meet domestic demand for products that are not produced locally or are available at a more competitive price from international markets. Imports in Romania cover a wide range of sectors, including machinery, equipment, energy, raw materials, and consumer goods. Import activities contribute to diversifying the availability of products, meeting consumer needs, and supporting economic growth (Grigorescu, I. & Rîșnoveanu, M., 2019). Exports refers to the process of selling goods or services produced within the country to buyers located in other countries. It plays a significant role in the country's economy, contributing to job creation, foreign exchange earnings, and the overall growth of industries. Export-oriented sectors in Romania include agriculture, manufacturing, automotive, IT, and textiles. Export activities are vital for enhancing the competitiveness of Romanian businesses in the global market and promoting economic development (Ionescu, L. & Manole, V., 2020).

## **3. Research methodology**

To conduct this study on Romanian agricultural exports, we employed a mixed-method approach, combining both qualitative and quantitative methods. The aim was to obtain a comprehensive perspective on the evolution and factors influencing agricultural exports.

To gather relevant and up-to-date data, we utilized multiple sources of information. We analyzed reports and official statistics provided by governmental institutions such as the Ministry of Agriculture and Rural Development and the National Institute of Statistics. Additionally, we consulted previous studies and research on Romanian agricultural exports to benefit from existing expertise and analyses.

To assess the evolution of agricultural exports and identify trends and patterns, we employed statistical methods. We calculated indicators such as export volume, value, and destination market structure. We also conducted time-series analyses to identify fluctuations and changes over time.

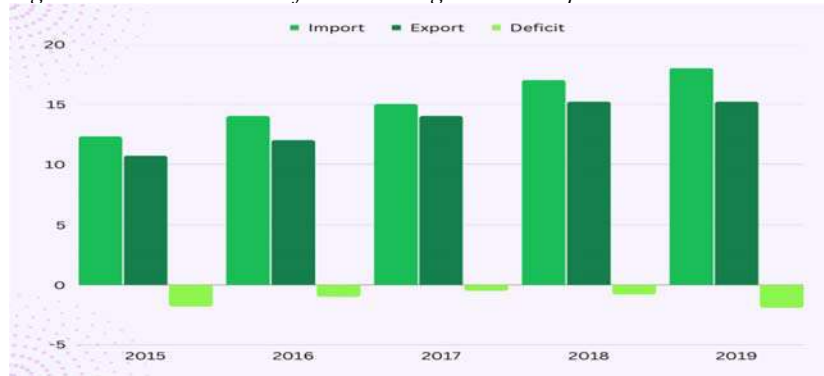
To analyze the qualitative data obtained from interviews and discussions, we applied a thematic analysis approach. We identified common themes and patterns in participants' responses and interpreted their significance in the context of our study. This qualitative analysis helped me gain a more detailed understanding of the perspectives and experiences of the factors involved in agricultural exports.

## **4. Findings**

### **4.1. Recent Trends in Romanian Agricultural Exports**

In recent years, Romanian agricultural exports have experienced significant growth, reflecting the diversity and quality of domestic agricultural products. Statistical data indicates a consistent increase in the value of agricultural exports during the analyzed period.

Figure no. 1 The evolution of Romanian agricultural exports value



Source: <https://insse.ro/cms/ro>

The recent trends in Romanian agricultural exports have presented several significant aspects:

- Consistent growth in export volume: Romanian agricultural exports have recorded significant growth in recent years, both in terms of volume and value. This indicates a continuous development of the agricultural sector and an improvement in its ability to meet the requirements of foreign markets.
- Diversification of the product range: Alongside the increase in export volume, Romania has managed to diversify its range of agricultural products exported. In addition to traditional products such as cereals, pork, and dairy, the country has started to export more vegetables and fruits, processed products, and other high-quality food items.
- Focus on international markets: Romanian agricultural exports have primarily focused on international markets. Particularly, countries within the European Union (EU) represent one of the main destinations for Romanian agricultural products, including Germany, Italy, France, and countries in Central and Eastern Europe. Additionally, there has been significant growth in exports to markets outside the EU, such as those in the Middle East and Asia.
- Adoption of international standards: In order to meet the requirements of international markets, Romania has made significant efforts to comply with international standards and regulations regarding the quality, food safety, and sustainability of agricultural products. This has contributed to the country's position in the global market and the development of strong trade partnerships.
- Promotion of the Romanian agricultural brand image: Romanian agricultural exports have also benefited from the promotion of the brand image of Romanian agricultural products, through protected geographical indications and traditional products. These measures have increased the interest of international consumers and capitalized on the country's potential in terms of quality and authenticity of agricultural products.
- Investments in logistical infrastructure: To facilitate agricultural exports, Romania has invested in the development of logistical infrastructure, including the modernization of ports, construction and upgrading of roads and railways, and improvement of the transportation system. These investments have facilitated efficient and rapid transportation of agricultural products to foreign markets.

These recent trends in Romanian agricultural exports reflect the efforts in the development and promotion of the agricultural sector in Romania, highlighting the country's potential in this field and contributing to economic growth and sectoral sustainability (Smith & Johnson, 2022).

#### 4.2. Performance of Romanian Agricultural Exports

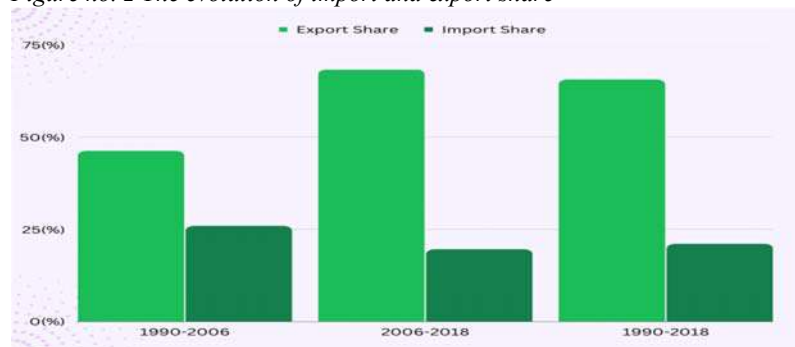
The share of agricultural exports in Romania's total exports can vary from year to year depending on the performance of the economy and other export sectors. Generally, agricultural exports represent a significant portion of Romania's total exports, making an important contribution to the trade balance and the national economy.

Although concrete data for the current year cannot be provided, in recent years, agricultural exports have accounted for an average of approximately 10-15% of Romania's total exports. This demonstrates the importance of the agricultural sector in contributing to the national economy and the country's competitiveness in the global market. It is worth noting that the share of agricultural exports may vary depending on the performance of other export sectors, such as industry, services, or the IT sector. For example, in years when non-agricultural sectors experience strong growth, the share of agricultural exports may decrease compared to the total exports.

While agricultural exports represent an important component of the Romanian economy, a detailed and up-to-date analysis of specific data and trends is necessary to obtain a more accurate picture of the share of agricultural exports in Romania's total exports at present.

To assess the performance of Romanian agricultural exports, it is important to analyze their share in the country's total exports (Eurostat 2022).

Figure no. 2 The evolution of import and export share



Source: <https://insse.ro/cms/ro>

We can observe that agricultural exports have experienced significant growth in relation to total exports, reflecting the increased importance of the agricultural sector in the economy.

Romanian agricultural exports have diversified their destination markets in recent years, strengthening their presence in the global market. Regarding destination markets, Romania has developed strong trade relations both with European Union (EU) countries and other regions worldwide. Based on this study, the main destination markets of Romanian agricultural exports are:

- **European Union (EU):** As an EU member, Romania benefits from free access to the European single market and enjoys strong trade with member states. Among the main destination markets for Romanian agricultural exports within the EU are Germany, Italy, France, the Netherlands, and Poland. These countries have a high demand for agricultural products such as cereals, pork, dairy, and vegetables.
- **Central and Eastern Europe:** Romania has established strong trade partnerships with other countries in the Central and Eastern Europe region, such as Hungary, the Czech Republic, Slovakia, and Bulgaria. These countries represent important markets for Romanian agricultural exports and provide opportunities for expanding trade in the region.
- **Middle East and Asia:** Romanian agricultural exports have gained popularity in the markets of the Middle East and Asia. Countries such as the United Arab Emirates, Saudi Arabia, Israel, China, and Turkey have become significant markets for Romanian agricultural products, including cereals, meat, vegetables, and fruits. The increased demand for quality food products and the diversity of agricultural offerings from Romania have contributed to the development of trade with these regions.
- **Other destination markets:** In addition to the EU and the aforementioned regions, Romanian agricultural exports have reached other destination markets such as the United States, Canada, Russia, and North Africa. In recent years, efforts have been made to develop trade with these countries and regions, capitalizing on market opportunities and identifying specific demand segments.

These are just a few examples of destination markets for Romanian agricultural exports. In the context of globalization and increasing interest in quality food products, Romania continues to explore and expand access to new export markets, diversifying the product portfolio, and adapting to the specific requirements of each market. It is essential to analyze the main destination markets for Romanian agricultural exports.

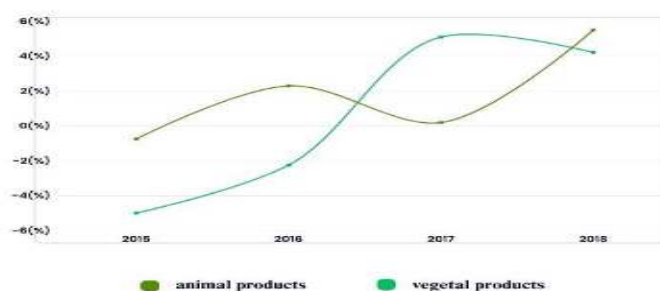
We observe that the European Union remains Romania's most important trading partner in terms of agricultural exports. However, in recent years, there has been a significant increase in agricultural exports to markets outside the European Union, indicating a diversification of export destinations (Jones & Brown, 2021).

### 4.3. Opportunities and challenges

Romanian agricultural exports present numerous opportunities for future growth and development. Based on this study, the relevant aspects in this regard are:

- **Expansion of existing markets:** One of the major opportunities lies in consolidating and expanding the presence in already existing destination markets. Improving the quality of agricultural products, diversifying the product range, and promoting the brand image of Romanian products can attract new customers and increase the volume of exports to these markets.
- **Access to new markets:** There is significant potential to access new export markets for Romanian agricultural products. In recent years, progress has been made in exporting agricultural products to markets in Asia, Africa, and North America. Identifying specific demand and adapting products to these markets can open up new opportunities for growth.
- **Organic farming and bio products:** Growth opportunities are evident in the organic farming sector and bio products. Romania's rich natural resources and conducive environment for sustainable agriculture provide a competitive advantage in this field. Developing and certifying more organic farms and products can attract consumers from international markets seeking healthy and sustainable food products.
- **Processing and value-added:** Increasing the capacity for processing agricultural products and developing value-added products can bring additional growth opportunities. For example, processing fruits and vegetables into juices, preserves, or frozen products can provide access to markets with high demand for such processed goods.
- **Technology and innovation:** The use of technology and innovation in agriculture can enhance the efficiency and competitiveness of the Romanian agricultural sector. Implementing advanced technological solutions such as precision agriculture, crop monitoring, and the use of artificial intelligence can improve product quality and productivity, opening up new opportunities in the global market.
- **Promotion and branding:** Investments in promoting and branding Romanian agricultural products can contribute to increasing their visibility and demand in foreign markets. Building a strong and authentic image for Romanian products can attract consumer attention and enhance confidence in their quality.

Figure no. 3 Annual variation of agricultural production prices



Source: <https://insse.ro/cms/ro>

Based on the analysis, we observe that agricultural product prices have shown an upward trend during the analyzed period, which offers opportunities for Romanian agricultural exports.

Despite the growth opportunities, Romanian agricultural exports also face some challenges. To overcome these challenges and fully exploit the potential of the agricultural sector, the following measures are necessary:

- **Infrastructure modernization:** Investments in transportation and logistics infrastructure are essential to ensure efficient and fast distribution of agricultural products to destination markets. Modernizing and developing road networks, ports, airports, and storage facilities are priorities to reduce transportation costs and improve access to international markets.
- **Improving quality and food safety:** Special attention must be given to the quality and safety of agricultural products. Implementing international standards and complying with sanitary and phytosanitary regulations are crucial to gain consumer trust and open doors to demanding markets. Investments in laboratory infrastructure and certification institutions can contribute to ensuring the quality and safety of food.
- **Skills development and innovation:** Promoting skills development in the agricultural sector and adopting innovation are essential to enhance competitiveness. Training and education programs in agriculture, advanced agricultural technologies, and sustainable practices need to be supported and encouraged. Additionally, supporting research and development in agriculture can bring innovative solutions and improvements in terms of productivity and the quality of agricultural products.
- **Promotion and product diversification:** An effective strategy for promotion and marketing is necessary to increase visibility and demand for Romanian agricultural products. Identifying and leveraging the competitive advantages of Romanian products, such as authentic taste, traditional production methods, and superior quality, can contribute to building a strong presence in foreign markets. Additionally, diversifying the range of agricultural products and adapting to the specific requirements of different markets can open up new export opportunities.
- **Support for access to financing:** Access to financing is crucial for the development of the agricultural sector and the expansion of exports. Providing financial support and credit facilities for farmers and agricultural enterprises can stimulate investments in infrastructure, technology, innovation, and promotion, thereby supporting the growth of the agricultural sector and exports.
- These measures, along with effective governance, collaboration between the public and private sectors, and a long-term development strategy, can contribute to overcoming challenges and achieving sustainable growth in Romanian agricultural exports.
- The study also identifies challenges facing Romanian agricultural exports, such as deficient and uneven transportation infrastructure, limited access to innovative technologies, and high requirements of foreign markets.

Figure no. 4 The investment expenses in Romania



Source: <https://insse.ro/cms/ro>



To overcome these challenges and capitalize on existing opportunities, strategic measures are necessary, such as improving logistics infrastructure, promoting innovation and technology in agriculture, and developing international partnerships (Smith, 2018).

## 5. Conclusions and discussion

By employing this mixed-method methodology, we obtained a comprehensive understanding of Romanian agricultural exports and the factors influencing their performance. This approach allowed me to integrate both quantitative and qualitative aspects to provide a holistic perspective on the subject.

Based on this study on Romanian agricultural exports, we identified the following:

- Evolution of agricultural exports: Romanian agricultural exports have experienced significant growth in recent years. The volume of exports has consistently increased, and their value has shown an upward trend. This reflects the efforts made by the agricultural sector to strengthen its presence in foreign markets.
- Major exported products: Cereals, especially wheat and corn, represent a significant portion of Romanian agricultural exports. Other important products include vegetables and fruits, pork meat, dairy products, and processed food. This indicates the diversity and rich potential of the Romanian agricultural sector.
- Destination markets: Romanian agricultural exports have been directed to a wide range of international markets. Among the important destination markets are European Union countries such as Germany, Italy, and France, as well as non-EU markets like those in the Middle East and Asia. There is also a significant increase in exports to Eastern European and Balkan countries.
- Key success factors: Romanian agricultural exports have benefited from several key success factors. Improving the quality of agricultural products, compliance with international standards, investment in logistics infrastructure, and the development of strong trade partnerships have played essential roles in enhancing export performance.
- Challenges and obstacles: However, there are challenges facing Romanian agricultural exports. These include global competitiveness, fluctuations in international markets, trade requirements and regulations, logistical infrastructure, and innovation in the agricultural sector. Addressing these challenges can contribute to the consolidation and diversification of agricultural exports.
- Development opportunities: Romanian agricultural exports present a range of opportunities for development and growth. Technological improvement, promoting the brand image of Romanian agricultural products, diversifying the product range, and exploring new emerging markets can enhance export performance and bring benefits to the agricultural sector.
- By highlighting these findings, our study offers a detailed perspective on the evolution, success factors, and challenges regarding Romanian agricultural exports.

In conclusion, the study on Romanian agricultural exports reveals the positive evolution of this key sector of the national economy.

Agricultural exports have experienced significant growth in recent years, contributing to the sustainable development of the agricultural sector and enhancing Romania's competitiveness in the international market. To continue on this upward trend, it is crucial to invest in infrastructure, innovation, and sustainable development.

- Improving logistics infrastructure to facilitate the transportation and distribution of agricultural products to international markets.
- Promoting innovation and technology in agriculture to enhance the efficiency and quality of agricultural products.
- Diversifying export markets and developing international partnerships to reduce dependence on specific markets and capitalize on new opportunities.
- Supporting organic production and sustainable supply chains to meet the increasing demand for sustainable agricultural products.
- Implementing these measures will contribute to strengthening competitiveness and promoting sustainable and balanced development of the Romanian agricultural economy.

In conclusion, the study of Romanian agricultural exports highlights the positive trajectory of this sector, driven by growth, diversification, and competitive positioning. To sustain and further enhance this performance, it is essential to focus on infrastructure, innovation, market diversification, and sustainability. By addressing the identified challenges and seizing the available opportunities, Romania can continue to strengthen its position in the global agricultural market, contributing to the long-term growth and development of the agricultural sector.

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# **Section IV**

## **Marketing – Management**

## Consumer Perception Research on Online Influencer Marketing: A Review of Key Findings and Implication

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### Abstract

*Online influencer marketing has emerged as a popular strategy for brands to engage with consumers and promote their products or services. Understanding consumer perceptions of influencer-driven content is crucial for marketers to effectively leverage this marketing approach. This article provides a comprehensive analysis of consumer perception research on online influencer marketing, exploring key dimensions that influence consumers' attitudes, behaviors, and purchase decisions.*

*The research delves into the critical factor of trust and credibility, investigating how authenticity, expertise, relatability, and transparency contribute to consumers' trust in influencers. It also explores the concept of source credibility and its persuasive effect on consumers. Factors such as source expertise, likability, and perceived similarity are analyzed in relation to influencer persuasion. The study further explores the influence of different social media platforms on consumer perceptions of influencers and influencer marketing, as well as the distinctions between various influencer types, such as macro-influencers, micro-influencers, and nano-influencers.*

**Key words:** digital marketing, influencers, consumers, Social Media, online

**J.E.L. classification:** M31

### 1. Introduction

This article presents the main findings from a quantitative research on consumers' perception about online marketing by dint of influencers through exploring the persuasive effect of influencers on consumers' attitudes, beliefs, and purchase intentions. By understanding the mechanisms through which influencers influence consumer behavior, marketers can optimize their influencer selection, content strategies, and collaboration approaches to maximize the impact of influencer marketing campaigns. This introduction sets the stage for an in-depth exploration of consumer perception research on online influencer marketing, highlighting the significance of understanding consumer attitudes, behaviors, and decision-making processes in this context from the main quantitative research. By gaining insights into consumer perceptions, marketers can refine their influencer marketing strategies to effectively engage with their target audience and build long-lasting brand relationships in the digital age (Bochenek, 2019).

### 2. Literature review

Online marketing is a changing subject, evolving so rapidly that with each passing day someone comes up with a new idea of using existing technology, a new idea of new technology, or simply implements and tests something new. Orzan and Orzan 2004, says that: "No matter the environment in which it is practiced or the type of activity performed, marketing remains marketing. However, the

unprecedented influence of cutting-edge IT&C technologies on the marketing phenomenon must be acknowledged. Marketing is different on the Internet: it is constantly changing, fast, uses new tools and addresses an ever-increasing number of users".

Motivation represents an inner state that internally mobilizes individuals to act accordingly for the fulfillment of a certain goal (Cătoi and Teodorescu, 2004). When we think about motivation, we also think about what motivation affects. Marketing represents a modern concept that has its foundation in the premise that any type of activity, be it of an economic nature, must have as its finality the satisfaction of the current and prospective needs of consumers, not anyway but with maximum efficiency (Balaure et al, 2002).

In the rapidly evolving digital landscape, online influencer marketing has emerged as a powerful strategy for brands to connect with their target audience (Kotler and Armstrong, 2011). With the rise of social media platforms and the increasing influence of individuals known as influencers, consumer perceptions and responses to influencer-driven content have become a topic of great interest and importance. Understanding how consumers perceive and engage with influencer marketing is crucial for marketers aiming to build effective and successful campaigns in this domain. Consumer perception research on online influencer marketing focuses on investigating the attitudes, beliefs, and behaviors of consumers in relation to influencer content. It aims to uncover the factors that shape consumer perceptions, trust, and credibility towards influencers, as well as the impact of such perceptions on consumer decision-making processes. By studying these dynamics, marketers can gain valuable insights into how to strategically leverage influencer marketing to enhance brand awareness, engagement, and ultimately, drive consumer actions (Bochenek, 2019).

### **3. Research methodology**

The research carried out was a quantitative based on a survey with 200 complete answers. The studied population, which here forms the basis of the sample, is made up of all the simple units made up of individuals from Romania, men and women from urban and rural areas. The observation unit in the sample is one and the same here as the survey unit, consisting of individuals with Internet access, who have encountered online advertising at least once, and who are aware of online marketing through influencers. The method with which we determined the sample is a non-random, therefore implicitly non-probabilistic method. The probability that a survey unit is included in the sample is not known. I chose the "snowball" method because the typology and size of the population is unknown and small. So this method also involves choosing a small number of units from the population. The individuals who were subjected to the investigation are initially people who present the characteristics that I mentioned above, following that later, I would ask those people to forward the questionnaire to other people who consider that they could be characterized in turn by the same characteristics.

### **4. Findings**

Marketing through influencers represents a new type of promotion in the online environment increasingly preferred by brands (Woodroof et al, 2020). Companies choose to invest more and more in collaborations with influencers, being a faster way to reach a relevant audience, with very high chances to convert (Lindstrom, 2010).

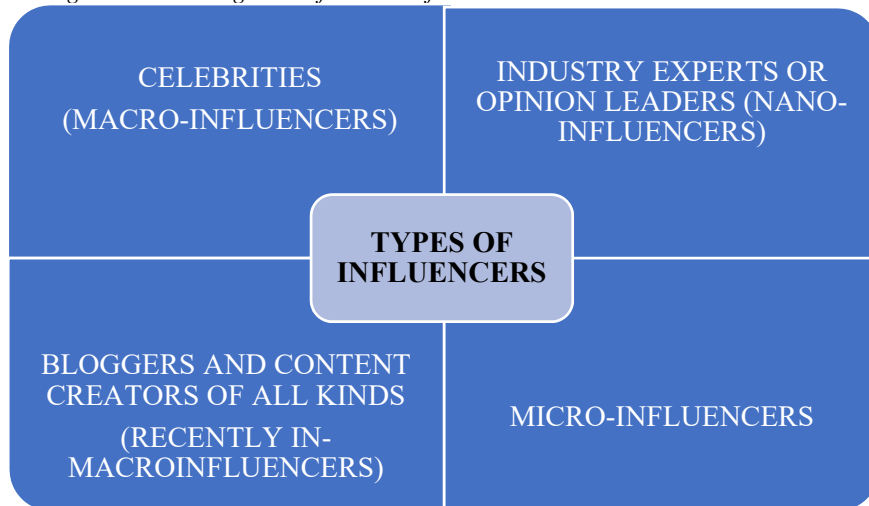
Influencers are those people known in Social Media for their opinions and recommendations, with a significant impact on the online community through the content they create and post (Freberg et al, 2010).

Consumers perceive online influencers as experts in their field. Recognizing the expertise of influencers leads to a phenomenon called "reason disconnection" on the part of consumers, where they stop thinking independently, the brain areas responsible for making decisions being disconnected when the advice or recommendations received come from "experts" (Lindstrom, 2009).

Depending on the number of followers, influencers can be classified into 3 categories: nano-influencers, micro-influencers and macro influencers (Whatmough, 2018).

Nano-influencers are people who have between 1,000 and 10,000 followers, a high engagement rate. The costs with these influencers are low, but the disadvantage is the reach, which is quite low. Micro-influencers are those who have between 10,000 and 100,000 followers. They are influencers with a large reach who can bring you very good exposure. Macro-influencers are those who have over 100,000 followers. Celebrities, very well-known people, usually belong to this category. They can guarantee you the most exposure, but the downside is that only a small fraction of their followers actually interact with that account. Also, their costs are high and it is very likely that such collaborations will not pay off (Bochenek, 2019).

Figure no. 1 Categories of online influencers



Source: livecom.ro, 2019

From more thorough research, it can be seen that the trend of social media in Romania is to become more segmented, the use of the Instagram application is increasing, which is developing more and more every day, and of course the consumption of video content is increasing. The most important aspect and trend followed by online marketing through influencers seems to be video content. At a strategic level, Romanians consume more and more video content and of course, a good part of it from mobile phones. Reuters(2022) predicts that video will grow 14 times in the next 5 years, and 70% will be consumed from mobile devices. Even in 2016-2020, video has proven to be one of the most effective marketing strategies, especially for branding and engagement. At a tactical level, probably the main challenge that stands between entrepreneurs or marketing specialists and the use of this trend is the difficulty of creating video content (livecom.ro, 2019).

From the results of my own research from my work of dissertation (Apostol, 2020), the most important things discovered are the following:

- To identify the devices most used to connect to the Internet by the respondents, a question with multiple answers was introduced. Following the analysis of the respondents answers, it was found that the most frequently used devices are the smartphone and the laptop with percentages of 55% and 35% of the respondents.
- Another important aspect that was the basis of the research is represented by the identification of the opinion of the respondents in relation to the frequency with which they are exposed to advertising through influencers in the online environment. Following the analysis of the answers of the participants in the study, it was found that only one third of the respondents believe that the current level of exposure is acceptable, while the vast majority of respondents, with a weight of over 65%, believe that the exposure to this type of advertising is one far too frequent. At the opposite pole, only 4% of respondents believe that it is too rare in the online environment.

- Another objective of the study was to identify the impact that advertising through influencers has on the respondents, thus following the analysis it was found that the majority of respondents, with a percentage of 41%, go to the website of the product or service to find out more details, this being the most impactful action within them. The top is completed by the absence of a reaction, by ignoring, in percentage of 18% of the respondents, because 15% of the study participants say that the resulting impact was the purchase of the product/service promoted by the influencer. At the opposite pole, the least common action following interaction with advertising through influencers is the awareness of the fact that a product / service is better than what was initially known about it.

- The frequency with which respondents view influencers' posts on different social networks was another factor studied in the paper. Thus, following the statistical analysis, it was found that Instagram is the place where most of the respondents had contact with influencers' posts, approximately 4 out of 10 participants in the study declaring a daily frequency, while on the Facebook social media platform only 21% of respondents declare this frequency of interaction.

- Another important objective of the paper to study the impact that advertising through influencers has on the purchase decision was to identify the products/services that the respondents would purchase based on the recommendation of an influencer.

- As can be seen from the figure above, personal care and cosmetic products/services have the highest chance of conversion from recommendation to purchase, being chosen by 2 out of 10 respondents. They are followed by clothing items and tourism services with percentages of 16 and 13%, respectively. At the opposite pole, the products with the lowest probability of being purchased following the recommendation of influencers are food products (10%), household appliances (10%) and health services, which with a percentage of only 5% are the least likely to acquisition.

- Another objective of the work was to identify the extent to which the gender of the respondent is correlated with the decision to purchase products and services based on the recommendation of influencers. Therefore, following the statistical analysis, it was found that there is no statistically significant link between the gender of the respondent and the predisposition to purchase products and services based on the recommendation of influencers, the P-value result of the Chi-Square test being 0.176, which is above the maximum accepted limit of 0.05.

- The link between the environment in which the respondents live (rural or urban) and the decision to purchase products and services based on the recommendation of influencers was also studied. Following this analysis, it was found that there is no statistically significant link between the 2 variables, the P-value result of the Chi-Square test being 0.859, which is above the maximum accepted limit of 0.05.

- Another objective of the paper was to identify the extent to which there is a link between the level of education of the respondents and the credibility they attribute to advertising through influencers. Following the statistical analysis by means of the Spearman correlation test, it was found that there is no statistically significant link between the 2 variables.

- The subject of the study was also the extent to which there is a correlation between the age of the respondents and the extent to which they agree with the statement that advertising through influencers convinces them to buy the respective good or service. Thus, following the statistical analysis by means of the Spearman correlation test, it was found that there is no statistically significant link between the 2 variables, resulting in a P-value of 0.155, which is above the maximum allowed limit of 0.05.

## 5. Conclusions

Consumer perception and behavior research on online influencer marketing provides valuable insights into how consumers perceive and respond to influencer-driven content (Bray, 1995). Through an analysis of existing studies and findings from nowadays I see that my findings from 2022 are still valid and even much more used and meaningful now that content creation has become a regular job. Influencer marketing has a significant impact on consumer purchase decisions. Consumers are

influenced by endorsements, product placements, sponsored content, and affiliate links shared by influencers. Marketers can leverage this influence by strategically aligning their products or services with relevant influencers who resonate with their target audience.

For future research I have in mind to analyze the if the source credibility is a persuasive factor in influencer marketing.

Different social media platforms and influencer types influence consumer perceptions. Each social media platform has its own characteristics, and consumers may perceive influencers differently across these platforms. Moreover, different types of influencers, such as macro-influencers, micro-influencers, and nano-influencers, may have varying impacts on consumer perceptions. Marketers should consider platform-specific strategies and select influencers based on their relevance and reach within the target audience.

For future research in this direction I have in mind to look deeply into the differences in terms of content, credibility and conversion rate between Instagram and Tiktok. I am saying this because if Tik Tok in my research was not so popular, back in 2020, now in 2023 based on my research in secondary data, it is the most used and known.

As a general conclusion, I am sure we can agree that influencers who promote products and brands have become part of the everyday life of consumers. Influencers promote various products such as clothing, shoes, cosmetics, but also services. Using influencer marketing can bring many advantages to a brand, but most importantly, a positive impact on the sales of its products. However, consumers should not only be positively influenced, and companies that choose to use this strategy should also be aware of the risks involved in this approach, considering that the respondents of this questionnaire did not put in first place as the main reason for purchase, the influencer who promotes the characteristics of the product/service.

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## Employees' Commitment to Sustainable Development Goals Approach

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### Abstract

*Sustainable development is a goal that every citizen, every organization, and every government must consider. Therefore, an SDG12: Responsible Consumption and Production analysis must be carried out at the individual and organizational levels. The main objective of our article is to evaluate how employees perceive the contribution of the organization in which they work to the fulfillment of goal 12. The research methodology is quantitative, based on the questionnaire, and we used SEM-PLS to highlight the relationship between the variables. The research results demonstrated that employees' affective commitment is influenced, on the one hand, by the organization's green behavior, and on the other hand, by their green behavior.*

**Key words:** employees' affective commitment, sustainable development goals, SDG12: responsible consumption and production, organization green behavior

**J.E.L. classification:** M12, M14, Q01

### 1. Introduction

Sustainable development has become an essential concern of all governments and organizations; in this sense, the United Nations developed the 2015 17 Sustainable Development Goals to hold governments and large corporations accountable for a pragmatic approach to climate and environmental issues.

One of the 17 Sustainable Development Goals (SDGs) is Goal 12: Responsible consumption and production, which refers to the need to use resources efficiently to increase energy efficiency to create a sustainable infrastructure that contributes to the creation of green jobs aimed at ensuring a better quality of life for all the inhabitants of the planet.

Tremblay et al. (2020), as a result of the literature review, divided the 17 SDGs into five pillars of sustainable development. The five pillars of sustainable development are the following: People (1. No poverty, 2. Zero hunger, 3. Good health and well-being, 4. Quality education, 5. Gender equality, 6. Clean water and sanitation, 10. Reducing inequalities), Planet (6. Clean water and sanitation, 7. Affordable and clean energy, 8. Decent work and economic growth, 12. Responsible consumption and production, 13. Climate action, 14. Life below water, 15. Life on land), Prosperity (7. Affordable and clean energy, 8. Decent work and economic growth, 9. Industry, innovation and infrastructure, 10. Reducing inequalities, 11. Sustainable cities and communities), Peace (16. Peace, justice, and strong institutions) and Partnership (17. Partnerships for the goals).

People and the planet are allocated the most SDGs (seven per pillar), but peace and partnership are assigned only one pillar each. Therefore, we believe that in the context of the negative events of recent years (the COVID-19 pandemic crisis, the refugees' crisis, and the Russian-Ukrainian war), it would be advisable to add other SDGs that become viable as soon as possible so that they actively contribute to the establishment of peace on the entire planet and to encourage partnership between all stakeholders of the earth (Sachs et al., 2022).

Regardless of the pillar in which each SDG falls, people's emotional commitment is decisive in achieving the proposed targets and for the planet's sustainable development.

Therefore, we considered that SDG 12, under the umbrella of responsible consumption and production, brings together the three elements of our research: employees' affective commitment related to the organization's green behavior (EAC), employees' green attitude (EGA), and organization green behavior (OGB).

## 2. Literature review and hypotheses development

Cohen (2007) observed a direct relationship between organizational and employee commitment. Therefore, organizations must promote socialization strategies to increase employees' commitment and encourage responsible production and consumption. Thus, according to Rhoades et al. (2001), a high level of employee commitment will lead to active engagement in the organization's activities, especially those aimed at sustainable development.

Jyoti (2019) believes that any organization's role is to ensure its employees' well-being. Well-being is a result of green practices that actively contribute to improving organizational performance.

Therefore, employees' green attitude (EGA) is a result of their affective commitment related to the organization's green behavior (EAC), and it is promoted by a responsible organization's green behavior (OGB).

Burlea-Schiopoiu and Balan (2018) established a relationship between irresponsible organizational behavior and individuals' low commitment to promote and develop organizations.

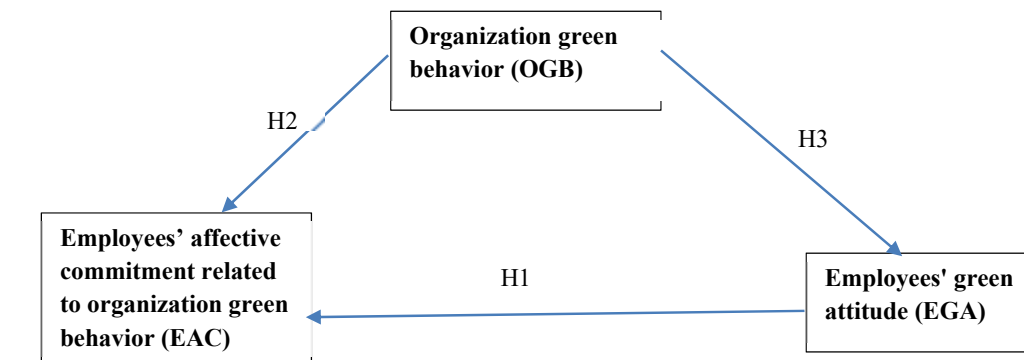
As a result of the analysis of the literature, we elaborated the following hypotheses presented in Figure 1 as a theoretical model:

H1: Employees' green attitude (EGA) directly and positively influences employees' affective commitment related to the organization's green behavior (EAC).

H2: Organization green behavior (OGB) directly and positively influences employees' affective commitment to organization green behavior (EAC).

H3: Organization green behavior (OGB) directly and positively influences employees' green attitude (EGA).

Figure no. 1 Theoretical model



Source: Authors' contribution

## 3. Research methodology

The questionnaire consisted of three variables as follows: The green organization behavior – adapted from Fawehinmi et al. (2022), Employees' affective commitment related to green organization behavior adapted from Meyer and Allen (1990), and Employees' green attitude – adapted from Fawehinmi et al. (2022). The 11 multiple-choice items, including two demographic ones (gender and age), were measured on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Table 1 presents the construct's variables and items.

Table no. 1 Construct and items of the model

Constructs	Items	Code	Source
<b>Employees' affective commitment related to organization green behavior (EAC)</b>	Considering its green behavior, would you be happy to spend the rest of your career in this organization?	EAC1	Allen and Meyer (1990)
	Do you enjoy sharing knowledge about responsible consumption and production with your colleagues?	EAC2	
	Do you feel emotionally attached and have a strong sense of belonging to the green organization?	EAC3	
<b>Employees' green attitude (EGA)</b>	I am in favor of behaving pro-environmentally in my organization.	EGA1:	Fawehinmi et al. (2022)
	I think it is a good idea for my organization to support responsible consumption and production behavior in the workplace	EGA2	
	Responsible consumption and production behavior in my organization is essential to me	EGA3	
<b>Organization green behavior (OGB)</b>	In my organization, all employees ensure that air-conditioning is switched off when not in the office.	OCB1	Fawehinmi et al. (2022)
	My organization requires that all print and photocopy be realized double-sided.	OCB2	
	My organization established a rule that all computers/notebooks to be switched off when employees leave their office for a considerable period.	OCB3	
	My organization continuously verifies that all the lights are switched off when employees leave their office for a considerable period and when there is no one else.	OCB4	
	<i>In my organization, all resources are recyclable carefully (i.e., plastic, glass)</i>	<i>OCB5</i>	

Source: Authors' contribution

The sample consists of 236 respondents (36.4% were between 22 and 30 years of age, 18.7% were between 31 and 40 years of age, 29,6% were between 41 and 50 years of age, and 15.3% were between 51 and 57 years of age). The gender composition was (54.2% female, 45.8% male).

#### 4. Results and Discussion

The descriptive statistics, outer loadings, and Variance Inflation Factor (VIF) are presented in Table 2.

Table no. 2 The Descriptive statistics, outer loadings and Variance Inflation Factor (VIF) of the items of the three variables

	<b>Cronbach Alpha</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Outer Loadings</b>	<b>VIF</b>
<b>EAC</b>	0.830				
EAC1		3.78	.641	0.871	1.916
EAC2		3.80	.698	0.845	1.768
EAC3		3.77	.670	0.875	2.150
<b>EGA</b>	0.764				
EGA1		4.10	.638	0.799	1.150
EGA2		3.85	.540	0.788	1.608
EGA3		3.93	.785	0.704	1.509
<b>OCB</b>	0.904				
OCB1		4.21	.601	0.810	2.095
OCB2		4.06	.561	0.746	1.914
OCB3		4.07	.583	0.897	1.797
OCB4		4.05	.574	0.901	1.596
OCB5		4.13	.547	0.887	2.351

Source: SPSS20 and SMART-PLS4 software

We observe that all mean scores are above 3.77, which suggests the agreement of the respondents with the survey's statements.

The highest mean scores were reported for OBC1 (M = 4.21), OBC5 (M = 4.13) and ECA1 (M = 4.10). The lowest mean score was reported for EAC3 (M = 3.77). The values of the standard deviation (SD) varied from 0.540 (for EGA2) to 0.785 (for EGA3).

The SEM-PLS confirmatory composite analysis (CCA) was used to assess this research model (Hair et al., 2020). Therefore, the composite reliability values were between 0.808 and 0.929, and it is confirmed that the values for AVE (EAC: 0.746; EAG: 0.585, and OBC: 0.723) were higher than 0.5.

Henseler et al. (2015) consider that if HTMT values are lower than the 0.9 threshold and our values are under this threshold, in this case, the values of heterotrait-monotrait (HTMT) ratio of the correlations re-confirmed the presence of discriminant validity.

Table 3 and Figure 2 present details related to the status of the three hypotheses.

Table no. 3 The status of the three hypotheses

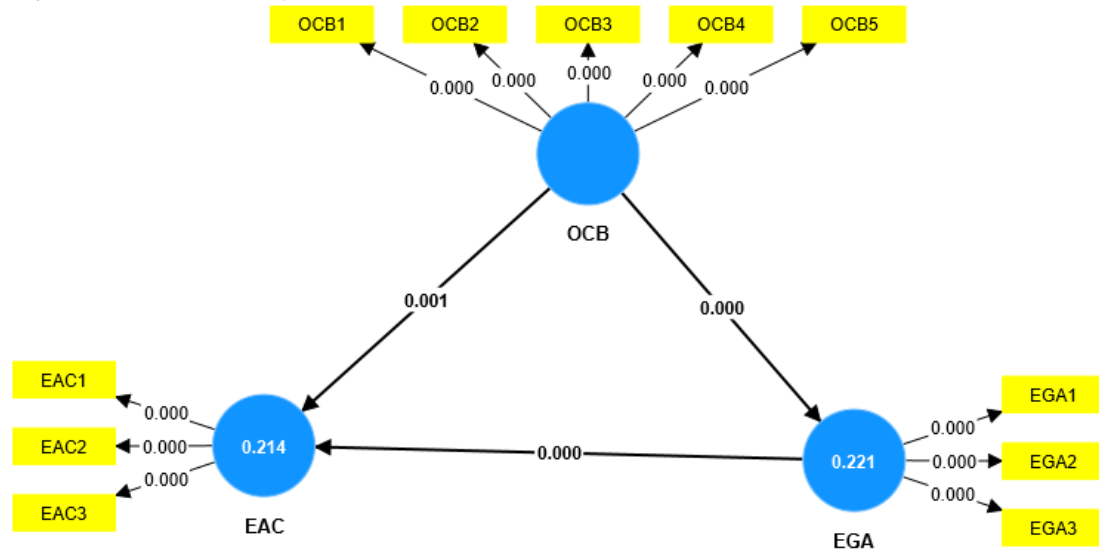
<b>Hypotheses</b>	<b>Original sample (O)</b>	<b>Sample mean (M)</b>	<b>Standard deviation (STDEV)</b>	<b>P values</b>	<b>Hypothesis status</b>
EGA -> EAC	0.311	0.317	0.069	0.000	Supported
OCB -> EAC	0.226	0.224	0.069	0.001	Supported
OCB -> EGA	0.471	0.476	0.067	0.000	Supported

Source: SMART-PLS4 software

The employees' green attitude (EGA) manifested by their responsible consumption and production behavior is strongly related to SDG 12 and proves their high affective commitment to the organization's green behavior (EAC).

The achievement of the SDG 12 targets and indicators is based on individuals' pro-environmentally behavior (Burlea-Schiopoiu, 2009; Burlea-Schiopoiu et al., 2022). Moreover, the employees' affective commitment is strongly influenced by the rules and organizational resources used to promote responsible consumption and production (OCB).

Figure no. 2 An overview of the results



Source: SMART-PLS4 software

The employees manifest responsible behavior only if the organization is characterized by a work climate governed by rules oriented towards recycling and saving resources.

## 5. Conclusions

We concluded that an approach from individuals to organizations of the SDGs, especially SDG 12, is beneficial for understanding the mutual relationship between employee responsibility and organizational accountability. Therefore, the organization must create and implement rules to promote responsible consumption and production to ensure the employees develop an affective commitment to it. On the other hand, if the employees do not show a green attitude, the organization's rules are not successfully implemented either.

From a theoretical point of view, the importance of our research is reflected in an approach to goal 12 from the individual's perspective but in an organizational context. The practical significance of our study is that, regardless of the size of the organization (small, medium, or large enterprise), managers must be concerned, on the one hand, with the promotion of the goals of the 2030 Agenda and on the other hand with carrying out concrete actions reducing the consumption of resources of any kind and achieving sustainable production.

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# The Impact of Sport Activities on Young Critical Thinking

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## Abstract

*Starting from the premise that sports activities can positively impact young people's critical thinking development, our article aims to analyze the three-dimensional relationship between the skills of young people - their desire to carry out sports activities - the development of critical thinking. Based on a questionnaire distributed to young people who carry out sports activities, we observed that these activities contribute to developing young people's critical thinking. We used SEM-PLS and concluded that critical openness is an essential motivational factor both for the performance of sports activities and for developing critical thinking.*

**Key words:** critical thinking, sport activities, critical openness.

**J.E.L. classification:** L83, M53, Z20.

## 1. Introduction

Critical thinking is a competence that young people develop through a training process and a range of sports activities. The link between sports activities and critical thinking has been analyzed by several specialists, especially in terms of the leadership of sports organizations (Arnold et al., 2012; Robinson et al., 2018), gender equality (Costa and Miragaia, 2022; Peachey et al., 2015) or of the learning process (Susanto and Sumaryanto, 2022).

The originality of our research is that we analyze the relationship between critical thinking and sports activities through the lens of young people who practice these activities not as performance activities but as recreational activities.

Since 1956, when Bloom, Englehart, Furst, Hill, and Krathwohl elaborated the work on the cognitive domain and established six successive levels of knowing (i.e., Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation), there have been continuous adjustments of these levels and, currently, it has been concluded that Synthesis and Evaluation are essential for research (Seddon, 1978), and knowledge, Comprehension, Application, and Analysis are relevant for knowing at the knowledge level. Therefore, the Evaluation can be considered a component of critical thinking which, if correctly carried out and based on deep analysis, can lead to a pertinent Synthesis of the facts.

The objective of our research is to evaluate how carrying out of sports activities by young people can contribute to the development of critical thinking. We mention that we are not referring to young people who carry out performance sports activities but those who carry out sports activities as a recreation instrument.

## 2. Literature review

Specialists in psychology, sociology, and management have yet to reach a consensus regarding the definition of critical thinking; therefore, specialized literature abounds in the definitions of this concept.

In 1986, Chance considered critical thinking an ability to analyze some facts and, based on reality, generate and organize ideas to defend his opinions, build arguments, and finally find efficient solutions to problems.

In 1990, Hickey also referred to analytical thinking as not for solving some problems but evaluating the reality presented as a text to be read.

Facione (1990) summarized the statement of experts' consensus related to critical thinking that considered this phenomenon relevant as self-regulatory judgment and as a tool of inquiry.

The experts did not use the equality sign between good thinking and critical thinking, considering that the information plays an essential role in making rational and prudent judgments.

Critical openness is considered one of the features of the cognitive dimension (Sosu, 2013) because it is strongly related to the individual and intellectual ability to employ cognitive skills to analyze facts, deductions, interpretations, and to provide solid arguments (Manassero-Mas et al., 2022).

In sports organizations, critical thinking is used by managers and leaders to analyze the information and facts to put into practice their ideas and to evaluate the implications of their decisions correctly.

Young people practice sports for recreation and to reduce fatigue. Moreover, as Guidotii et al. (2023) mentioned, sports activities determine the passions and emotions of young people.

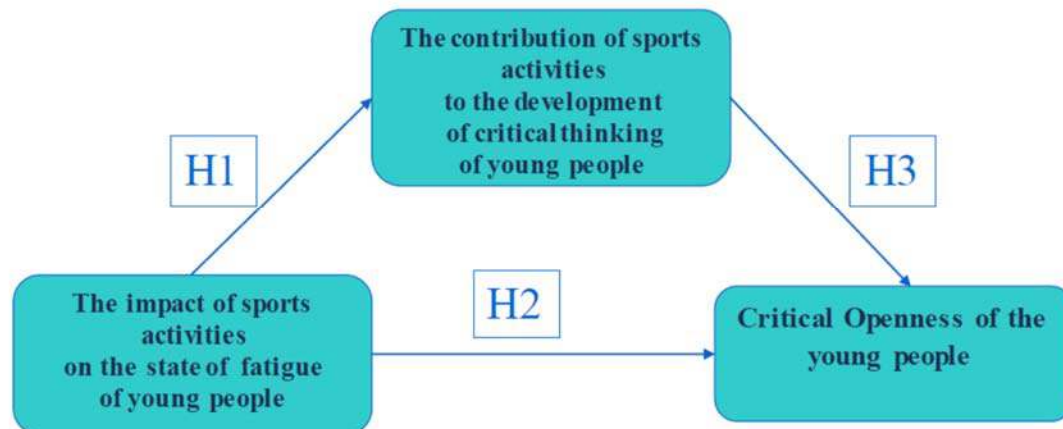
Considering the impact of sports activities on the state of fatigue of young people, the contribution of sports activities to the development of critical thinking of young people, and the Critical Openness of the young people that practice sports activities, we elaborated the following hypotheses:

H1: The impact of sports activities on the state of fatigue of young people directly influences the development of critical thinking of young people (ISF-SCT).

H2: The impact of sports activities on the state of fatigue of young people directly influences their Critical Openness (ISF-COPY).

H3: The critical thinking of young people improved by sports activities directly influence their Critical Openness (SCT-COPY).

Figure no. 1 Theoretical model



Source: Authors' contribution

### 3. Research methodology

The questionnaire consisted of three variables (i.e., the impact of sports activities on the state of fatigue of young people (ISF) with two items, the contribution of sports activities to the development of critical thinking of young people (SCT) with five items, and the Critical Openness of the young people that practice sports activities (COPY) with four items) and 11 multiple choice items including



two demographic ones (gender and age). The answers were measured on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The sample consists of 272 young people who practiced sports activities over 18 years (90.8% were between 21 and 25 years of age, and 9.2% were between 26 and 28 years of age). The gender composition was (56.6% female, 43.4% male).

#### 4. Results and discussion

The descriptive statistics, outer loadings, and Variance Inflation Factor (VIF) are presented in Table 1.

*Table no. 1 The Descriptive statistics, outer loadings and Variance Inflation Factor (VIF) of the items of the three variables*

	<b>Cronbach Alpha</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Outer Loadings</b>	<b>VIF</b>
<b>COPY</b>	.909				
COPY1		4.05	.647	0.881	2.682
COPY2		3.94	.631	0.873	2.794
COPY3		3.92	.786	0.861	2.619
COPY4		4.04	.712	0.929	2.004
<b>ISF</b>	.719				
ISF1		3.86	.694	0.858	1.458
ISF2		3.84	.719	0.907	1.455
<b>SCT</b>	.893				
SCT1		4.04	.641	0.844	2.321
SCT2		3.88	.620	0.860	2.541
SCT3		3.87	.794	0.867	2.820
SCT4		4.00	.668	0.725	1.677
SCT5		3.99	.693	0.882	2.110

Source: SPSS20 and SMART-PLS4 software

We observe that all mean scores are above 3.80, which suggests the agreement of the respondents with the survey's statements.

The highest mean scores were reported for COPY1 (M = 4.05), COPY4 and SCT1 (M = 4.04) and SCT4 (M = 4.00). The lowest mean score was reported for ISF2 (M = 3.86). The values of the standard deviation (SD) varied from 0.620 (for SCT2) to 0.794 (for SCT3).

The SEM-PLS confirmatory composite analysis (CCA) was used to assess this research model (Hair et al., 2020). Therefore, the composite reliability values were between 0.738 and 0.91, and it is confirmed that the values for AVE were higher than 0.5.

Henseler et al. (2015) consider that if HTMT values are lower than the 0.9 thresholds and our values are under this threshold, in this case, the values of heterotrait-monotrait (HTMT) ratio of the correlations re-confirmed the presence of discriminant validity.

Table 2 and Figure 2 present details related to the status of the three hypotheses.

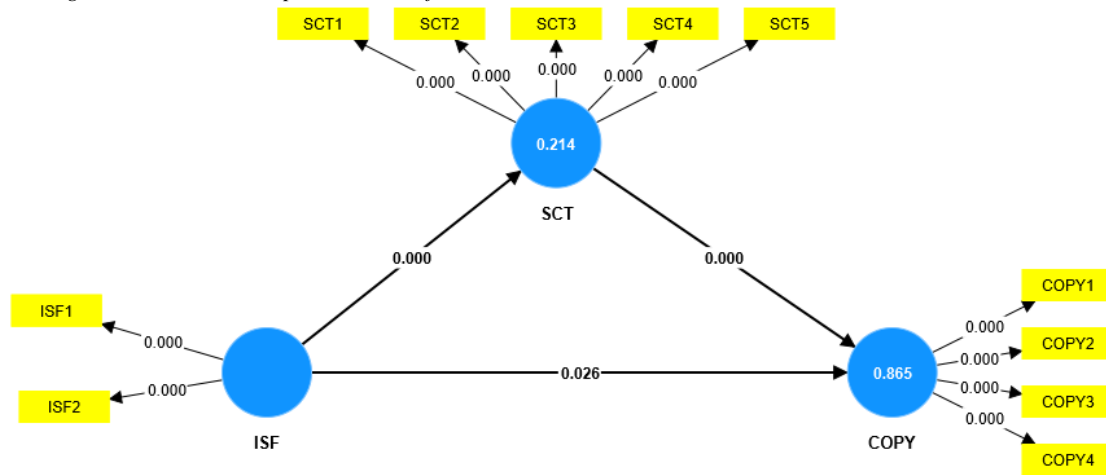
*Table no. 2 The status of the three hypotheses*

<b>Hypotheses</b>	<b>Original sample (O)</b>	<b>Sample mean (M)</b>	<b>Standard deviation (STDEV)</b>	<b>P values</b>
ISF -> COPY	0.061	0.060	0.028	0.026
ISF -> SCT	0.462	0.463	0.051	0.000
SCT -> COPY	0.900	0.900	0.024	0.000

Source: SMART-PLS4 software

All three hypotheses were validated that underline the positive impact of sports activities on developing critical thinking and the critical openness of young people. In some cases, young people's fatigue is accentuated by sports activities; in others, these activities reduce cases.

Figure no. 2 A detailed presentation of the results



Source: SMART-PLS4 software

The respondents perceive sports activities as a possibility to improve the communication process by helping people to understand other people's viewpoints on an issue and to use more than one source to find information for themselves.

During sports activities, young people look for new ideas and use them to shape (modify) how they do things.

## 5. Conclusions

The objective of our research was to evaluate how young people's sports activities can contribute to the development of critical thinking, and we concluded that these activities are more beneficial for young people.

First, carrying out sports activities contributes to reducing the state of mental fatigue and, to a certain extent, the state of physical fatigue.

Second, carrying out sports activities allows young people to meet other people, change ideas and improve their knowledge.

Third, carrying out sports activities positively influences young people's analysis and synthesis capacity and develops the ability to ask and answer critical questions at appropriate times.

The limits of our research consist of the two-dimensional approach of the relationship between the performance of sports activities by you and the development of their critical thinking, without analyzing the factors that contribute to improving the decision-making process.

Therefore, future research will be oriented toward the leadership of sports organizations and the impact of this leadership on the performance of these organizations.

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## Exploring Barriers to Adoption of AR filters on Social Media

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### Abstract

*This study examines the barriers to augmented reality (AR) filters' broad adoption on social media platforms. The widespread adoption of AR filters is hindered by significant obstacles despite the rising popularity of AR technology and the potential benefits for users. In order to give social media platforms and the designers of AR filters insights to improve user experiences and encourage better engagement, this study attempts to identify and explore these key barriers from the users' perspective.*

**Key words:** social media, AR filters, technology adoption, user behavior

**J.E.L. classification:** M31, M39

### 1. Introduction

Unique experiences and interactive content formats are now available on social media platforms thanks to augmented reality (AR), a technology that has emerged and gained popularity in the last years. Users now have new ways to express themselves and enhance their appearance and surroundings in fun and interesting ways, all thanks to AR filters. Although these filters, also known as lenses or effects, depending on the platform they're implemented on, are becoming more common and have potential advantages for users (both hedonic and utilitarian), there are still significant barriers standing in the way of their widespread adoption.

This study aims to identify and examine the primary challenges that social media users face in adopting AR filters. By understanding these barriers, we can shed light on the fundamental factors that affect user behaviour and prevent the broad acceptance of the technology. Additionally, the research seeks to offer helpful data for social media platforms and AR filter creators in order for them to overcome these obstacles, improve user experiences, and stimulate higher engagement.

It is essential to examine the development and impact of augmented reality technology within this context in order to fully understand the current level of AR filter adoption on social media. Because of the incorporation of AR technology into social media platforms, users now have more options to interact with digital information and express themselves creatively. The use of AR filters has become a social norm, with users seeking to personalise their online presence and amplify their storytelling capabilities through augmented visuals.

We will review earlier research that analyses the adoption and application of AR filters on social media platforms, drawing on existing literature. That way we can achieve a solid understanding of the elements that influence consumers' acceptance or resistance towards AR filters by analysing empirical studies, theoretical frameworks, and models related to technology adoption and user behaviour. Moreover, the study presents an exploratory research that is targeted at active social media users that aren't yet adopters of the AR feature represented by filters. By concentrating on the difficulties perceived by the users, this analysis will help us fill in knowledge gaps and add to the body of knowledge already available.

## 2. Theoretical background

Despite numerous statistics that predicted an accelerated growth for AR adoption, the numbers are yet to catch up with the forecasts. Because of this, researchers need to investigate the reasons why AR technologies are still not adopted by some people. While there can be some general threats that can be pointed out for the AR technology, like poor experience or digital fatigue (Busel, 2017), the academic literature keeps identifying issues specific to different use cases. For example, in education the costs of AR systems and lack of collaboration capabilities can influence user acceptance (Iqbal, 2022). In the case of AR systems used in industrial fields, the main barrier of adoption is the technological limitations that AR-based tools currently pose (Lamberti et al., 2014).

Considering that mobile usage was accelerated in the last few years due to the COVID-19 pandemic (Statista, 2021), not owning a device compatible with AR technology is becoming less and less probable to be a real barrier in the adoption of AR filters. There are also other issues that used to be valid in the past, but now their importance is significantly diminished. A good example is the lack of interoperability across mobile platforms, which refers to applications not being compatible with all operating systems. Although it used to be a problem (Kounavis et. al., 2012), nowadays most of the applications, and especially mobile-based applications can be used across multiple types of devices and platforms.

In the past, the requirement for a dependable internet connection was seen as a major obstacle to the uptake of augmented reality (AR) apps. A reliable and fast internet connection was required for AR experiences because they significantly relied on data-intensive processes and real-time content streaming (Kounavis et. al., 2012). This barrier has greatly decreased thanks to the widespread availability and ongoing growth of internet coverage. Improved Wi-Fi infrastructure and the spread of 4G and 5G networks have made it possible to access the internet more quickly and reliably, even in remote locations. Because of this, users may now access AR applications and content without any noticeable difficulties or latency problems.

When it comes specifically to AR filters on social media, the reasons for non-adoption could be more specific. A study conducted specifically for the Snapchat app (Deloitte, 2021) revealed that the limited amount of content and the quality of the AR experience are slowing down the adoption of the technology.

In a world in which people are more and more concerned about their privacy and usage of personal data, the use of AR technologies can also provoke disquiet in regards to privacy issues (Ruyter, 2020), especially when it comes to face filters (Cowan et al, 2021). When using AR filters, facial features are frequently captured and analysed, which raises concerns about possible data misuse or unauthorised access. The General Data Protection Regulation (GDPR), new international privacy laws, and increased user awareness have forced social media platforms to change how they handle user data by being more transparent and responsible. Therefore, this shift towards enhanced privacy practices can foster an increase in user trust.

In a study that focused on virtual try-on technologies, including AR-based, technological drawbacks were found to be a recurrent motivation for users to reject the use of the system in question (Yim et. al., 2017) . These limitations include difficulty of installing the necessary software, a lack of computer literacy and poor media experiences like slow response time of the program and non-satisfactory visuals. While the difficulty of installing a software is not applicable to AR filters, as social media platforms provide built-in AR filter functionalities, the other barriers may be valid to a certain extent. When it comes to computer literacy, for social AR filters we need to shift the concept toward the more general one, which is digital literacy, to include the ability to use mobile-based technologies. In this case, although social media platforms are designed to be user-friendly and accessible to a wide range of users, AR filters may imply actions that are not as intuitive and might appear to some people as too difficult and complicated to use, so it might be a valid barrier in technology adoption. Finally, previous research found that the performance and visual quality of AR filters on social media platforms are crucial for user satisfaction and that slow response times and subpar visuals can negatively impact the user experience (Yim&Park, 2019).

There are also other barriers that are often overlooked by researchers and that is rejection from principle or from social pressures. In a culture that places a greater emphasis on body positivity and self-acceptance, the general association of AR filters with beautifying effects and altering of

appearance might be uncomfortable for some. Individuals can reject the usage of filters out of principle as the trend towards accepting one's true self gains momentum because they believe that doing so perpetuates unrealistic beauty standards or feeds insecurities. People who wish to display their real selves may be discouraged from utilising AR filters due to their fear of being perceived by others to be insecure or lacking self-confidence. Therefore, AR filters on social media may not be widely accepted or adopted due to societal pressure and the desire to adhere to body positivity norms.

In summary, while some barriers identified in AR adoption research may not directly apply to AR filters on social media, there are specific challenges related to content availability, privacy concerns, digital literacy, and user perception that can hinder their widespread acceptance. Understanding these barriers and addressing them effectively is crucial to promoting greater adoption and usage of AR filters on social media platforms. For this purpose, the next section presents an exploratory study that aims to research social media users' perceptions for rejecting the use of AR filters.

### **3. Research methodology**

An exploratory study was carried out utilising an online survey approach to look into the causes of the non-adoption of social media AR filters. The study's main goal was to identify the biggest obstacles to the adoption of augmented reality (AR) technology on social media platforms, which will help guide future work in this area. The survey was directed at social media users who don't use the platforms' built-in photo and video filters. The choice of participants was made using a convenience sampling technique.

At the start of the survey, a filter question was asked to make sure only relevant respondents were included. Only individuals who had previously used social media AR filters, either personally or by observing others use them, were taken into account for the study. Participants were also questioned whether they thought of themselves as active social media users of AR filters.

A comprehensive description of social media AR filters was given in the survey introduction to ensure general understanding among respondents. Participants assured that their answers would be kept anonymous and that their data would only be used for academic research.

The questionnaire was completed by 303 people in total. Participants who reported using social AR filters in the previous month were eliminated, yielding a final sample of 136 valid responses. This allowed the research to focus only on non-active users. The sample's gender distribution was as follows: 46.9% were female, 51.7% were male, and 1.4% were non-binary. 5.5% of participants were under the age of 18, 33.8% were between the ages of 18 and 24, 33.1% were between the ages of 25 and 34, 16.6% were between the ages of 35 and 44, and 11% were beyond the age of 45.

A list of potential barriers against the use of AR filters on social media was included in the survey. Participants had to tick every box that was applicable to them. The options offered were as follows:

- I don't understand how filters work.
- I am concerned about the personal data these filters have access to.
- I don't find the results of using filters interesting enough.
- I don't own a device that supports the use of filters.
- I don't find using filters entertaining.
- The filters' design should drastically improve.
- The technology is not advanced enough for me.
- I am capable of creating quality content without filters.

Participants also had a free-text space to describe any extra motivations that weren't covered by the available choices. After thorough analysis and organisation, several more motivations were discovered in these free-text responses.

### **4. Findings**

This section discusses the results of the study, considering both the options that were presented to respondents, and the motivations that they reported additionally.

The option *"I don't understand how filters work"* was chosen by 6.9% of the total pool of participants in the study. This suggests a lack of understanding or experience with how AR filters work and function. It's possible that people are not yet fully familiar with how the AR technology works, because its use on social media platforms is fairly new. Also, the result could be determined by limited technical knowledge or digital literacy. For some AR filters, activating or modifying the filter effects may require several steps, gestures, or particular actions. Users who find these interactions difficult to grasp or complex may have trouble using the filters successfully. This implies that better user education and more detailed instructions on how to use filters effectively might be required for more users to adopt them.

The item *"I am concerned about the personal data these filters have access to"* got 17.9% of responses. Therefore, we consider the privacy concerns a big impediment to the deployment of AR filters on social media platforms. Users are concerned about possible data misuse or unauthorised access. To alleviate these worries, platforms should place a high priority on transparency and offer assurances about data protection and privacy practices.

A big percentage of participants (44.1%) considered the statement *"I don't find the results of using filters interesting enough"* to be relevant for them. The lack of engagement or satisfaction with the results of employing AR filters is evident in this comment. In some cases, the filter effects fail to be visually-pleasant, or in line with the users' preferences. AR filters heavily rely on visual effects to enhance or alter photos and videos. Users may find the overall experience dull and unappealing if the filter results fall short of their expectations in terms of visual quality, aesthetics, or realism. Moreover, a user's interests, hobbies, or preferred content themes may not all be catered to by an AR filter. Some users who have been consistently exposed to AR filters, either through their own use or extensive exposure from others' posts, may experience fatigue or saturation. Overexposure to AR filters can lead to a diminished interest and decreased novelty. On social media, some users could prioritise authenticity and favour posting unedited or unfiltered content. They can believe that applying AR filters contradicts their intention to offer an unaltered or authentic version of themselves. Users' interest and engagement may rise if AR filters' appeal, diversity, and customizability are improved.

The least relevant motivation for the survey respondents was *"I don't own a device that supports the use of filters"*. Only 0.7% claimed that their devices are too old and outdated to be compatible with this innovative technology. Due to a number of factors, the lack of suitable devices with AR filters is no longer a significant barrier to adoption. First off, smartphones and other mobile devices with cutting-edge hardware capabilities are proliferating quickly. More and more contemporary smartphones are equipped with augmented reality features and are compatible with AR filters. Second, due to intense market competition, several smartphone manufacturers now include augmented reality (AR) technology in their products. Major smartphone manufacturers like Apple and Samsung have been making significant investments in augmented reality, making sure that their most recent models have the necessary hardware and software to support AR experiences, like AR filters. Thirdly, the price of smartphones and other mobile devices has dramatically dropped over time, making them more affordable and available to an increasing number of users. The issue of device compatibility for AR filters has diminished as a result of the growing adoption rates of smartphones. Social media platforms have also made their applications compatible with a wide range of devices and operating systems because they recognise how important it is to serve a broad user base. They make an effort to make sure that AR filters are usable on various operating systems, such as iOS and Android, to reduce any restrictions brought on by device compatibility.

*"I don't find using filters entertaining"* was the choice of 46.2% of participants. The result suggests that for some people, applying AR filters is not enjoyable or amusing. When it comes to the kind of content that they find interesting, people have a variety of interests and preferences and they might not find the degree of entertainment they desire when using AR filters. Users that find videos, memes, or interactive posts to be more interesting and amusing than AR filters may choose these types of material over AR filters. Even while AR filters offer a variety of effects and enhancements, users may not always get the amount of creativity and customisation they are looking for. The range and uniqueness of the various AR filters may not satisfy certain users, who may feel that they lack entertainment value. Users may stop using filters if they believe there aren't enough opportunities for them to express themselves or be creative. The use of filters could be made more interesting and

pleasurable by social media sites experimenting with gamification components and interactive features.

The item *"The filters' design should drastically improve"* reached a percentage of 15.9% among respondents. Users complain about the poor design of the current filters. This encompasses characteristics including visual appeal, realism, and general aesthetics. AR filters rely on visual components to improve or change the surroundings or look of users. Users may find the filters dull or unsatisfying if the design is unattractive and lacks aesthetic appeal. Users' aesthetic tastes may not be met by poorly designed filters, creating a negative impression of their general quality. Although the purpose of AR filters is to deliver an enhanced or augmented experience, users may also not be happy if the filters yield unrealistic or artificial outcomes. For instance, filters that artificially apply effects or distort face characteristics excessively might be off-putting. The creation of filters that are of a high standard, appealing to the eye, and diversified can boost user acceptance and pleasure.

6.9% of respondents considered that they are represented by the statement *"The technology is not advanced enough for me"*. Some people believe that there haven't been any advances or advancements in AR technology recently. Users could have high expectations for the seamless and realistic enhancement of their environment or look that AR filters can offer. Users can think the technology isn't advanced if it can't produce effects that are believable and seem natural. Users may believe that the technology is not advanced enough to give the appropriate level of realism if, for instance, filters struggle to precisely track face movements or do not blend in with the environment flawlessly. By superimposing digital features over the real world, augmented reality filters provide a stimulating and participatory experience. Users may have expected more complex interactions and functionality than simple facial tracking or object placement. In order to provide real-time visual augmentation, AR filters primarily rely on computer capacity. Users who experience performance problems like latency, sluggish response times, or frame rate decreases could blame the technology's lack of innovation for these limitations. This obstacle can be overcome through continued technical development and the incorporation of cutting-edge features.

The item *"I am capable of creating quality content without filters"* was chosen by 42.1%. Users may be less likely to use AR filters if they demonstrate confidence in their ability to create high-quality material without them. Some people place a higher value on exhibiting their own creativity and originality than on using pre-made filters. They might favour producing content that showcases their distinctive personalities, worldviews, or aesthetic skills. They feel that by eliminating AR filters and instead focusing on custom effects and overlays, they can offer their information in a more genuine and unique way. Moreover, users that are skilled in photography, videography, or graphic design may have confidence in their capacity to produce visually appealing content without the use of AR filters. They might be familiar with editing processes, software tools, compositional elements, lighting, and editing techniques. These users could think AR filters are pointless or restrict their ability to express themselves creatively. Last but not least, users differ in the preferences they have for the kinds of content they love producing and viewing. While some people might find augmented reality (AR) filters amusing and interesting, others could prefer media that does not primarily rely on AR features. These users might place a higher value on narratives, personal experiences, or certain topics that don't always benefit from the application of augmented reality filters.

Regarding the free-text responses, they can be categorised as follows:

*Concerns about self-image and authenticity:* A number of participants were concerned that filters might encourage unattainable beauty standards, distort the reality, and lead people to hide their genuine selves. This is consistent with the rising body positivity trend and the desire to embrace authenticity.

*Mental health concerns:* Concerns about the detrimental consequences of filters on mental health, such as fostering the development of dysmorphia, were raised by some respondents.

*Lack of interest, relevance, or usage frequency:* Some participants said that they were not interested in utilising filters, that they rarely used social media, or that they preferred to highlight natural beauty as opposed to altered appearances. This is representative of a subset of consumers who value real interactions and content.

*Difficulty finding suitable or diverse filters:* Some participants express difficulty finding filters that suit their interests, indicating a desire for a greater selection of filter choices that accommodate various tastes.



*Practical concerns:* The lack of interest in AR filters is attributed to practical considerations including battery consumption, difficulties accessing filters, or digital fatigue due to already existing numerous other features on social media platforms.

## 5. Conclusions

This study set out to identify and analyse the main barriers that social media users have while implementing augmented reality (AR) filters and to offer solutions to these problems.

Among the key takeaways of this research paper we mention:

- Lack of understanding of how filters function and insufficient technical expertise or digital literacy may make it difficult for users to use AR filters successfully.
- Another key hurdle was privacy issues, with several participants expressing concern about how AR filters might access their personal information.
- One common reason for non-adoption was found to be a feeling of disinterest in the results of employing AR filters.
- Device compatibility was found to be a minimal barrier.
- Having devices that support AR filters was shown to be a minimal barrier, with the majority of participants reporting having such devices.
- Free-text comments from participants were used in the study to elicit additional motives, underscoring the value of taking into account different viewpoints. These reasons included the need for more innovative and interactive filter experiences as well as worries about supporting body positivity ideals and unattainable beauty standards.

In conclusion, this study offers important insights for social media platforms and AR filter producers by highlighting the obstacles to the adoption of AR filters on these platforms. Greater acceptance and usage can be facilitated by improving user education, addressing privacy issues, improving the calibre and variety of AR filters, and appealing to users' interests and preferences. By solving these challenges, social media platforms may realise the full potential of augmented reality filters, providing users with distinctive and interesting experiences while fostering greater user pleasure and engagement.

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## Current Research Directions in Approaching the Effects Generated by of Corruption and Political Risk on Competitiveness and Organizational Performance

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### Abstract

*A dynamic environment involves change and innovation. The macroeconomic environment is the „terrain” where all organisations economy compete. In a dynamic market, organisations need to adapt quickly to changes and develop innovative ideas, products and services under the influence of socio-economic factors to keep up with new trends.*

*The business environment brings together economic, social, cultural and political-institutional components. Some factors directly influence organisational performance, while the influence of other factors is only indirect. From an optimistic perspective, these factors can generate opportunities, and from a pessimistic perspective, threats and challenges for the organisation.*

*The aim of this paper is to investigate and define corruption and political risk by identifying influences on competitiveness and performance under the latest global trends in technological development.*

*The main objective of the article is to define and review the current literature on the influence of corruption and political risk on organizational competitiveness and performance.*

**Key words:** political risk, corruption, innovation, competitiveness

**J.E.L. classification:** F60, F63, I30, J17, L20, L25, O30, O44

### 1. Introduction

According to the WEF (2022), the 4<sup>th</sup> industrial revolution brings a fundamental change in the way individuals live, work and communicate to each other. The fourth industrial revolution represents a new trend in economic development, sustained by the deep advances in technology. The evolution of this 4<sup>th</sup> revolution is challenging people to rethink how countries evolve, how organisations create value and even how to harness the soft rather than hard skills of employees. The 4<sup>th</sup> industrial revolution is more than a technology-led change; it is a chance to engage all stakeholders, including entrepreneurs, policy makers and consumers to use technologies to create an inclusive, human-centred future. The real chance is to use technology and find resources to generate positive impact on organisations and communities.

In addition, the current digital revolution, expressed through the dynamic and rapid development of technological systems and unlimited access to the internet, offers people and business entities the chance to access a new economy, i.e. the evolution of outdated, traditional methods towards a digital, smarter economy. The digital revolution is changing people's lifestyles and is leading to fundamental changes in the business activities of commercial entities - more specifically, they must adopt ways of working that fit the specifics of the new digital economy or internet economy. According to Turban et al. (2018), *“the new economy refers to an economy that relies exclusively on new technologies, including communication through digital networks (Internet and social networks), computers, software licenses, and other related technologies. In this new economy, the communication infrastructure has created a global network that people and organizations use in order to interact, communicate, collaborate, and search for information”*.

A new technological trend is leading debate about the beneficial effects of Artificial Intelligence (AI) on economic development. However, considering the novelty of the concept AI technology actually plays a significant contribution in economic growth. Unlike any of the technologies developed in the past by humans for the purpose of ensuring a simplification of the way of working (and thus increasing the level of organizational competitiveness) AI can become a valuable tool for a given practical work task due to its unique learning capability, a capability that an employee can develop over a much longer period of time. Its huge contribution to sustainable organisational economic development is fast becoming indispensable (Heylighen, 2017), AI-related activities will be the main instruments for further economic growth and will result in fundamental changes in terms of measuring competitiveness and thus the performance of a business (Vyshnevskiy et al., 2020).

This paper focuses on defining and assessing the influence of the most significant barriers, corruption and political risk on the competitiveness and performance of organisations under new technological trends. Specifically, the theoretical analyses conducted so far on corruption and political risk include social, political and ethical elements. In contrast, analyses of organisational competitiveness and performance are constantly changing given the speed and scale of technological and human development to which the business environment has to adapt.

The primary research direction of this paper is the synthesis of the literature and the interpretation of theoretical concepts such as political risk, corruption, competitiveness, performance. The study aims, on the one hand, to clarify the notions that represent challenges (risk, corruption) and, on the other hand, the notions that represent opportunities for economic and social development (performance, competitiveness) under the influence of a stimulating factor, namely new technologies.

## 2. Literature review

Systematic review of the literature shows that the main challenge facing the business environment is the dynamism manifested by unpredictability of events, uncertainty of achieving predicted results, which leads to the need to revise traditional approaches to the formation of management strategies (Sardak Movchanenko I.V., 2018). The business environment is often characterized by intense competition, technological change, uncertainty about government policies, the influence of socio-cultural factors and external factors that may question the evolution of the organization. The current business environment is characterized by the economic organizations have no (at best partial) control over external factors. Dynamism refers to both the balance as well as the volatility of the business environment (Dess & Beard, 1984). Similarly, the adversity of organizations to the environment refers to competition, the level of performance to be achieved, concerns about demanding quality standards imposed by the market. Numerous studies (Afzal et al. 2018) have shown that the local business environment has an entrepreneurial capacity, closely related to social, economic, political and technological factors.

The international business environment faces multiple challenges. These challenges result from the intersection of the work of organisations with the action of internal or external factors under the impact of continuous changes in the international business environment. Dynamics and uncertainty, two aspects that reflect the current character of contemporary society, generate a permanent flow of risks: natural risks, financial risks, political risks, determining the complexity of today's international business environment (McKellar, 2010).

Until recently, political risk was a relatively easy term to understand. In most cases, political risk referred to a dictatorial system that seized any foreign assets that entered the national territory and used them for its own needs. Today, cases of expropriation are much less common than before. While national governments are still the main arbiters of domestic affairs, much of the political risk within a country is now generated by other actors, such as terrorists, local officials issuing ordinances and administering sanctions. Political events that even if not in the vicinity of developed countries are affecting business around the world with dizzying speed. For companies, political risk in the 21st century is the likelihood that a political action will adversely affect their business. This definition is much more specific than it sounds. Political risk has long been neglected as a topic of study in academic political science, despite the tradition of research on the concept of "*political instability*". Indeed, political risk is closely related to issues affecting the quality of state governance and its

principles of organisation and functioning, with the effects of limiting property rights, individual rights, subjecting citizens and commercial actors to financial damage. While the effect of risk through political action has been inherent in the public arena since ancient Greek times, the most recent mention of it appeared in the post-war period. For business people, political risk reflects the exogenous factor that can influence market conditions. As Coplin (1983) notes, *"political risk refers to the eventuality that political decisions or political events in a country will affect the business environment in such a way that investors suffer losses or fail to achieve the level of return they expected when the investment was made"*. Most political risk analyses are driven by investor concerns following experienced events. Aimed at strengthening institutional capacity and promoting transparency, political risk analyses provide investors and entrepreneurs with information to help them manage their investments.

The duality of political risk is another important characteristic attributed to the term. Much research considers the negative or positive side on investment. Some authors (Root, 1968, Rios-Morales, 2009, McKellar, 2010, Wagner, 2012, Ramady, 2014) consider only the negative side relevant. Wagner (2012) considers political risk as *"those events, actions, of a socio-political nature that may negatively and significantly influence, directly or indirectly the objectives of foreign investors"*. The analysis of the negative side of political risk has in fact followed the general trend in risk research. Following the same logic, Howell (2007) considered that political risk is the probability that the resolutions of policy makers or social or political events in a country will affect the business environment so that investors incur losses or fail to realise the returns expected when the investment was made. Howell therefore clearly links political risk to the occurrence of a loss and argues that the concept only applies if the risk-generating events could not have been *"foreseen"* at the time the investment was made, which means that the foreign investor has to differentiate between expected and unexpected events from the outset, further adding to the complexity of defining the concept. Nowadays, political actions that affect business are present both in physical reality and more recently in virtual reality.

*"Political risk is essentially the likelihood that a political action will significantly affect the activities of a business - positively or negatively"*. *"The effects generated by political risk go beyond the usual targets"* - as such political activities are *"almost everywhere - inside homes, on the streets, in neighborhoods, bars, and in the cloud"* (Rice & Zegart, 2018b, p. 7). This is Rice and Zegart's broader concept of *"political action"*. With the help of Artificial Intelligence and Human Intelligence, complex models and scenarios will be created to identify political risk from various social media platforms. The political risk management framework identified by Rice and Zegart (2018a, 2018b) is specifically relevant to two skills: *political risk analysis* and *political risk mitigation*. The risk analysis competency relies on a rigorous cloud computing and data analytics foundation, respectively. The risk mitigation competency is based on *"human intelligence"*, which brings together the knowledge and perspectives provided by political experts, economists, sociologists and analysts. This stage influenced by technological evolution will be the next generation of strategic political risk management and a valuable mechanism for discovering regulated expropriation risks for multinationals in the 21st century. Today the global balance has shifted with a clear distinction between developing and developed countries. The management of political risk has become imperative and a major source of concern. In the absence of political accountability, corruption becomes a major challenge, political leaders and institutions lose legitimacy and public trust, diminishing their ability to govern, thus undermining the foundations of society.

Corruption, although mainly associated with the act of bribe-taking, is a broad term indicating illicit behaviour by public authorities for potential personal gain. A particular contribution on corruption is made by the political scientist Nye (1967) who defines corruption as *"conduct that deviates from the responsibilities normally assigned to a public official for personal reasons or for the purpose of optimising income or social status; it may also be acting illegally in order to exert pressure for private gain"*. Nye states that the actions of a corrupt public official are manifested in *"abusive practices of influence, nepotism (allocation of positions, benefits not by professional merit but by personal relationships), embezzlement (illegal use of public funds for private use)"*. The definition provided by Nye identifies only a few components attributed to corruption, as well as the

purpose of committing corrupt acts, while centring the notion of corruption around the public official, i.e. their duties.

Corruption is defined through the perspective offered by Nicolae (2010) as *"an abusive attitude of power to take public decisions in order to grow or maintain power or its sources (usually wealth and status) for individual private or political gain that negatively affects the purpose or values (founding principles) of the social and/or political system"*. The definition explains individual and systemic corrupt behaviour in the public and private sector, present and past. Treating the term from a sociological point of view, Romanian specialists in the same field define corruption as *"the systematic violation of the rules of an organization or institution, by some members who, by virtue of having a certain authority, use the organization's resources for purposes other than the intended purposes"* (Nicolae, 2010). Nicolae (2010) considers corruption as *"a violation, in favour of the one who corrupts, of the rules designed to protect the general interest"*. The variety of definitions proposed by social science experts correlates with how public officials carry out their activities. In this case, the definitions attributed to corruption relate mainly to public office and deviations from binding ethical rules.

International organisations such as the International Monetary Fund, the World Bank, the Council of Europe propose a common, generally valid definition of corruption – *"the abuse of public power or trust for private gain"* (Council of Europe, 2018). In a broader sense, the ICPO - Interpol has defined corruption as *"any action or non-action by an individual or organisation in the public or private sector that violates laws or professional duties for personal gain or profit"* (Interpol, 2019). Council of Europe representatives argue that no single universally accepted definition that encompasses all types of corruption can be achieved.

The growing influence of Artificial Intelligence in society has also led to the development of technological systems in the fight against corruption. A number of algorithmic systems are already in regular use in the context of anti-money laundering, where massive datasets of financial transactions are analysed to identify irregularities. As such, they can specifically flag transactions for further investigation or even restrict transactions before they take place. However, AI can also have negative repercussions that are often seemingly unintended. Using AI systems in both the private and public sector can produce undesirable results as a result of irresponsible use of data. When holders of power, whether public or private, use AI systems for personal gain, this constitutes corruption. Because of the constitutive element of *"power"*, AI can become *"not just another form of corruption"* but a particularly dangerous form for the public.

As can be observed, corruption is clearly an obstacle to economic growth. Corruption creates uncertainty in the business environment, slowing down activity and generating additional costs. As a solution, increased transparency and integrity in the public sector will create fewer opportunities for corruption. This manifests itself in higher levels of competitiveness and a strengthening of the rule of law. As a result, competition improves as anti-corruption measures are implemented and corruption is no longer a problem for trade and investment.

The idea of competition is not new, it has been used to understand and explain the characteristics of human society and to provide an answer to some questions about evolution. Competition, however defined, seems to be an integral part of life. However, from a historical perspective, competition has been a controversial topic, and societies have often tried to mitigate or even discourage competitive behaviour. Most of the contemporary literature on competition starts from the assumption that competition exists apriori, analysing how it is harnessed by people or organisations. The idea of competition can now be found in most areas of society, such as economics, politics, sport, but also in scientific research. Competition has been promoted in research (the competition to discover new innovative technologies), in sport (the performance of athletes - their places/medals in the Olympics), in politics (competition between parties, but also between party members competing against each other for different positions).

Competition, as defined by several analysts (Kharlamova and Vertelieva, 2013) in both academic and business circles, can be conceptualized as a confrontation, perceived as rivalry between at least two or more individuals, entities, economic or social groups for a proposed goal (territory, goods, limited resources, market share, top position, attracting new customers, profit maximization). As Drucker states in (2004) *"knowledge is information that can change something or someone, either by new proposed goals or by changing the nature of an individual or an institution capable of*

*producing new and more efficient actions, thus knowledge becomes more valuable to an organization than data or certain theoretical information."* Companies should therefore identify, improve, develop and use the resource "*knowledge*" to maintain or strengthen their competitive advantages), but also to improve their effectiveness. This demonstrates that the resource "*knowledge*" is in the 21st century a fundamental resource for maximising revenues. Knowledge is even more important today as organisations become increasingly knowledge intensive and "*engage minds more than hands*" (Omerzel & Gulev, 2011).

Today Artificial Intelligence has the potential to become a key multiplier in organisational and national competitiveness. Technology is now considered to be an important component in gaining competitive advantage. Nowadays, business is seen as a centre of creatin and innovation. Now, every organization needs to anticipate the activities of competitors. Given today's highly competitive environment it is difficult to monitor all types of information. With the help of advanced technologies will be increased companies' ability to respond actively to competitors. The actual trends have transformed the competitive methods and protocols adopted by companies. The organizations implement new methods related to AI as supporting the development of the company's business capabilities (Davenport and Ronanki, 2018).

Over time many theorists have been interested in the hypothesis: does competition help or hinder performance? Eventually, little consensus was reached on this issue. Several theorists, such as the Scottish philosopher and economist Adam Smith (1776), have argued that competition increases motivation and is beneficial to performance. Referring to a passage in *The Art of Love*:, performance would mean: "*A horse never runs so fast as when he has other horses to overtake*" (Ovid, *The Art of Love*: Book III, p. 1

Many reputable organisations are looking at how to implement effective approaches aimed at achieving optimal levels of performance. Otley (1999) considers that performance is still a diffuse term, and there is no generally accepted definition by all specialists. He starts from an analysis applied at the organisational level and assumes that "*an organisation that performs within normal parameters is one that successfully achieves its objectives, in other words, one that effectively implements a strategy appropriate to the organisation's work*".

Samsonowa (2012) argues that the definitions made so far regarding performance have a common feature, all of them involve the action of two terms: effectiveness and efficiency - effectiveness as an indicator of the degree of achievement of the objective, and efficiency as an indicator of the resources that have been consumed to reach the level of achievement. In his analysis (2012), Samsonowa uses the term "*performance*" as the level/degree of achievement of the goal of an organisation/department rather than individuals. From a public management domain-specific perspective, Wouter Van Dooren, Geert Bouckaert and John Halligan (2015) argue that performance in the public sector depends on individual or organisational behaviour. First, when performance refers to the quality of actions, performance is conceptualised as a competence or capability. Second, when it is about the quality of the proposed objectives, performance equals the results achieved. Finally, when performance is viewed through the prism of both the quality of actions and the quality of achievements, it can be concretised as a sustainable outcome. This correlation between performance and the quality of actions/achievements in public management changes the meaning of performance, which is defined firstly as capability, secondly as outcome and thirdly as sustainable outcome.

Today, the implementation of AI technology has evolved through improved business performance. The trend of evolution of AI brings more chances to enterprises (Shareef et al., 2021) to grow. AI can stimulate efficiency gains, cost savings, improvements in product quality, and improvements in customer service. While there is excellent potential for AI capabilities to improve a company's performance there are also significant challenges for those companies applying AI. Companies which use AI to improve the customer services experience provides more appropriate recommendations and less costly options.

### 3. Research methodology

The article aims to define and evaluate theoretical trends using already existing information and bibliographic sources on what has been discovered to date on corruption, political risk, competitiveness and performance. Through qualitative research, it is proposed to understand the

theoretical basis of the concepts analyzed over a well-defined period of time under the influence of external factors that can modify the mode of action generated by corruption and political risk on the benefits that the competitiveness and performance of an organization can bring. In inductive research, the goal is to develop theoretical concepts and models from the analyzed information. The theoretical basis of the present article is the critical analysis of the specialized literature by defining the cause-type factors (input elements), political risk and corruption and the effect-type factors (output elements), competitiveness, performance under the influence of the most recent events that they belong to technological development. The research and synthesis process was carried out on the basis of the most relevant journals, scientific articles, books according to the main keywords (political risk, corruption, competitiveness, organizational performance, challenges, opportunities for economic and social development, economic results, competitive advantages, discontinuity in the business environment, sustainable development, technological implications). The purpose of the research is (1) to study the current state of knowledge in the research field, (2) to identify key authors, articles, theories, and findings in this field, and (3) to identify potential gaps that can be improved. The specialized literature research confirms the economic development trends applied by the economic entities.

#### 4. Findings

Although a broad category of endogenous and exogenous factors determine to a large extent the level of production, efficiency, development and profitability of the business, it is important to know that some exogenous factors cannot be controlled by economic organisations. The literature in the field has consistently demonstrated a negative correlation between economic growth in economic organisations and the level of corruption or political risk, (Mauro, 1995; Barreto, 1996; Tanzi, 1997). Mauro (1995) and Li et al. (2000) also suggest that the direction of causality runs from corruption and political risk to competitiveness and organisational performance.

The corruption has measurable negative effects on national economies. The most commonly cited cost of corruption is discouraging entrepreneurs, by reducing investment, and thus affecting national economic growth and development. Corruption acts as an additional tax on entrepreneurs (Shleifer and Vishny, 1993). The costs of bribery, the costs of identifying those to whom bribes should be paid, and the fees paid to intermediaries can add up to large sums so that entrepreneurs can abandon profitable investment projects or have poor access to factors of production. The underground economy is expanding as private economic organisations try to minimise waiting times, red tape, regulatory framework (obtaining permits, licences) through bribery. Several empirical studies, such as those by Mauro (1995) (cited in Bardhan (1997)), Gould and Amaro Reyes (1983), United Nations (1989), Klitgaard (1991) (cited in Shleifer and Vishny (1993)), Paulo (1995) (cited in Goldsmith, 1999) find a negative relationship between corruption and investment. One significant effect that corruption has on a business is economic. The operations of a business cannot be maintained efficiently and the level of operation will not be optimal when valuable resources are diverted to corrupt activities from their original primary purpose. Another impact of corruption is on existing shareholders. When corruption is reported in a business, investors and existing shareholders will lose the trust they have placed in the business. Whether the corruption is internal or external, it will discourage both investors and shareholders from investing their resources in the company. Corruption has a major impact on the economic growth and development of companies. There is evidence from previous research that corruption has a negative impact on overall firm performance. These effects include: firstly, undermining domestic regulation and secondly, lower competitiveness relative to other firms. According to a report by the World Bank, corruption has been identified as one of the biggest obstacles to optimal performance.

The International Monetary Fund states that corruption is economic in nature, as it directly affects the structure of the national economy, for example, poor governance clearly disrupts economic activity and performance of firms. Over the years, several possibilities to curb corruption have been researched and new trends consider artificial intelligence as the *"next frontier in anti-corruption"* due to its ability to manage databases and information for which humans have few resources to solve. The application of AI can more effectively identify the detection of wrongdoing, fraud or money laundering that adversely affects the economic activities of organisations. While corruption



encompasses a wide range of behaviours and practices related to the misuse of power for personal benefit (Johnston & Fritzen, 2020; Mungiu-Pippidi & Fazekas, 2020), AI includes several elements and techniques to identify and track these practices. AI can be applied to anti-corruption through its ability to act autonomously, with or without human oversight, which differentiates it from other more costly static and "*classical*" human-used communication technologies (Köbis et al. 2021).

Kennedy (1987) qualifies Schmidt's definition by defining political risk as the strategic or financial loss to a firm due to non-commercial events or factors affecting the macroeconomic and macro-political climate. These factors can come from many sources and can affect the fiscal, financial, trade, investment, labour, industrial and economic development environment of the host country, with a negative impact on business profitability or the quality of life of the population. Political risk is important for economic actors, for whom the consequence of inefficiency of public administration is translated into additional cost for business, investment. Political risk is often defined by the activities of governments (and subordinate institutions) whose decisions create outcomes that distort, influence, alter or adversely affect stakeholders (economic and non-economic actors). Kobrin's (1978) research states that "political risk results from the actions of national governments that impede commercial transactions or alter the terms of agreements by confiscating wholly or partially owned commercial property". Conklin (2002) also considers that political risk encompasses a wide range of unethical governmental and political activities on business interests: expropriation, imposed regulations, restrictions on foreign investment, tariff and non-tariff barriers imposed on imports, bribery and corruption. A study by Kobrin (1979) argues that political risk affects FDI through the level of uncertainty that foreign firms experience in the host country. To investigate this empirical relationship between uncertainty and political risk, scholars have traditionally used measures - 14 - objective measures of political risk, including 1) electoral uncertainty, 2) conflict, 3) social unrest, 4) level of corruption, 5) political instability, 6) quality of host country institutions, 7) market imperfections. Studying political risk in the context of behavioural theory it can be concluded that behavioural models predict that not only the level of political risk is important, but also the manager's sensitivity to this type of risk often dictates the corporate response to political risk. Corporate decisions reflect stakeholder interest.

An increase in the level of political risk has a variety of effects on a country and companies operating within its borders. While the most visible impact is a fall in share prices, many countries facing political risk factors will see a reduction in foreign direct investment (FDI), which can prove destabilising for the organisation. Companies are often limited to reactive strategies to discrete risk, rather than proactive strategies that could alter the likelihood of political incidence or the magnitude of its costs. In an era increasingly defined by new challenges and potentially systemic changes, a more holistic approach to political risk management can provide organisations with an opportunity to manage this risk more clearly. In this way, AI can be used as a tool for groups seeking to gain an advantage. At the same time the use of AI can be seen as a manipulative technique that uses publicly available online data to induce, influence and manipulate human behaviour. Today, AI and machine learning techniques can be used to analyze large amounts of consumer demographic data to identify patterns and needs that would predict the likelihood of a product or service being accepted in an external market.

## 5. Conclusions

Based on the literature review, it was assumed that the inputs of the designed research - political risk and corruption - create an unfavourable environment for the domestic economic environment by limiting economic actors in business creation and development or innovation. A second premise is that strategies that boost performance and competitiveness and are adapted to new technologies give economic organisations globally competitive positions.

- While in the past, political risk was often conceptualised in terms of hostile action by host governments, today the significance of political risk has increasingly attracted the interest of researchers in various fields. The current approach to political risk focuses on the social component, i.e. citizens' satisfaction with the quality of life.
- Corruption is clearly an obstacle to economic growth. Corruption creates uncertainty in the business environment, slowing down activity and generating additional costs. This makes

the society less attractive to foreign investors and thus to doing business, the level of private investment and competitiveness will decrease accordingly, and there is a need to create a solution to minimise this effect.

- We can systematise the concept of competitiveness as a defining element of the century in which we live, and it can be found in various economic areas. Today, competitiveness can be found at the level of individuals, organisations and states. Optimal competitiveness can only be achieved if strategies involve technologies that simplify processes and analyse market needs.
- CEOs, managers in different departments regularly use performance indicators as important factors in running effective performance management. However, each performance management system aims to work towards improving overall organisational performance while supporting economic, financial and social performance.

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## Increasing the Efficiency of the Enterprise Management Process (Case study Termoelectrica JSCo)

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### Abstract

*Every national economy has multiple elements that contribute to its process of development, thus ensuring economic growth overall. In this aspect, the economy appears as a superstructure or core around which the other "constructive" elements are formed, and the effective coagulation and connection between these elements ensures sustainable national development.*

*One of the basic "constructive" elements that contribute to national sustainable development is the energy sector, which has a substantial weight in the national economy. Seen from the perspective of the fact that the Republic of Moldova does not have important energy resources, this sector is vulnerable to multiple internal factors and especially to external ones. In this perspective, the aim of the article is the purpose of this article is to analyse the optimisation paths and and determine ways to increase the efficiency of the management of enterprises.*

**Key words:** management, enterprise, energy, efficiency, development, customer

**J.E.L. classification:** M0, M2, M3

### 1. Introduction

The most important aspect of implementing alternative energy sources and energy efficiency measures is improving the management of energy sector enterprises, especially those that control the full supply chain, including production, distribution, and supply. Given that from the Moldavian national energy sectors, as a result of the implementation of energy packages I, II and III of the European Union, only the thermal energy sector was consolidated, i.e. the enterprises and processes that provide - production, distribution and supply were merged, and an important share of the national thermal energy sector belongs to the company Termoelectrica JSCo, it is imperative to research all the stages that the said company went through in the process of implementing the mentioned packages of the European Union.

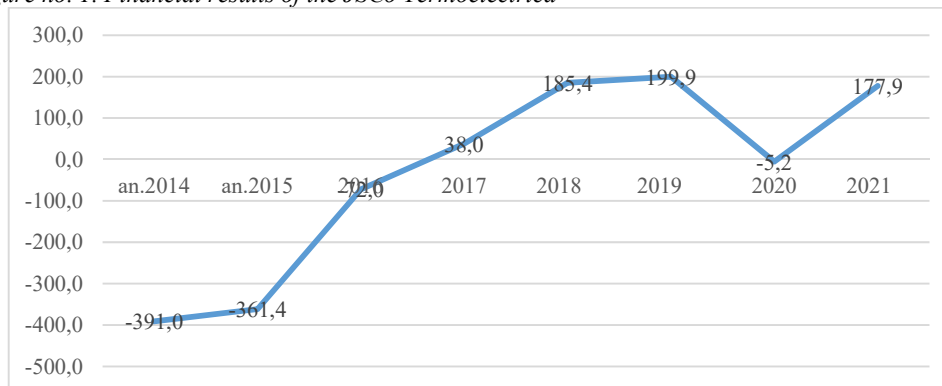
Termoelectrica is currently a joint-stock company subject to the regime established in the Law on joint-stock companies (Law, 1997), the largest producer of thermal and electrical energy in the Republic of Moldova (on the right side of the Dniester River) providing about 70% of the energy requirements of the municipality of Chisinau and about 15%-20% of the required volume of electricity.

In the years 2014-2015, the thermal energy sector of the municipality of Chisinau went through a vast reorganization process, regulated by a special law - Law no. 188 of 28.09.2014 regarding some measures regarding the bankruptcy procedure of JSCo "Termocom" (Law, 2014), as a result of which three large enterprises of this complex were merged: JSCo TPP-1 (production), JSCo TPP-2 (production), JSCo Termocom in insolvency process (distribution and supply).

That process resulted in the emergence of a new entity, Termoelectrica SA, which kept some internal structural elements from each company that it incorporated into itself, the company's management process being a difficult one due to the complexity and multitude of processes in which it was involved. Since its foundation in 2015, the company developed rapidly, and the taken measures

achieved results. Thus, the JSCo Termoelectrica (2023) was the most profitable company in the Republic of Moldova with a profit of about 200 million lei (Yellow Business Pages, 2023), according to the financial reports in 2019 and 2021.

Figure no. 1. Financial results of the JSCo Termoelectrica



Source: Developed by the author based on database of the company

The entire thermal energy sector is regulated by a special law, namely, Law no. 92 (2014) regarding thermal energy and the promotion of cogeneration, emphasizing the importance and place of the branch in the national economy.

It is certain that the measures taken during the nominated period are to be investigated by the authors in terms of their impact on the results obtained by the company, with subsequent identification of new, effective measures necessary for the sustainable development of the company.

It is worth mentioning that Termoelectrica JSCo is a thermal energy company whose activity is subject to state regulation through the authorized state body – the National Agency for Energy Regulation of the Republic of Moldova (NAER). Thus, the enterprise is limited in its activities by the regulations of the Agency, having the tariffs approved in this regard.

The authors consider that the efficient management of the respective enterprise has a major impact on both consumers and the economy as a whole, as the costs of thermal and electrical energy are included in the costs of many finished products that exist on the market. An important aspect that is proposed to be researched is the process of forming the tariff for the thermal and electrical energy produced by the enterprise, as well as the formation of the basic costs that are the basis of the approval of the tariffs.

## 2. Literature review

So far, many researches have been carried out in the investigated field at international and national level, which allow to study the theoretical approach of increasing the efficiency of the enterprise management processes (Georgescu, 2019; Kaufman, 2001; Mărcine, 2008; Nozdreva& Tsighiciko, 2020; Anderson, 2001). Moreover, the legislation of the Republic of Moldova plays a significant role in the research of the topic considered in the present article (Law, 1997, 2014, 2015, 2016, 2022). However, the authors conclude that analysis of how to make the enterprise management process more efficient is necessary and essential.

It is important to note that until now no extensive analysis of the measures undertaken by the energy companies in the Republic of Moldova, in these years has been carried out, except for some summary evaluations at the level of the governing bodies and reports within the Project to Improve the Efficiency of the Centralized Thermal Energy Supply System, implemented with the support of the World Bank (Law, 2015).

The research of the activities and of the enterprise with the obligatory description of the processes on each subdivision is important in the process of optimization of the processes within the enterprise. These actions are necessary because at the moment, there are multiple processes within the enterprise that are duplicated, overlapping, and the efficiency of some subdivisions is limited due to the organizational structure of the enterprise.

The description of the internal and external processes in which the company is involved will allow to come up with proposals to optimize and make the company more efficient internally, with the proposal of a new organizational structure, as well as allow to create a new external environment for interaction both with the company's customers as well as with partners, suppliers, etc. In this regard, the empirical basis of the article consists of material obtained by the author from national and international scientific research. Statistical data, publications and personal observations gathered during the research were also used as informative content.

### **3. Research methodology**

Scientific research methodologies were used to conduct the study in order to fully analyze the sector's economic situation. For this purpose, the research methodology used by the authors has compiled various scientific methods, such as: dialectics, logic, structural-functional, deduction and induction, analysis and synthesis, analogy and comparison. The article also made use of general scientific techniques like description, and comparative analysis.

### **4. Findings**

An important aspect to be researched is the interaction with the company's customers and the creation of an effective system in this regard, which will allow the improvement of the company's image, because, according to some quantitative and qualitative researches, the perception by customers (consumers) of the company is limited, due to the problems regarding the quality of the service provided during the crisis period until the reorganization in 2015. At the same time, it is important to mention that after the reorganization there is a tendency of increase in the number of customers with a positive perception of the company. Thus, the aim is to identify and describe the actions that led to the increase of customer trust, but also to propose a new mechanism of interaction with customers based on the new realities that will allow customer loyalty and increase the number of customers with a positive perception of the company.

Customer relations within Termoelectrica JSCo acquire a totally new connotation and the current system is to be fundamentally rethought as a result of the implementation of the new legal framework in this regard, namely the Condominium Law, no. 187 (2022). The said law will enter into force partially according to a timeline described in it, but the new provisions regarding relations within condominium housing blocks, including those related to supplier-client relations, will enter into force within 6 months from the moment of publication, the Government and ANRE being obliged by law to intervene in the secondary normative regulatory framework (Government Decision 2002, Decision of the NAER, 2017. According to the new legal framework, Termoelectrica JSCo will use intermediary service contracts with its customers, which assumes that Termoelectrica JSCo, as a supplier, will conclude a thermal energy supply contract with the Housing Property Manager (APC – Condominium Owners Association), based on which it will deliver heating agent directly to the owners of apartments and non-residential spaces within the condominium.

For the national thermal energy system, such relationships are new, which have not been tested in practice, and their implementation can have unpredictable effects both on the company as a supplier of thermal energy and on consumers in terms of quality and costs.

As mentioned in the specialized literature, customer relationship management is a set of solutions that guide the actions of an organization in developing positive relationships with customers (Comanescu, 2018). Thus, the new customer relationship management structures, if they not built correctly, can lead to a massive unpredictable impact on consumers but also on other sub-branches of energy, especially those related to natural gas and electricity, the company being the largest consumer of natural gas and the largest producer of electricity in the Republic of Moldova (on the right side of the Dniester River).

As mentioned previously, in the new realities new customer interaction systems are to be researched and proposed – new contracts, new invoicing process, reforming the debt recovery process, changing customer interaction methods, covering new areas in relations with the clients who belonged to the managers of the housing stock, etc., as well as the remodeling of the internal systems of interaction between the subdivisions – the optimization of the subdivisions and of new processes,

the modification and approval of new internal regulations (job descriptions, regulations, instructions, etc.), the description of new processes with creating interaction block schemes, etc. These can be simple or complex general actions depending on the established needs, or they can be precise simple individualized actions - for example, instructions for a specific employee (Kaufman, 2001).

A special role in this process is that of the commercial subdivisions within the company, i.e., the aspect of customer relationships, which, structurally within the company, belongs to the Commercial Service and the Customer Relations Service, these two services ensuring approximately 90 percent of the interaction with customers, starting from the drafting and signing of contracts, supply and ending with aspects of invoicing, call center, consultations, debt recovery and enforcement.

At the moment, in terms of the supply of thermal energy, the company has about 5,000 direct customers and about 200,000 indirect customers. With the named legal provisions, the situation will change radically, the report being that about 205,000 direct customers. Thus, the customers are going to get a new active posture, namely that of "partner" with which the enterprise interacts through different channels (Georgescu, 2019)

These changes will necessarily have an impact on the organizational structure that will require the identification of new solutions, for example, the possible large volume of activities will require the outsourcing of the billing service, or, for example, it will be necessary to outsource the debt recovery processes, but these aspects are to be researched and examined through the lens of the complexity and interdependence of the processes in which the company is involved. Holding a top management position within the company (Deputy Commercial Director), the author of this report will have all the proposed documents and activities from the first source. Moreover, in the research process, the research results will certainly be identified and implemented in the company's activity, thus being able to dynamically examine the proposed solutions and the results obtained as a result of the implementation of the research results. From the point of view of business management, the effect of introducing a new management system will be manifested by the fact that the decision-making process will be transferred to a lower level due to automatization and unification. This will increase the speed of response to requests, increase the speed of turnover of funds and reduce costs (Anderson, 2001).

Considering that the Republic of Moldova is in an extensive process of adjusting the legal and normative framework to the directives of the European Union, we propose to carry out an extensive analysis of the Directives of the European Union that are to be integrated into the national legislation and their impact on the enterprise' activity, as well as in the complex on consumers. For this purpose, the implementation of new regulations such as the European Union Directives do not always lead to a decrease in costs, on the contrary, they can lead to their increase, a fact that has an impact on customer relations as well as on the final tariff paid by the consumer. The analysis of the NAER Methodologies that regulate the process of formation of tariffs for thermal and electric energy and their comparison with the realities in which the company operates, will allow the identification of optimal solutions for the submission of proposals for modification, adjustment of the respective Methodologies, and will allow the company to identify and implementing new development opportunities (Decision of the NAER, 2019).

Figure no. 2. Evolution of the Thermal Energy Tariff for the period 2015-2023

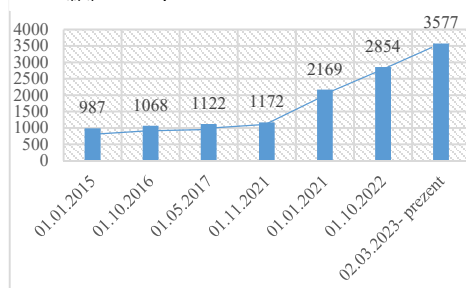
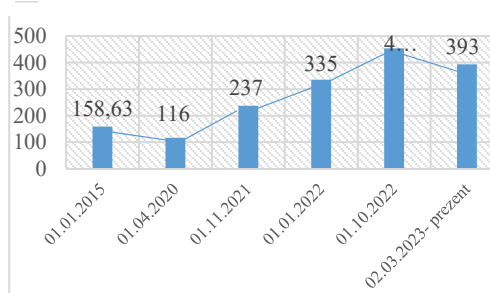


Figure no. 3. Evolution of the Electricity Tariff between 2015-2023



Source: Developed by the author based on database of the company



In this last regard, it is considered appropriate to examine the practice of regulating the activity of thermal energy enterprises in other countries such as Romania, Ukraine and other countries that have a vast history in this regard.

Considering that the company produces cogeneration in addition to heat and electricity, it is strictly necessary to research electricity as a separate product, as electricity is regulated differently from heat (Law, 2016). Moreover, in 2022 the new Rules of the Electricity Market came into force, approved by the NAER Decision (2020), which establish a series of new principles that have a significant impact on the company's activity in terms of production costs.

The new Rules of the Electricity Market are to be analyzed and viewed through the prism of the complexity of the electricity system of the Republic of Moldova, considering the major impact that the respective regulations have both on the companies in this sector and on the final tariffs that they have to pay the consumer.

With the entry into force, the following markets were activated:

- The market of bilateral electricity contracts - on this market at the moment the electricity produced by "Termoelectrica" JSCo is sold;

- Organized electricity markets - on organized electricity markets, participants carry out sales-purchase transactions of electricity, interconnection capacities, system services, other related products, through the electricity market operator or through the operator of the transport system, depending on the specifics of the market. On organized electricity markets, prices are formed based on demand and supply, as a result of some competitive mechanisms. The organized electricity market is considered to be the day-ahead electricity market, the intraday electricity market, the organized contract market, the balancing electricity market and the system services market.

It is proposed to analyze the possibility of the company to intervene in the newly opened markets, especially in the following directions: the day-ahead electricity market, the intraday electricity market, the balancing electricity market.

Of course, the launch of the company on the named markets must be examined through the lens of technological possibilities, but also through the lens of the possibilities of guaranteeing the volumes of electricity that can be produced at the thermal power plants that the company owns.

We consider that it is also important to train the personnel who will be involved in the potential identification activity and the technical-economic analysis of the possibility of intervention in competitive markets.

An important aspect is that the respective Rules are currently implemented, a fact that will allow the dynamic monitoring of the proposed regulations on the company's activity, with the formulation of proposals for adjustment and modification of the normative framework.

Authors aim to identify and implement energy efficiency projects in the company's activity; thus, we will examine this aspect in two different scenarios, namely:

**1. Energy efficiency measures in the company's internal processes:** replacement of outdated equipment, insulation of surfaces with high heat loss, replacement of distribution elements with insulated ones (networks, valves, etc.), construction of new plants on different fuel sources, especially on biomass, etc.;

**2. Efficiency measures for customers:** installation of Individual Thermal Points (PTI), implementation of horizontal distribution of the thermal agent, thermal insulation of buildings, installation of photovoltaic panels, etc.

An extensive analysis of the possibilities of implementing such measures will be carried out, using the approach through the perspectives of different mechanisms adopted as the best practices at the international level, adjusted to the realities of the Republic of Moldova. In particular, it is proposed to analyze the implementation within the enterprise of energy performance contracts (ESCO), the concept of which involves the recovery of the investment by a third-party investor through the savings obtained as a result of the implementation of energy efficiency measures.

The identification and implementation of such an adjusted concept can lead to a significant impact on the company's activity by reducing production costs, redirecting resources to the necessary investments for the re-technologization of the company and finally reducing the tariffs for thermal energy and electricity paid by the final consumers.

Energy efficiency measures at customers are to be researched and identified through the lens of and in close collaboration with development partners who are interested in such projects and local



public administration, Condominium Owners Associations. As an initial idea, we propose to study the possibility of creating a fund that will have management functions for these activities, the structure, components, founders and financiers of the fund are to be identified in the research process.

Attracting investments in Termoelectrica JSCo in the form of energy performance contracts is one of the opportunities proposed to research, however, another aspect to which drawing attention is a must is attracting major investments in the capitalization of the enterprise. Usually, such investments are necessary in major processes of reformation, re-engineering, such as the construction of new generation sources of significant capacities, the cost of which amounts to over 100 million Euros.

In the energy strategies of the Republic of Moldova during the years starting from the 2000s, provisions were included that established the need for the construction of new sources of electricity - thermoelectric power plants on natural gas, including in the energy strategy until 2030. However, the financial sources for the construction of such plants have not yet been identified.

## 5. Conclusions

The need to develop relations in the thermal energy sector and their evolution as a result of the implementation of the European Union Directives, led to the approval of a series of new regulations in this sector, the impact of which has not been studied.

Considering the multitude of new regulations approved by state bodies at different levels, the activity of companies in the thermal energy system will undergo radical adjustments, and their impact depends on the ability of the company's management to react promptly and identify the optimal solutions in order to bring maximum efficiency to these complex processes.

The need for the development, testing and implementation of complex systems for the management of thermal energy enterprises is emerging, systems that will be based on the multitude of new regulations, as well as from the practice of their application.

The engineering of structures for effective management of processes within the enterprise will gain particular weight in the process of adapting to the new realities in which enterprises in this sector have found themselves, and the application of effective management measures will allow their sustainable development.

The efficiency of the enterprise management process will certainly lead to the optimization of costs and, as a summary effect, to the reduction of tariffs for thermal energy and electricity paid by final consumers, and the state as the holder of the control packages of shares (100%) in the largest thermal energy companies (Termoelectrica JSCo, TPP Nord JSCo), will have a viable enterprise that develops without major support interventions.

For the future research, is advisable to be carried out an analysis of the possibilities and ways of attracting major investments through the capitalization of the company Termoelectrica JSCo, including through the issuance of open or limited shares with their subscription by private individuals, or the issuance of bonds.

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# **Materialism Unwrapped: Examining the Values Promoted in Television Commercials for Games and Toys During the Holiday Season. A Content Analysis of December 2020 and 2021**

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## **Abstract**

*Games and toys advertisements play an instrumental role in consumers' socialisation process. They help children discover the products available on the market, and shape their desires, attitudes and behaviour according to the values promoted. In this paper we aimed to identify whether Romanian toy and game advertisements encourage materialism. Based on the literature on materialism we constructed codes for content analysis using four characteristics: happiness associated with possession of a toy, addressability to the child, collectability and increased self-esteem. Based on these four codes we conducted a content analysis of TV ads for games and toys from December 2020 and December 2021. We analysed seven TV channels, 2070 minutes of content each year and 248 ads. The results illustrated that materialism is encouraged in the majority of TV ads. The research brings attention to the ethics of promoting products to children.*

**Key words:** materialism, values, children advertising, games, and toys

**J.E.L. classification:** M37

## **1. Introduction**

We are exposed to a considerable amount of media hype and a diversity of products on the market. We live in a consumer society where everything encourages us to have more. We are all born into this culture, and our actions and behaviours are related to the consumption behaviours of others (Cook, 2008). A child's room serves as a branded space. In this place, parents collect toys, clothes, furniture and food, all bearing brand names. This action is the first step in consumer socialisation for the child (McNeal, 2007, pp.40- 42).

Parents and educators need media literacy to help children develop a deeper understanding of the consumer socialisation process. The purpose of this study is to explore the content of television advertisements for toys and games released during the Christmas season in 2020 and 2021. We wanted to understand how these advertisements promote materialism. Based on the literature, we have identified four characteristics of materialism and transformed them into codes based on which we have analysed toy and game advertisements on the Romanian market.

## **2. Literature review**

The circumstances analysed in this research consider three elements: play as a form of transmitting cultural values to children, in this case, those related to materialism; advertising as a form of shaping children's behaviour based on the values illustrated; games and toys promoted in advertisements as a way of incorporating the first two elements.

### **a) Play**

Play can improve children's development in different areas: cognitive, emotional and physical. It also gives parents and teachers an excellent opportunity to connect with their children. Over time, there has been an evolution in society's perception of toys, and play has begun to be valued for its

role in early brain development. However, choosing the right play solution can be challenging due to the variety of offerings (Healey, 2019).

The increase in interest and sales of games and toys is due to social and economic factors: although birth rates have declined, parents are buying more and more expensive toys; the number of divorced or separated families has increased, and this often means more relatives buying toys; most women are giving birth late, which means higher incomes for such products (Kotler et al., 1999, pp.154- 155) Other factors identified are: both parents work, which means higher revenues for children; children have their funds at their disposal, and this makes them a target for marketing (Calvert & Wilson, 2008) (McNeal, 2007, pp.311- 313).

Because games and toys have an important role, the researchers also draw attention to elements that provoke debate and fear. The anxiety about toys takes two aspects into account: the value of leisure time and children's vulnerability. With regard to children's vulnerability, concerns mention the negative symbols that toys represent. Typically, these claims argue that toys contain unwanted values that children acquire through play. Toys convey values with cultural implications and encourage materialism (Best, 1998).

Culturally, the game is perceived differently from one culture to another, from one ethnic group to another or from one socio-economic group to another. For example, play can be seen as essential for children's cognitive and social development in many technologically developed Western countries, but it can be viewed as less significant in more traditionalist countries (Roopnarine, 2010).

Sutton-Smith (Sutton-Smith, 1997, pp.124- 135) reinforces the above claims. He believes that for a child play and imagination are important elements of socialisation through which they acquire values and ideals.

#### **b) Values transmitted through advertising**

Advertising does not create abstract images. It describes values that reflect consumers' dreams in a particular culture. In our society and culture, advertising can be a form of influence. It can influence understanding, viewpoints, emotions, choices, and actions, but the reality illustrated by advertising is not always genuine. In fact, it can be a distorted mirror in which only parts of our lives and values are portrayed (Pollay et al., 1990).

Media has a significant impact on consumers' lives. It creates preferences for certain types of food or clothing, as well as religious preferences or beliefs. Marketing can be described as a channel used to promote and endorse their products using advertising as a tool. Marketing is also significant in the process of socialisation of children. But media creates huge discrepancies between reality and desire, and marketers use it to promote desired ideas and values (Vandana & Lenka, 2014)

Consumer culture has a negative effect. It is supposed to offer freedom and power, but, in fact, it makes consumers buy frequently to establish their identity. Consumer's personal identity is often associated with material goods. In this context, material goods represent significant symbol for personal and social identity (Dittmar, 2007). When describing advertising to children, we talk about different ways of persuasion. The content is not factual or rational, it expresses emotions and affection. For a child, this content is persuasive (Nairn et al., 2007).

Desire plays an active role in creating and maintaining personal and social identity. Consumer culture increases desirability and perpetuates materialism. When consumers watch advertisements, they constantly compare what they have with what they want. Because this comparison is often negative, this leads to mental and physical discomfort. "While people believe they are expressing their selves and attaining happiness, they are, in fact, developing, monitoring, and molding their identities with respect to unrealistic ideals promoted by consumer culture through advertising." (Dittmar, 2007) Marketers should look for solutions for responsible campaigns that promote games and toys through the lens of children's psychological, emotional and cognitive development, and the best ones are those that allow free, unstructured play (Ginsburg, 2007).

#### **c) Values from games and advertisements mirrored in society**

Toys illustrate aspects of the adult world. They are symbols of roles, situations, objects or relationships in life and society. If toys and advertising content can represent symbols of human life, then children can use them to recreate values, rules, roles (Kline, 2017).

Bandura (Bandura, 2001) argues that children observe different behaviours and, if they find motivation, mirror them in their actions. Children observe, memorize information, encode it and find an appropriate representation. These processes lead to changes in behaviour, depending on how they are rewarded or punished.

Although technologies are changing rapidly, children's developmental needs, such as "friendship, identity, and emotional regulation, have remained constant" (Calvert, 2015, p.383). However, corporations accumulate huge profits from misdirecting children to seek identity and happiness through consumption (Hill, 2011)

Factors such as religion, politics, language and economics can produce differences in materialism tendencies between countries and cultures. These differences may be related to social and economic conditions. Another factor is associated with the fact that countries and populations are described and influenced by unique characteristics. Abib and El-Bassiouny (El-Bassiouny & Adib, 2012) constructed a model for studying materialism that describes several variables: materialism as a criterion variable, parents as a socializing agent, social interaction in the family; gender, education, religion and socio-economic status as variables of social structure and age.

A study in Denmark tried to find out what children want for Christmas and compared the results with brands advertised on TV. The study illustrated that 51.6% of children surveyed requested at least one brand advertised during the period investigated. These desires have several predictors: age and gender of the children, time spent watching TV on the channel that broadcasts most advertisements (Buijzen & Valkenburg, 2000). Looking at the toys, the associated symbols and the distribution chain, we can understand the identities promoted and desired by children. We can predict identities related to race, ethnicity, status and gender (Reich et al., 2017).

### **3. Research methodology**

The aim of this research is to identify the values represented by the marketing of children's games and toys as identified in TV advertisements for these products during the Christmas period.

Games, as we have already pointed out, are ways to help children discover and adapt to the world in which they live. Advertisements are ways for children to learn and discover the world they live in. The questions this research addresses are: What is the issue? How do children see themselves in advertisements? Are there references to materialism?

The objective of the analysis is as follow: Identify the illustration of materialism in the advertisements for games and toys broadcast on children's TV channels during the Christmas period in 2020 and 2021.

The technique used to identify, research and collect data is observation of game and toy advertisements broadcast on children's TV channels during the Christmas period from 1-23 December 2020 and 1-23 December 2021, and the instrument used is video recording sheet and observation sheet. The observation sheets mentioned: TV channel, day, time slot observed, brand and product promoted.

The method used is mixed inductive-deductive. Based on the selected sample of commercials will generalize the analysis to the entire category of TV commercials for children's games and toys on the Romanian market. Context is important it reflects only the commercials broadcast on children's TV channels and not the whole category of commercials.

#### **a) Sampling**

The advertisements analysed were those appearing on children's TV channels: Nickelodeon, Boomerang, Disney, Cartoon Network, Disney Junior, Minimax, Nick Jr. Ads for games and toys were observed on all of these channels for 90 minutes per day between December 1-23, 2020 and 2021. The period chosen was December, an relevant month for marketing games and toys. We observed 90 minutes per day to cover different programmes, those 90 minutes were chosen randomly, Monday to Friday from 12:00 to 21:00 and Saturday and Sunday from 10:00 to 22:00. We selected this method because the purpose of the research is to identify values in game and toy advertisements for as many products as possible, and not necessarily the frequency with which these advertisements appear. Choosing a single daily time slot could only illustrate the presence of certain ads specific to a certain age and content.

The technique used to process, analyse and interpret the data is content analysis: the language used in the advertisements, expressions, associations and explicit or implicit references to materialism: words, behaviours, emotions or contexts. We have detailed in the section about coding all the elements subject to the analysis and how it was done.

The process consisted of coding the texts and video images from the previously filmed advertisements into recording units. The establishment of these units was based on aspects identified in the literature, as described below.

## b) Coding

Materialism is described in the literature by a few key elements that underpin consumer life. Richins and Dawson (Richins & Dawson, 1992) synthesise the research in this area and describe materialism in three characteristics: the level of need for possessions - material things considered essential to one's life; the level of happiness achieved by owning material things; success judged based on owning material things.

Belk (Belk, 1984) defines materialism as "the importance the consumer attaches to worldly possessions and the belief that these goods and services bring the greatest source of satisfaction or dissatisfaction in life". Easterlin and Crimmins (Easterlin & Crimmins, 1991) describe it as a pursuit of material well-being. In all three of the above perspectives, materialism has two elements: attachment to material things and the idea that these material things can provide happiness.

Oprea (Oprea, 2011) developed a scale of material values for children. It consists of three subscales: emphasis on material objects, material happiness and material success. (Oprea, 2011) suggests that for a materialistic child, some values are more important than others. He attaches more importance to material things or possessions, finds satisfaction in acquiring material things. He believes that a child with more possessions is more successful than one with fewer possessions.

Schor (Schor, 2004, pp.220- 236) in her research on children has developed a consumer involvement scale that includes three categories: dissatisfaction (rated in terms of how satisfied or dissatisfied the child is with the things he owns relative to other children or relative to what his parents can spend on him), consumer orientation (rated both in terms of the things he wants to buy and in terms of attachment to possessions ("I care about my games, my toys and other possessions.") and brand awareness.

The studies presented thus illustrate materialism as happiness associated with the possession of goods, in this case, the possession of games and toys, and the pursuit of this goal through the purchase of as many games and toys as possible (in the advertisements, this is encouraged through collectables), but also through the way the child sees himself in terms of the things he possesses, increasing self-esteem. In this analysis, we will add to these three elements another aspect, addressability. If it addresses the child, then the impact is higher. If it addresses the parents, then the game or toy should focus more on the benefits for the child's development. We have summarised the above aspects under the following codes:

Table no. 1 Materialism Codes

Code	Description
<b>Addressability</b>	The message of the advertisement is addressed to the child offering him/her stimuli that contribute to the desire to have the game/toy, or it is addressed to the parent and appeals to the tangible benefits of the product
<b>The happiness associated with possession</b>	Happiness associated with the possession of a game or a toy
<b>Self-esteem</b>	Whether or not product possession is associated with increased self-esteem
<b>Collecting</b>	Repeated purchase is encouraged by illustrating several products from the same set or collection.

Source: own processing

We used a mixed inductive-deductive methodology to correlate codes from the ideas and results of other studies with the ideas obtained by observing the present ads. Two of these codes: happiness associated with possession and self-esteem are directly related to results from other studies. Collecting is an indirect association related to a materialistic person wanting more things. In the process of selling toys, one way to increase possession is the idea of having all the toys in a particular collection or set. Adversity is that marketers want to promote these values directly to children. The child knows that the ad is aimed directly at them, so they want the product.

#### 4. Findings

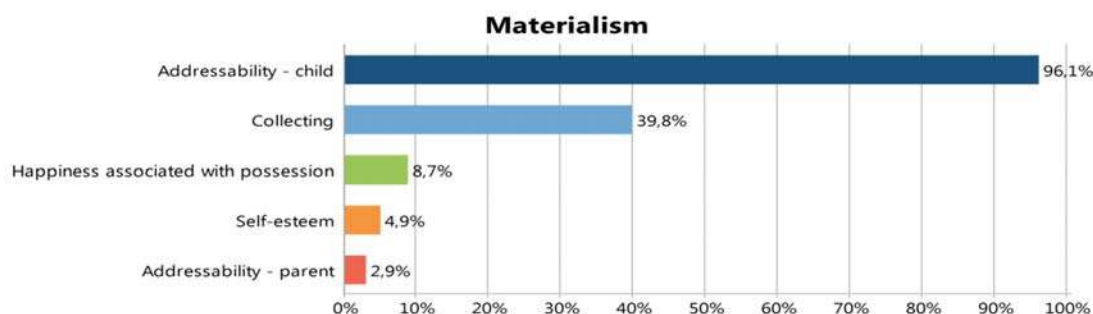
We observed seven TV channels from December 1-23, 2020 and 2021: Nickelodeon, Boomerang, Disney, Cartoon Network, Disney Junior, Minimax, Nick Jr. Observed content amounts to 2070 minutes of TV content, 1077 ads observed, 108 ads for various games and toys. We analysed these 108 commercials.

The content analysis concerns ads for children's games and toys. Children are late in acquiring the ability to abstractly and logically relate different aspects of reality and have difficulty understanding the advertising message (Valkenburg, 2017) (Schor, 2004) (Gunter, 2015). With this in mind, coding took the most explicit values as content units. We did not seek to interpret metaphors, interpretative aspects or ideas that are difficult for a child to understand.

The aim is to identify the illustration of materialism in the advertisements for games and toys broadcast on children's television channels during Christmas.

We have previously mentioned that materialism will be analysed in ads during this period based on four coding units: message addressability (the ad is directed to the child or parent), happiness associated with possession, self-esteem and collectability. The results of the analysis are highlighted in Figure 1.

Figure no. 1 Materialism Results 2020



Source: own processing

The first coded aspect was addressability. At this point, 91% of ads are addressed to the child, and only 2.8% of the ads are addressed to parents. Commercials addressed to parents belong to hypermarkets running promotional campaigns for games or toys during Christmas. A few advertisements 4.6% are too general to fit into one of these two categories. As mentioned above, the coding was simple. We want it to be self-explanatory, as for a child's understanding.

38% of the ads suggest repeated purchases or accumulating as many games and toys as possible by encouraging collecting: "discover new characters", "discover all sets", "discover all characters", "more variations", "sold separately", "each set sold separately", "new sets", "collect", "what a great collection", but also by explicitly illustrating several products in the same category in the ads. In some cases, multiple sets from the same collection were used together in the same ad with the words "each set sold separately". In this way, elaborate game scenarios have been created to suggest that the child needs several sets to complete the collection.



Table no. 2 Materialism results 2020

Code	Percentage	Expressions
<b>Addressability child</b>	96.10%	"Control it", "Are you sure?", "Show me", "Discover", "You can enlighten yourself", "If you feel like playing", "Which one will you choose?", "Be the first", "Let's see", "Take care of them"
<b>Collecting</b>	39.80%	"Discover the new characters", "Discover all the sets", "Discover all the characters", "Several variants", "Sold separately", "Each set is sold separately", "New sets", "Collect", "What a wonderful collection"
<b>Happiness associated with possession</b>	8.70%	"Wow! How many presents I received", "I'm so happy", "Now she's here to make you happy", "Always be happy", "favorite", "lifelong friend"
<b>Self-esteem</b>	4.90%	"No one surpasses us", "It's your style", "Grow up"
<b>Addressability parent</b>	2.90%	"family games", "The little ones enjoy both food and play"

Source: own processing

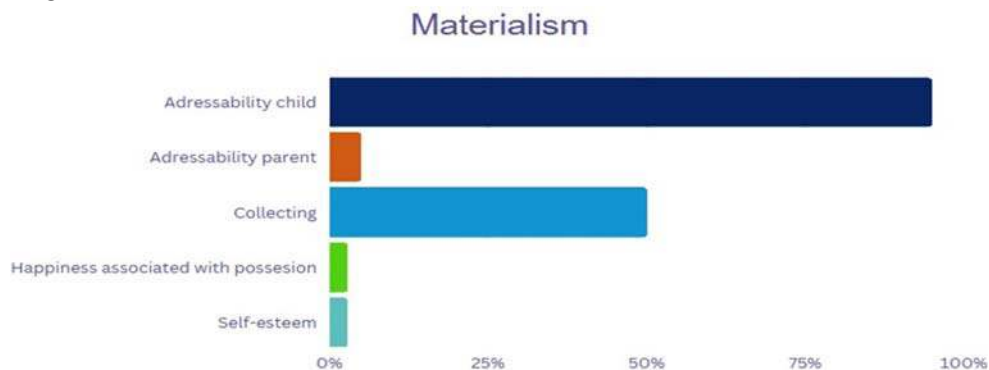
Happiness associated with possession is illustrated in 8.3% of ads. In this case, strictly happiness associated with possession was considered: "Wow! How many presents I got", "I'm so happy", "Now it's here to make you happy", "Always be happy". We also associated possession-related happiness by associating attachment to a particular toy that becomes a "favourite" or "lifelong friend". We considered these units in this code because they reflect a personification of toys and their transformation into objects of attachment for the child as presented in the literature.

Self-esteem appears in 4.6% of the advertisements, specifically for 5 products. In one coding unit, it was implied by illustrating several friends, one of whom owns the product and they all have a good time together, and in the others by explicit references to "no one beats us", "it's your style", and "grow up".

The analysis in 2021 is illustrated in the table below in Figure 2. In terms of addressability, 133 of the ads directly address the child, 95%: "She's waiting for you", "you can't help but love her", "come into the universe", "you'll fall in love", "enter the magical world", "create it your way", "find your way out", "get ready to sail", "watch her transform", "discover", "search", "you're ready to shine", "let's play", "turn on the music", "practice". Only 7 of the ads are aimed at parents. These adverts come from hypermarkets running promotional campaigns for games or toys during the Christmas period: "Still thinking about what present the little ones want from you to pass on to Santa?", "Children play and discover new things", and "Holidays are saved by the right price".

Fifty ads suggest repeated purchases or accumulating as many games and toys as possible by encouraging collecting: "lots to collect", "collect your princesses", "collect all the jewels", "discover them all", "sets sold separately", "collect the new collection", "multiple sets", "you can find hundreds of designs", "discover the whole collection", "additional sets sold separately", but also by explicitly illustrating in the ads several products in the same category.

Figure no. 2 Materialism Results 2021



Source: own processing



The happiness associated with possession is explicitly illustrated in 4 ads. Only the happiness associated with possession was taken into account: "to always be happy", "I'm so happy".

Table no. 3 Materialism results 2021

Code	Percentage	Expressions
<b>Addressability child</b>	- 95%	"She's waiting for you", "You can't help but love her", "Come into the universe", "You'll fall in love", "Enter the magic world", "Create it your way", "Find your way out", "Get ready to sail", "Watch it transform", "Discover", "Search", "You're ready to shine", "Let's play", "Turn on the music", "Practice"
<b>Collecting</b>	37.71%	"lots to collect", "Collect your princesses", "Collect all the gems", "Discover them all", "Sets sold separately", "Collect the new collection", "multiple sets", "You can find hundreds of designs", "Discover the whole collection", "Additional sets sold separately"
<b>Addressability parent</b>	- 5%	"Are you still thinking about what present the little ones want from you to pass on to Santa?", "Children play and discover new things", "Holidays are saved by the right price"
<b>Happiness associated with possession</b>	2.85%	"Always be happy", "I'm so happy"
<b>Self-esteem</b>	2.85%	"The secret of your charm", "Be cool and trendy", "Style to the max", "Be cool, be glam, be fancy"

Source: own processing

Self-esteem appears in 4 ads: "the secret of your charm", "be cool and fashionable", "style to the max", "be cool, be glam, be stylish".

In the methodology part, we pointed out that this content analysis can be extended to the whole market. In order to prove this claim, we need a wide analysis carried out on all marketing channels: social media, games, stores, etc. This content analysis is relevant, even if it refers to a small part of the marketing channels. Brands promoted on TV have the highest market share in Romania. The analysis included 108 ads in 2020 and 140 ads in 2021. The games and toys advertised belong to 12 manufacturers and distributors, 9 product brands and 3 hypermarkets. Two manufacturers and distributors run about 40% of the ads mentioned in the analysis.

## 5. Conclusions

In Romania, there are few studies on marketing to children, this field is regulated and aligned with European standards, but there is limited research in the matter. Romania is experiencing difficulties in family income, and the promotion of materialism and happiness associated with toy ownership creates discomfort and conflict in the family. Further analysis is needed to assess children's well-being in relation to the values promoted in society, including those portrayed through the marketing of toys and games.

Happiness is a value we constantly seek, but in a society subjected to large amount of data, economic change and mental and emotional problems, especially depression, happiness needs to be described in relation to others, not just in terms of possessions. The topic of Covid-19 pandemic was not reflected in advertising. The pandemic discomfort could be amplified by the desire for certain games and toys.

Qualitative research is subjective. This is the main reason why we have chosen codes that are as explicit as possible. We did not use semiotic, gestural or factual interpretations. We wanted to keep the values as practical as possible. There is a possibility that a small part of these coding units may differ in percentages for some values, but this will not affect the overall analysis and hierarchy.

The content analysed relates to one channel, TV commercials, but marketing has a wide range of promotional channels, of which the online environment is very relevant. This will be the subject of future research. In Romania, TV commercials are still widely used, and the logic of choosing this

channel starts from the costs of a campaign, if a company advertises on TV channels, then it has big budgets, then it has a significant market share on the Romanian market.

Another limitation is related to how a child feels these advertisements and the effects these values have on him. This aspect can also be part of a future analysis.

Efforts to investigate children's values in Romania need to be continued with further studies using different approaches. Interviews or other types of qualitative research can be carried out to investigate children's values and how advertisements for games and toys influence these values. Interviews with parents or educators can be conducted to assess how they relate to the content and values illustrated by the marketing of games and toys. Further content analysis can also be carried out in other channels, especially online and social channels. The analysed content should also be related to other actors in the Romanian toys and games market, actors that are not promoted on TV channels.

If we want to improve our understanding of marketing, of its role for children, and if we want to dissociate happiness from materialism, three strategies should be applied: regulating and limiting children's access to advertising, educating children in advertising marketing techniques, especially those related to persuasion, but also illustrating other forms that bring happiness in life: love, friendship, play (Opree et al., 2012). All these aspects can be integrated into a guide to media education and responsibility that will make marketing games and toys a responsible activity for the benefit of children and parents.

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# The Phenomenon of Resistance to Organizational Change in Companies of the Republic of Moldova Under the Conditions of Industrialization 4.0

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## Abstract

*Modern conditions of the external environment imply significant changes in the activities of companies. The changes are so significant that they are called the Fourth Industrial Revolution. Thus, the cardinality of changes is caused by the introduction of new technologies, which, on the one hand, significantly increase the efficiency of the enterprise, but on the other hand, carry many risks. Thus, the forthcoming changes in the enterprises of the Republic of Moldova are accompanied by resistance on the part of the personnel. The aim of the work is to identify the main causes of resistance to organizational change under the conditions of Industrialization 4.0, to diagnose the causes of resistance in Moldovan enterprises, and to develop recommendations for reducing resistance.*

**Key words:** organizational change, resistance to change, Industrialization 4.0, change management, resisting resistance.

**J.E.L. classification:** O32, O33, M19

## 1. Introduction

The phenomenon of resistance to organizational change is studied by almost all researchers interested in organizational development. It is a natural state of a person, a group, an organization. Changes which are connected with the Fourth Industrial Revolution are accompanied by high speed, uncertainty and complexity, owing to necessity of use of new technologies which absolutely uncertainly can influence both the organization, and on a society as a whole. Accordingly, such rapid and dramatic changes are often perceived negatively, or at least cautiously. What are the main fears of employees, what are the factors of resistance, as well as whether it is possible to counteract this condition and what should be done to implement organizational change - **the purpose of this study.**

Thus, this goal is concretized by the following **tasks:**

- ✓ to clarify the peculiarities of the concept of Industrialization 4.0 and to consider the main factors promoting and negatively influencing organizational change in the conditions of the Fourth Industrial Revolution;
- ✓ to consider the theoretical basis of the concept of resistance and to identify the main features of resistance to organizational change in the modern environment;
- ✓ to consider the peculiarities of organizational changes in small and medium-sized enterprises of the Republic of Moldova, among which the present study was conducted, which included 175 enterprises, which were conducted between January and May 2023;
- ✓ to clarify the causes of resistance to change in the studied enterprises and to identify their characteristics;
- ✓ to develop the main development ways that would contribute to organizational changes in small and medium enterprises of the Republic of Moldova.

## 2. Literature review

The phenomenon of the Fourth Industrial Revolution is closely associated with the name of Klaus Schwab, who back in 2011 at the World Economic Forum in Davos proclaimed this concept in the context of the need to industrialize the German economy and move it to a new degree of development, using the latest technologies associated with artificial intelligence, robotics, the Internet of Things and other technologies that should make a breakthrough and move the economy in a new direction. (Schwab, 2016)

More than a decade has passed since then, and during that time, there has been quite a lot of research related to the use of Industry 4.0 technologies. In addition, many authors focus on the problems of organizations' transition to a new path of development in connection with the general penetration of technology in business and life of ordinary people. So, Thomas Siebel talks about the "era of digital transformation", which almost identifies Industrialization 4.0 with the concept of digital transformation. Other researchers, Andrew McAfee and Eric Brynjolfsson, refer to the era of modernity as "the era of machines" (McAfee *et al*, 2017)

Several features can be noted in Schwab's statements regarding this process:

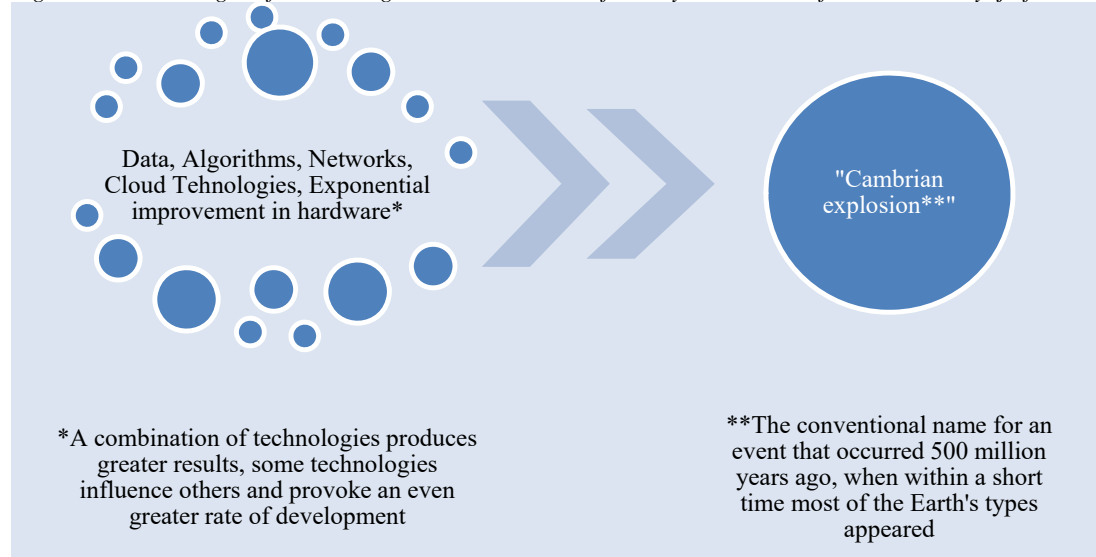
- First, any change is associated with the latest technology.
- Secondly, in addition to the need to master new technologies, it is necessary to navigate the provocative changes of the future, based on the interaction of different types of technology, which will make a breakthrough not only in business, but also in everyday life.
- The third feature is the speed of change, which is significantly different from the speed of previous changes. The authors call it exponential. Thus, the faster technology advances, the more significant will be its impact on productivity, industry, investment and organizational change.
- Fourth, the most important point is the blurring of boundaries between machines and humans: the further we go, the more we will feel machines are part of us, and the harder it will be to do without the Internet of Things, gadgets, computers, etc. (Schwab, 2018)

Technology, by interacting and combining, will create a synergy effect, that is, a multiplication of the effect of their association. At the same time, almost all authors note that the new technologies and the way people act will have both many benefits and a huge number of problems.

Scientists Tjeu Blommaert and Stephan Van Den Broek speak of the Fourth Industrial Revolution as a "new normal" that will change the entire world system. They also, like the other authors, focus on breakthrough technologies that cannot be ignored. Under their influence the whole world is changing: customers are oriented towards individual goods, given that they have almost 100% knowledge of all the offerings, properties and service processes associated with it. All enterprise processes will soon be digitized. To give up digitalization implies to give up the opportunity to survive. Therefore, all companies must take advantage of digitalization or they will cease to exist. Then there will be the integration of all processes, which will ensure even greater speed of delivery, payment, feedback and process resumption. In such a world, there is an even greater need for management, or rather a completely new approach to management. An indispensable requirement for the renewed approach is the possession of a high level of emotional intelligence. The new organizational structure involves abandoning the hierarchy and bureaucracy that were so important in the previous era. Hierarchy is replaced by multifunctional and self-organizing teams. All stakeholders become part of an ecosystem in which each member is part of a "value system" (Blommaert *et al*, 2019).

Andrew McAfee and Eric Brynjolfsson identify five signs of the coming "Robot Invasion". By this term, they refer to massive developments in five interdependent areas: data, algorithms, networks, cloud technology and hardware improvements that are occurring at an exponential rate.

Figure no. 1. Five signs of the coming robot invasion as defined by Andrew McAfee and Eric Brynjolfsson



Source: Developed by the author based on research results: (McAfee *et al.*, 2017)

**Data** that has been recorded for decades is becoming increasingly vast, the speed of encoding has increased dramatically recently, and new types of information have emerged, such as touch signals in phones, digital photos and videos, and information from social media content. So big data is emerging that can only be processed with special software.

**Algorithms.** Huge amounts of data can be processed only with certain algorithms using artificial intelligence and machine learning. Such algorithms begin to update themselves; this process is called machine learning or deep learning. Thus, more and more new algorithms appear, which may later become impossible for human understanding.

**Networks.** Significant improvements and acceleration are taking place in communications technology. The increase in speed also implies faster data accumulation, which will enable seamless communication between different robots, which will ensure even greater development of the Internet of Things.

**Cloud technologies.** They offer a huge amount of computing power. Various jobs are performed in the Cloud, which can be divided into tasks by individual robots as well as centralized operations and processes. Cloud interconnections help to orient the individual participants in the process-they receive information based on the algorithms that the cloud generates.

**Exponential improvement in hardware.** The performance of digital equipment is increasing manifold. The emergence of new technologies provides even greater speed and distribution. This is noticeable in absolutely all fields of activity. Microchips are getting smaller and smaller, and their performance is increasing.

All of these factors have a major impact on increasing the rate of innovation, as well as creating gigantic flows of data. The combination of these factors is leading to revolutionary changes in business.

Given the above changes, it is obvious that they are facilitated by major changes in the organization, which, in one way or another, will be associated with resistance. Next, let us consider the concepts of some of the authors, revealing the causes of staff resistance.

Resistance to change has been studied by many gurus of change management (J. Kotter, P. Drucker, K. Levin, D. Garvin, M. Roberto, W. Chan Kim, Renee Mauborgne M. Beer and many others). These studies can be summarized in several conclusions:

- ✓ First, resistance is the natural reaction of the organism, and consequently of the group, to any transformation, as it forces them to leave their "comfort zone".
- ✓ Second, resistance is often related to the uncertainty that accompanies change. Fear of the unknown most often draws negative predictions about the amount of work, changes in the employee's position, or fear of losing the job. Here it is worth noting that the changes

associated with Industrialization 4.0 are largely related to the replacement of manual labor with machine labor, and, accordingly, the fear of employees losing their jobs.

- ✓ Thirdly, the success of any change depends directly on the leadership style, and accordingly, the model of behavior of the leader and the organization.
- ✓ Fourthly, changes largely depend on the motivational attitudes of employees. Without influencing them and not understanding these attitudes the failure of change is guaranteed.
- ✓ Fifth, of course, change needs resources: financial, informational, and human. For their correct and effective distribution, it is necessary to develop a model of change, an action plan and a vision for changing the future.

For example, according to Kotter's well-known model, several cardinal mistakes are made that affect the entire course of change. First of all, it is the lack of an atmosphere of urgency. This may be due, according to Kotter, to the fact that the company has "too many managers, but no leader." The leader must inspire the team to action, as well as convince them of the urgency of action and the criticality of the situation. The second problem with change, Kotter says, is the lack of an influential team of reformers. It is a mistake to delegate change management to the heads of departments, because the interest of the head of the organization and the impetus for change should come from him. Another mistake is the lack of a vision, which both the leaders themselves need to have and to communicate to all stakeholders. Even if the vision is established, another mistake that can be made in implementing organizational change is not effectively communicating the corporate vision. Kotter talks about different behaviors in communicating the vision to the organization.

Often ineffective corporate communications or lack thereof can affect the outcome of change. The next barrier in implementing organizational change is the lack of addressing the obstacles that arise in the implementation process. As an obstacle may be the shortcomings of the organizational structure, or insufficient motivation of employees, and the most serious problem in this context is the limitation of managers who themselves do not want to change. Also, serious problems in this process are the lack of systematic planning and the lack of focus on intermediate short-term results as part of strategic planning. Since quick results motivate employees to further accomplishments they must be established and felt. If this approach does not exist, it demotivates employees, because sometimes long-term victories have to wait a long time.

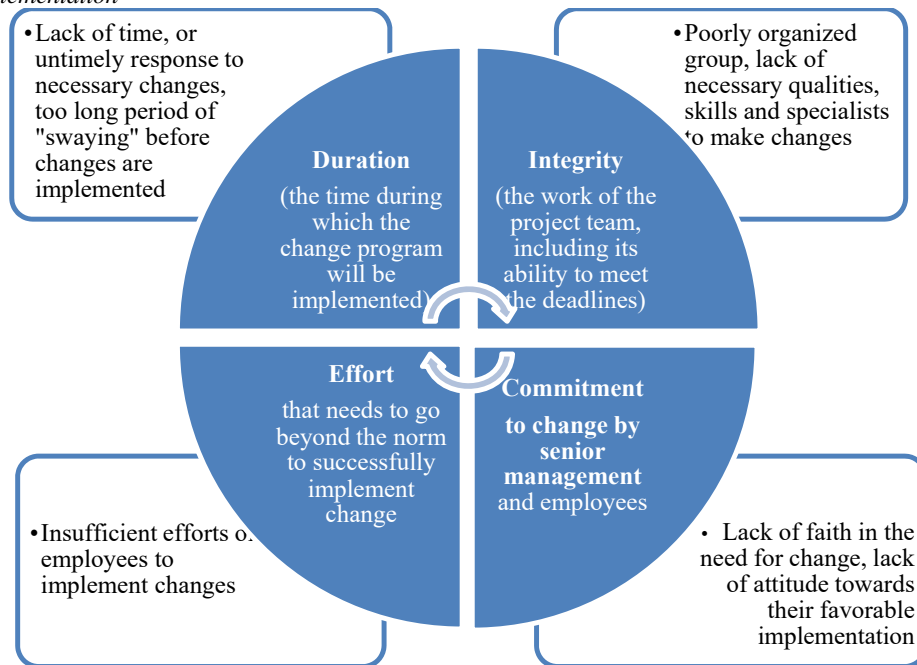
At the same time, another problem is the premature celebration of victory, which can be observed with excessive joy in implementing change. And another devastating mistake is the lack of anchoring change in organizational culture. New approaches must become part of the social norms on which the organization will operate; otherwise, the whole process of change can go backwards. (Kotter, 2012)

Other researchers Jang Kim and Renee Maubor identify four major problems of organizational change. The first is an obstacle in the minds of workers, the second is the problem of resources, the third is the lack or inefficiency of motivation, and the fourth is the so-called political barriers, which are associated with the opposition and its actions in the course of change. Thus, researchers believe that overcoming these barriers will help to successfully implement change. (Chan Kim *et.al*, 2003)

Another group and researchers (Harold Sirkin, Perry Keenan, Alan Jackson) identify four factors of change, the mismatch of which can cause a problem of organizational change. They identified these factors as the DICE (Duration, Integrity, Commitment, Effort) model.

Thus, the DICE model schematically will look as follows. (Figure 2).

Figure no. 2. Schematic representation of the DICE model and the problems associated with its non-implementation



Source: Developed by the author based on research results: (Harold L. *et al.* 2005)

So, the reasons for resistance to change are many. Therefore, let us further conduct the results of an empirical study, which presents the main reasons for resistance to change in small and medium-sized enterprises in the Republic of Moldova.

### 3. Research methodology

The study of organizational change problems was conducted in the period January-May 2023. The study involved 175 representatives of small and medium-sized enterprises in the Republic of Moldova. The study was conducted on the basis of a questionnaire, which included questions that were relevant to the topics and clarify the specifics of organizational change in the conditions of Industrialization 4.0. The study is part of a post-doctoral study financed from the national budget of the Republic of Moldova, number 22.00208.0807.10/PD on "Creating the organizational change management model for small and medium enterprises through the challenges of Industrialization 4.0".

Owners, managers and employees of companies participated in the study. It was important for us to bring together the opinions of all the actors involved in the organizational change, which in one way or another will have to be carried out, taking into account all of the above factors and the revolutionary changes occurring in the external environment.

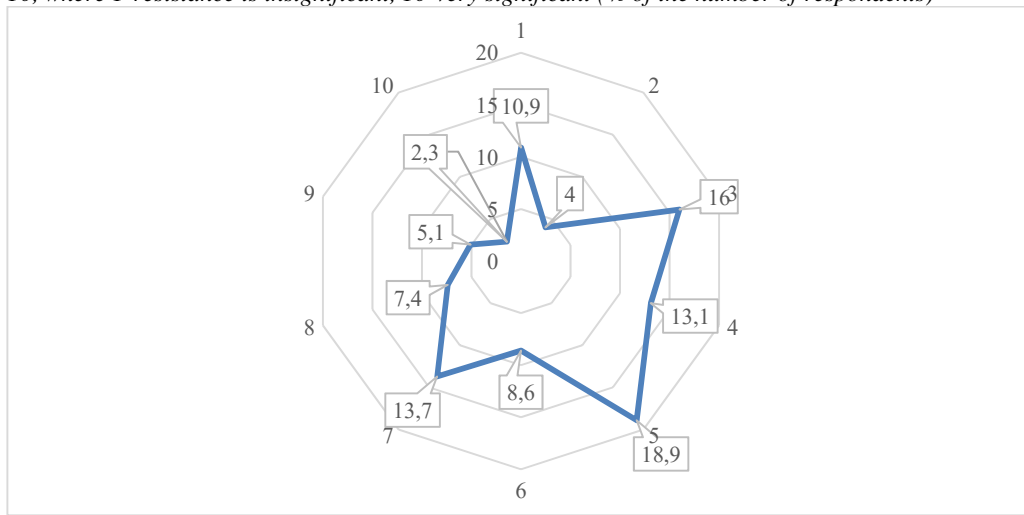
The work uses methods of analysis, synthesis, as well as a graphic representation of the results of the study. The survey questions are based on the methodology of the authors of the concepts associated with the phenomenon of the Fourth Industrial Revolution and change management.

### 4. Findings

One of the points of the study was the respondents' assumption about the strength of resistance to change, where they were offered a rating scale from 1 to 10, where 1 is insignificant resistance, 10 is very strong resistance, inhibiting the process of change. The results were distributed as follows (figure 3).



Figure no. 3. Level of resistance to organizational change by employees of enterprises on a scale of 1 to 10, where 1-resistance is insignificant, 10-very significant (% of the number of respondents)

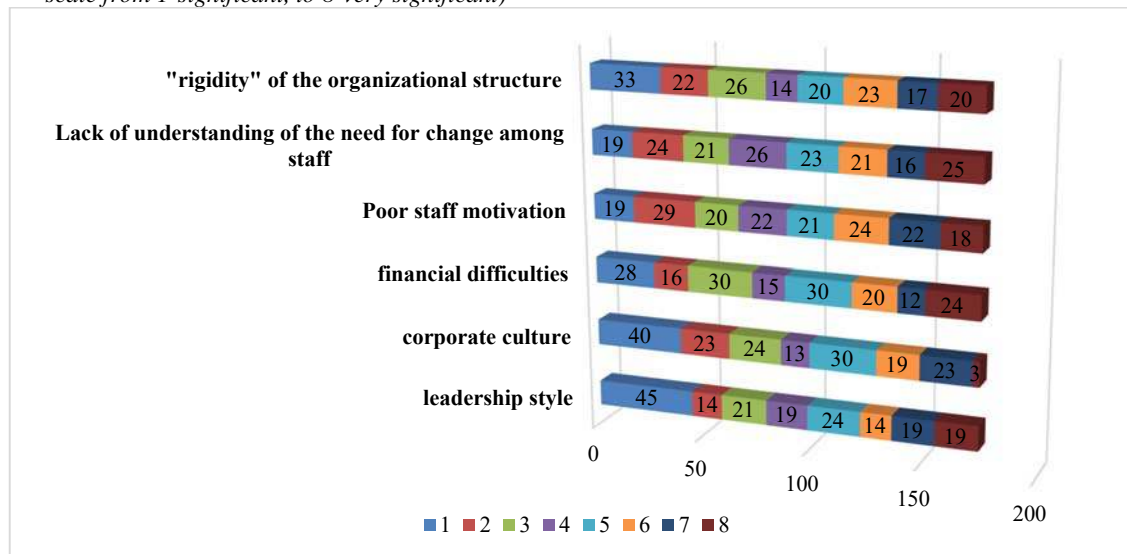


Source: Author's research results

As can be seen from the chart, the highest percentage of respondents noted an average level of resistance to change, that is, the value of "5" on a 10-point scale was noted by 18.9% of respondents. This indicates an average level of staff resistance to organizational change. Further, 16% of respondents indicate a level "3" on a 10-point scale of resistance to change, 13.7% indicate a level "7" and 13.1% indicate a level "4". Thus, summing up the results till the level 5 (presumably it is the average level of resistance - in 50/50 estimates), in total 44% of respondents marked the points between 1-4, after "5", that is from 6 to 10 - 37,1% of respondents, which is already, in our opinion, a positive moment.

Conducting the study further along the same lines, we asked respondents to note which factors were the most resistant to change in companies. Here respondents were offered an 8-point scale, with 1 being insignificant and 8 being very significant.

Figure no. 4. Factors that have the greatest impact on resistance to organizational change (score on a scale from 1-significant, to 8-very significant)



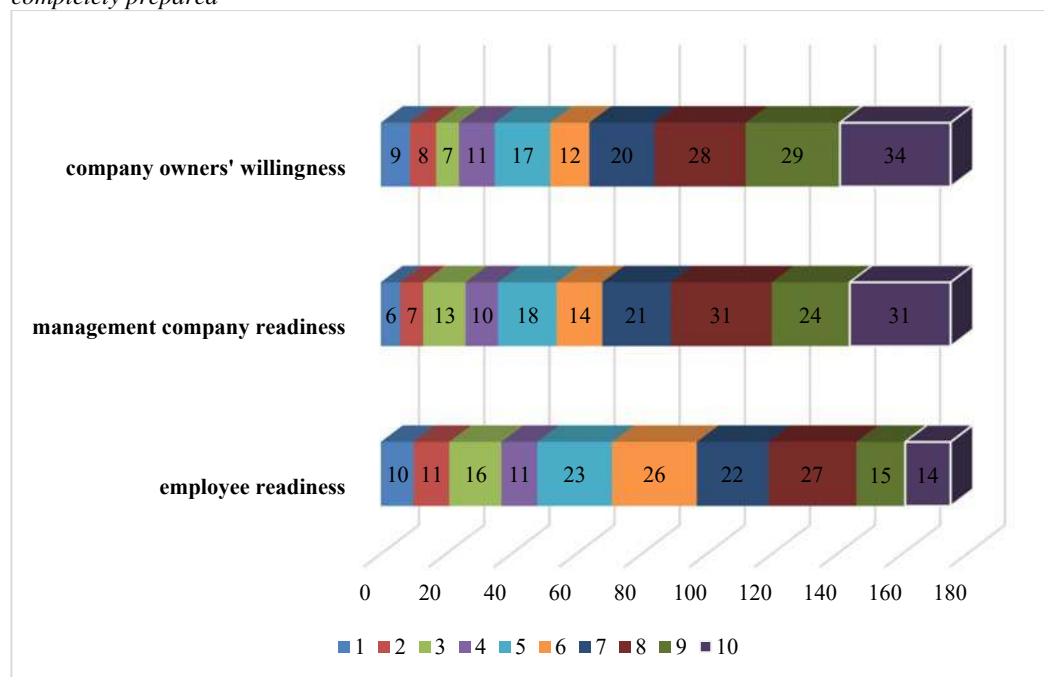
Source: Author's research results

The chart shows that the smallest cause that influences employee resistance, according to respondents, is leadership style and corporate culture. The biggest reason is the lack of understanding of the need for organizational changes by employees and managers, as well as financial difficulties, which affect, especially in the last period, small and medium enterprises in the Republic of Moldova.

The chart shows that the smallest cause that influences employee resistance, according to respondents, is leadership style and corporate culture. The biggest reason is the lack of understanding of the need for organizational changes by employees and managers, as well as financial difficulties, which affect, especially in the last period, small and medium enterprises in the Republic of Moldova. Next in importance is "rigidity" of organizational culture, which can also hinder organizational change.

Another important question for respondents was to assess the readiness of staff, management and owners to transition to new principles of operation using the latest technologies associated with the process of Industrialization 4.0. Here, respondents were also asked to rate their readiness for the transition based on a scale of 1 to 10 points, where 1 was completely unprepared, 10 was completely prepared. Thus, the scores were distributed as follows (Figure 5).

Figure no. 5. Assessment of the ability of your company's staff to work with new technologies (artificial intelligence, digitized processes, etc.) on a 10-point scale, where 1 is completely unprepared, 10 is completely prepared



Source: Author's research results

Figure 5 clearly shows that the willingness to change the owners of the company clearly exceeds the willingness of other categories. Thus, the maximum ratings of 9 and 10 levels of readiness of business owners are noted in total by 63 respondents, which is 36% of all respondents. At the same time, the maximum level of staff readiness (the number of respondents who marked 9th and 10th readiness in this category) is 29 people, which is 16.5% of all respondents. Also, respondents note the maximum readiness of the company's management in 55 cases, namely, in 31.4%.

These findings support theoretical research in the field of resistance to change. The owners of the company, being the most interested in the competitiveness of companies and their further prosperity, are more concerned about the need for organizational changes. At the same time, management, often being employees, on the one hand understands the need for changes, due to the specifics of their work, and on the other hand, they are afraid or resist changes, taking into account often unforeseen consequences.

The personnel of organizations, on the other hand, is interested in the stability of companies, but on the other hand, they think more about the stability of their position, the long-term work in the company, they are afraid of losing their usual way of life, retraining and wasting time on this, therefore, this category is more inherent resistance, which explains the data of the study.

## 5. Conclusions

Conducted studies of the theoretical aspects of industrialization 4.0 and resistance to change confirm a large number of reasons why the personnel of organizations resist change. The primary reason is the natural state of a person to be in a comfort zone and the fear of breaking this state.

In addition, researchers name many reasons that negatively affect organizational change. This is the lack of desire of management and employees to implement changes, this is a leadership approach that is not adequate to the current situation and therefore provides even more resistance, this is the timing of the change project, which may not be appropriate or insufficient to obtain beneficial results. Also, among the reasons for resistance, an organizational culture is often cited that is unable to encourage employees to make changes, or is more focused on obtaining short-term results, and therefore employees have a fear that in the near future the results will not be what they would like. In addition, one of the factors of resistance is the fear of managers and owners to lose what they currently have as a result of organizational changes. This may relate to any assets, or customer base, or competitive position in the market. Many problems are associated with the lack of funds for the implementation of changes, as well as the lack of a clear developed strategy for change.

Given the global changes that are provocative today, the listed causes of resistance are even more relevant. The upcoming changes imply a reorientation of the entire company's activities, even if entrepreneurs first think about the digitalization of one or more processes, rethinking the entire system will be a necessary factor for survival in the future.

The conducted research showed the average level of resistance of organizations to organizational changes. Respondents to a greater extent attribute the lack of understanding or insufficient awareness by employees of the need for changes to be the reasons for resistance. This problem is also addressed by Kotter, who advises in his well-known model of change to "create a sense of urgency", as a result of which all personnel are aware of the need and inevitability of change.

The most important point that causes resistance to change is the weak motivation of the staff to carry them out. On the one hand, changes require additional effort and time, on the other hand, the expectations of employees are most often aimed at increased motivators during this difficult period of time for the company. Therefore, their absence can serve as a demotivational factor.

Problems related to the inefficiency of the organization's function were also highlighted by employees as one of the resistance factors. The organizational structure can be built inefficiently in terms of the distribution of work tasks, inefficient delegation of authority, fuzzy or indefinite work regulations. So, any change will be facilitated by an updated organizational structure. Conversely, its stiffness will influence against change.

Also, the study showed a greater willingness on the part of the owners to implement changes than on the part of management and employees. Managers also understand the inevitability of change, but at the same time show less willingness to implement it. This may also be related to the fear of the responsibility that will be assigned to management personnel during the period of implementation of the changes.

Summing up this work, it should be noted that resistance, as a natural phenomenon, will exist at the initial stage of the change process, at the same time, at each specific enterprise, it is necessary to study the reasons for such resistance. Although common factors have been identified, at the same time, depending on the individual history of the organization, the approach to leadership, to mentoring that is present in the enterprise, these processes may vary. We also note that the object of research - small and medium-sized enterprises have their own specifics, which is also manifested in the specifics of changes. On the one hand, it seems that it is much easier to make changes in small companies, given the smaller number of employees and the greater specialization of the enterprise, but at the same time, limited financial resources, specialists and sound approaches can slow down the process of change. At the same time, the irreversibility of many processes that are the result of changes can lead to the doom of the entire project to failure.

## 6. Acknowledgment

This work is part of a post-doctoral study funded from the state budget of the Republic of Moldova on the topic: "Creating the organizational change management model for small and medium enterprises through the challenges of Industrialization 4.0", within the framework of the project numbered 22.00208.0807.10/PD.

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## Evaluating the Effects of Employee Recruitment and Selection Practices on the Organizational Change Process

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### Abstract

*The recruitment and selection process can be a valuable tool to enhance organizational adaptability and flexibility. Companies and organizations must quickly adapt to new requirements in a constantly changing business environment. By selecting candidates with relevant skills and experience, companies can increase their ability to cope with environmental changes and adapt to new market demands. In this context, the paper aims to evaluate the effects of practices regarding the recruitment and selection of human resources on the added value of organizational change in the employees' perception of organizations in Romania. These two aspects have a close relationship, and their integrated approach can lead to organizations' continuous development and improvement. Therefore, organizations can achieve success and excellent performance in an ever-evolving environment by recruiting and selecting suitable candidates and developing a changing culture.*

**Key words:** human resource recruitment, human resource selection, organizational change, added value

**J.E.L. classification:** O15, O33

### 1. Introduction

In the context of globalization and rapid technological evolution, companies and organizations face significant challenges in recruiting and selecting human resources. Therefore, the proper selection and the change process can be valuable tools for improving organizational performance and increasing employee satisfaction and customer relations.

Recruitment and selection of human resources are critical processes for companies and organizations. The recruitment process must be proactive and attract qualified candidates (Bocean, 2007). This can be done through various channels, such as recruitment sites, social networks, and agencies. In addition, marketing techniques can be used to promote organizational culture and attract potential candidates. The selection process is also essential. Companies and organizations must identify the best candidates to achieve their goals (Bocean, 2008). The selection process must be objective and based on relevant criteria such as experience, skills, and cultural fit. The most used selection methods are interviews, tests, and reference checks (Bocean, 2015).

There is a close relationship between recruitment and selection practices and the change process of organizations, and the paper aims to demonstrate this link empirically. The recruitment and selection process can influence the organization's ability to implement change successfully, while the change process can influence recruitment and selection practices by identifying new competency and skill requirements needed to implement change (Dempsey et al., 2022) successfully. Thus, these two aspects must be considered to ensure organizational success (Delaney and Huselid, 1996).

The five-section structure of the paper begins with an introduction, followed by a theoretical background. The third section exposes the methodology, while the last two expose the results and conclusions.

## 2. Theoretical background

Recruitment and selection of human resources are two critical processes for companies and organizations in choosing suitable candidates for available positions (Giancaspro et al., 2021). Sound practices in these processes can add significant value by ensuring the hiring of quality employees who make significant contributions to organizational success. In addition, proper recruitment and selection can lead to better integration of employees into the organization, thus reducing staff turnover and costs associated with recruitment and ongoing training.

Sound recruiting practices include attracting potential candidates by posting job ads in the appropriate channels and engaging in social and professional networks (Khoreva and Wechtler, 2018). Another essential practice is to develop a well-structured selection process that includes interviewing, testing, and assessing candidates to ensure an objective assessment of their skills and abilities. It is also essential to include in the selection process and the assessment of the skills and organizational culture of the candidates so that they integrate better into the organization and adapt more quickly to the work environment. In addition, adapting to changes in the labor market and within the organization can be essential for long-term success (Otoo, 2019).

In terms of the impact of change, it cannot be easy, but it can bring significant benefits. For example, change can improve organizational performance, employee satisfaction, and customer relationships (Heckmann et al., 2016). However, change can also be difficult, and employees may resist. Therefore, companies and organizations must be prepared to manage change effectively and involve employees in the change process (Kotter, 2007).

The change process can bring significant benefits to companies and organizations, such as increased performance, greater flexibility, and the ability to adapt to changes (Mladenova, 2022). In addition, companies can achieve significant added value by using sound recruitment and selection practices and implementing a well-managed change process (Wang et al., 2020). There is a close connection between recruitment and selection practices and the organizational change process. First, the recruitment and selection process can influence the organization's ability to implement change successfully. If the organization has qualified and motivated employees who perform their tasks successfully, it will be easier to implement changes without negatively affecting organizational performance (Vărzaru and Vărzaru, 2016). Additionally, by using recruitment and selection processes that focus on identifying the competencies and skills required for change, organizations can ensure that they hire suitable candidates who can help implement change successfully. Also, the recruitment and selection process can be used to recruit employees with experience in managing change or with communication and influencing skills that can help convince employees to accept and adopt change (Mladenova, 2022; Dempsey et al., 2022 ).

On the other hand, the change process can influence recruitment and selection practices. For example, during the change process, the organization can identify new competency requirements and skills to implement the changes successfully (Vărzaru and Vărzaru, 2013). These requirements can be used to update the job description, qualification, and competency requirements for future recruitment and selection processes. Also, the change process can be used to improve recruitment and selection practices. For example, the organization can use employee feedback during the change process to identify possible problems with current recruitment and selection practices and develop solutions to address them (Amis et al., 2020).

Consequently, we propose two research hypotheses:

*H1. Employee recruitment and selection practices influence the value added in the change process.*

*H2. Investing in the recruitment and selection process exerts the greatest influence on the added value in the change process.*

### 3. Research methodology

The paper presents the findings of an empirical study based on a questionnaire between September and December 2022. Within the practices regarding the recruitment and selection of employees, the following variables were studied: the expansion of the recruitment and selection process, the participativeness of the selection decision, the investment in the recruitment process and selection, the recruitment pool, and the selection base. Furthermore, regarding the organizational change, we opted for the employees' perception of the added value in the change process. Table 1 shows the research variables and the codes used for each variable.

To carry out the analysis of the influences of practices regarding the recruitment and selection of employees in the change process, we used artificial neural network analysis of employees' perceptions of human resources practices and organizational change, similar to other authors (Vărzaru et al., 2022; Iancu et al., 2022; Puiu et al., 2022; Vărzaru, 2022).

Table no. 1. Values of the multilayered perceptron established between professional training and personal development and the value added by the change process

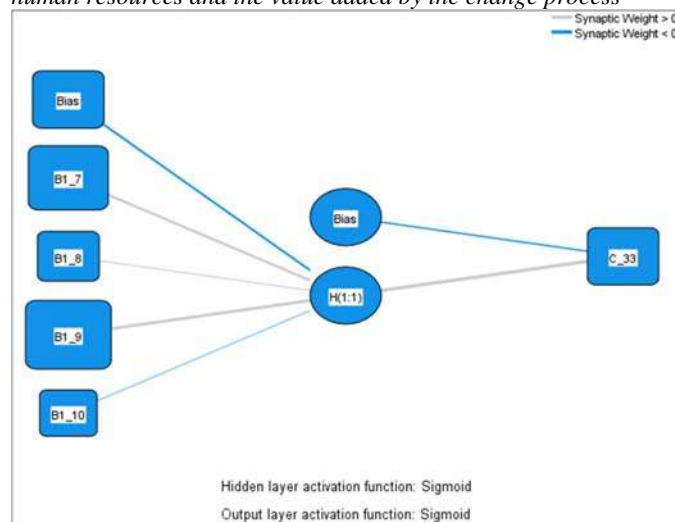
	Variable	Code
<b>Employee recruitment and selection practices</b>	Expanding the recruitment and selection process	B1_7
	Participatory selection decision	B1_8
	Investment in the recruitment and selection process	B1_9
	Size of recruitment pool and basis of selection	B1_10
<b>Organizational change</b>	Added value in the change process	C_33

Source: Developed by the authors based on the data using SPSS v.27

### 4. Findings

In order to determine the influence of variables from the category of recruitment and selection of human resources on the value added by the change process, we used the analysis of artificial neural networks. The model is a multilayer perceptron type, with an input layer comprising the variables from the recruitment and selection of human resources category (B1\_7, B1\_8, B1\_9, and B1\_10) and an output layer represented by the variable C33 (the value added by the change process). Between these is a hidden layer represented by the role of human resources in organizational change. Figure no.1 illustrates the relationships established between the researched variables.

Figure no. 1. Analysis of artificial neural networks established between the recruitment and selection of human resources and the value added by the change process



Source: Developed by the authors based on the data using SPSS v.27

Table no. 2 presents the values predicted in the analysis of the artificial neural networks established between the recruitment and selection of human resources and the value added by the change process, as well as the levels of absolute importance and normalized importance of the variables describing the recruitment and selection of human resources.

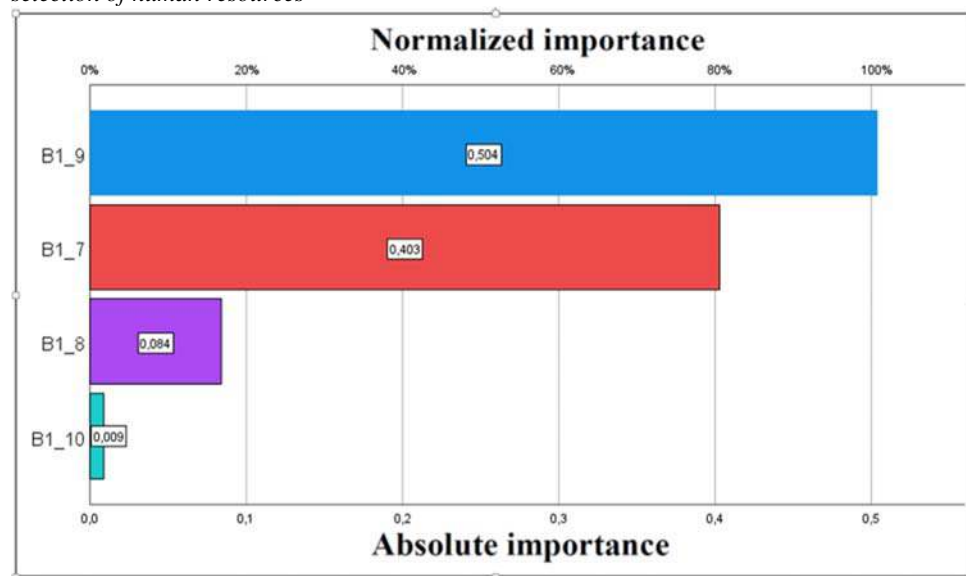
*Table no. 2. The values of the multilayer perceptron established between the recruitment and selection of human resources and the value added by the change process*

Predictor		Values		Absolute Importance	Normalized Importance
		Hidden Layer 1	Output Layer		
		H(1:1)	C_33		
Input layer	(Bias)	-1.261			
	B1_7	1.600		0.403	80.0%
	B1_8	0.352		0.084	16.7%
	B1_9	2.069		0.504	100.0%
	B1_10	-0.038		0.009	1.8%
Hidden layer 1	(Bias)		-1.045		
	H(1:1)		2.841		

Source: Developed by the authors based on the data using SPSS v.27

The values of the influence coefficients of the variables in the input layer show that B1\_7 and B1\_9 have a substantial impact on the variable C\_33, which means that the expansion of the recruitment and selection process and the investment in the recruitment and selection process are resource management practices that have an essential contribution to the added value of the change process. As seen from Table no. 2 and Figure no. 2, the absolute and normalized importance of variables B1\_7 and B1\_9 are the highest.

*Figure no. 2. The absolute and normalized importance of the variables describing the recruitment and selection of human resources*



Source: Developed by the authors based on the data using SPSS v.27



Following the analysis of artificial neural networks, it can be seen that the two hypotheses of the research are validated.

## 5. Conclusions

The change process can be valuable for improving organizational performance and increasing employee satisfaction and customer relations. Change can take many forms, such as improving processes, optimizing workflows, improving products or services, or creating new ones. As a result, organizations can reduce costs, improve efficiency, and increase market competitiveness by implementing a well-structured and well-managed change process.

The change process must be carefully planned and involve employees in the process. In addition, the process must be managed transparently so that employees understand the benefits and objectives of the change. It is also essential that the process includes an objective assessment of the change's impact on the organization and the employees.

Human resource recruitment and selection practices can significantly impact the success of companies and organizations. In addition, the change process can be a valuable tool for improving organizational performance and increasing employee satisfaction and customer relations. However, to gain added value from these processes, companies, and organizations must use sound practices and adapt to changes in the business environment.

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# **The Impact of New Technologies on the Future of Marketing: the Challenges of Adopting Artificial Intelligence-Generated Influencers in Marketing Strategies. Is the Romanian Market Ready for this Emerging Trend?**

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## **Abstract**

*This paper examines the impact of new technologies on the marketing field and focuses on the challenges of adopting artificial intelligence (AI)-generated influencers in marketing strategies. More exactly, it aims to explore, through the eyes of marketing professionals, the readiness of the Romanian market when it comes to this emerging trend and its ability to leverage the advantages offered by AI influencers in promoting products and services. An in-depth review of literature and relevant industry data reveals the potential benefits and challenges associated with the use of AI influencers in marketing strategies. In addition, the results of the research provide a key insight of the current use of AI influencers in marketing strategies in the Romanian market. These findings can be beneficial for companies and marketing professionals to make informed decisions with respect to integrating AI influencers into their marketing strategies.*

**Key words:** AI influencers, new technologies, marketing strategy, social media, consumer behaviour

**J.E.L. classification:** Z33

## **1. Introduction**

New technologies have influenced the way in which companies interact with consumers, leading them to adopt innovative strategies to promote their products and services in an increasingly competitive environment. An interesting element is represented by the use of artificial intelligence (AI) generated influencers in marketing strategies.

This paper focuses on the impact of new technologies on the future of marketing and the challenges of adopting AI influencers in marketing strategies. More exactly, this study aims to investigate whether the Romanian market is ready to cope with this emerging trend and to leverage the benefits offered by AI influencers when it comes to brands' promotion campaigns.

Artificial intelligence has had a significant impact in the marketing sphere, opening up new possibilities and challenges. The concept of AI influencers refers to the use of artificial intelligence algorithms to create virtual personas, which subsequently become ambassadors for brands and products. These AI influencers are programmed to interact with the public through social media platforms, promoting thus products and taking part in marketing campaigns. While this approach may seem futuristic and still unthinkable this movement has already penetrated the marketing environment. Nevertheless, the involvement of AI influencers raises questions and challenges with respect to the ethical implications and how this new technology element is perceived by consumers.

The ultimate goal of this study is to take an in-depth look at the impact of AI influencers on the future of marketing and to examine the challenges and opportunities of adopting them in marketing strategies. Also, this study aims to assess how AI influencers can increase brand visibility, by creating personalised content and improving customer engagement. It will also measure the degree of familiarity and acceptance of AI personas by the Romanian public and identify potential cultural, ethical and legal limitations that could affect the adoption of this emerging trend in our market.

In order to achieve this objective, a mixed research approach will be used. In other words, this paper encompasses both literature analysis and relevant industry data, meaning that previous research on the impact of new technologies in marketing will be investigated. Finally, some opinions of field experts will be presented as to provide a base for making informed decisions when it comes to this emerging trend.

## **2. Literature review**

With the infiltration of the new technologies, the manner in which individuals relate to the environment has changed considerably. This is even more visible in consumers' behaviour when faced with the decision-making process. However, all these technological advancements are perceived to provide a better understanding with respects to the needs of individuals and therefore to their optimal satisfaction (Allsteadt, 2017).

Social media revolution has altered the way in which traditional communication, as well as marketing communication, is conducted, subsequently leading to new forms of interactions for the procurement of goods and services. It has been observed that the nowadays tendency of individuals is to spend more and more time on social media platforms sharing and learning information about products, brands and services.

With this new marketing communication in place, new challenges and opportunities do not cease to appear. Social media interaction became the driver of the purchase decision and the trigger of awareness for both brands and products (Appel et al., 2020). With fewer costs but a guaranteed great value, the level of engagement in a company's social media platforms generates relevant insights for the organization in question when it comes to improving sales, increasing exposure, growing partnerships, generating lead and last but not least, increasing traffic. Hence, nowadays, as to facilitate the understanding of consumers' behaviour the best weapon is represented by new technologies (e.g. Artificial Intelligence).

All these technological transformations can come with both advantages and disadvantages in terms of consumer reactions. In other words, they can either opt to be promoters of these innovative technologies and at the same time, be eager to benefit from the experience produced by them or be reluctant as to protect their personal identity. Regardless of which side they belong to, consumers are generally perceived as followers of the solutions provided by new technologies, especially if the compliance with the ethical framework is ensured (Fang & Li, 2014).

In the light of this, the research focuses on both the manner in which the presence of non- humans is able to replace the presence of humans in the online environment and its subsequent impact on consumers (general well-being levels, ethics). Virtual influencers or artificial intelligence influencers are computer-generated influencers with a large number of followers on social media (Moustakas et al., 2020). The majority of virtual influencers are not fully controlled by artificial intelligence being partly supervised by humans (Thomas & Fowler, 2020).

Brands want to use virtual influencers in their marketing strategies to profit from their large followers' data base (Kádeková & Holiencinova, 2018). Even though virtual influencers do not exist in 'real' life, Robinson (2020) they are perceived as authentic and 'real' as social media influencers, given that their actions and engagement rates affect people's buying behaviour and brand preferences. It does not come as a surprise that virtual influencers are also capable of influencing followers and consumers, as well as positively affecting brand benefits (Thomas & Fowler, 2020). In addition, it was discovered that virtual influencers have three times more engagement than social media influencers (Ong, 2020).

Smith and Johnson (2021) paper analysed the impact of artificial intelligence-generated influencers on customer experience and marketing strategies. The authors explored the manner in which AI influencers can personalize the customer experience, creating thus, relevant and engaging content.

The research emphasized how this aspect, of "personalised content", can help improve customer engagement and subsequently, increase brand loyalty.

Garcia et al (2022) paper focused mainly on the ethical practices in AI influencer marketing. The authors provided the basis of an ethical framework for marketing practitioners, addressing issues such as transparency, data privacy and lastly, consumer impact. The results emphasised the importance of both following ethical principles in the adoption of AI influencers and ensuring responsible practice in this area.

Johnson & Thompson's (2023) paper explores the manner in which AI-generated influencers impact consumer behavior. By analysing the impact of AI influencers on consumer preferences and purchase decisions, the authors highlighted the power of influence exercised by the non-human influencers. In addition, their research proved that the integration of AI influencers into marketing strategies maximises results.

Lee and Park's (2022) paper focuses on consumer trust in AI influencers. The authors investigated how the use of AI influencers can affect consumer trust and perception towards brands and products. Through an empirical study, they showed that transparency, authenticity and consistency of AI influencers' messages are key factors in building trust and relationship with consumers.

Li and Chen's (2023) research examines the ethical implications of using AI influencers in marketing. It provides insight into the potential risks and obligations of companies adopting AI influencers in their marketing strategy and advises field professionals to ensure that customer rights are fully taken into consideration.

### 3. Research methodology

This study was based on qualitative research that helped in providing a general framework of the investigated concept. The qualitative research consisted of 10 (ten) questions addressed to 7 (seven) professionals in the field through the means of a zoom interview. The interview in question lasted for about 30 minutes and the respondents were asked to justify all their answers as explicitly as possible. In addition, the individuals who took part in the interview were field professionals who hold key positions and possess relevant roles in the development and implementation of marketing strategies in a specific organisation within the Romanian market. The key results of the research are provided in the next section as to provide a clearer understanding of the researched subject. The outcomes should be considered as a base for the potential provided by the adoption of AI influencers' in a brand's marketing strategy within the Romanian market.

### 4. Findings

Out of the 7 field experts 4 of them were very familiar with the AI-generated influencers, while 3 were not, when responding to the first question of the interview *"Please indicate how familiar are you with non-human influencers/ AI-generated influencers?"*.

The following key question *"To what extent do you think AI influencers might exercise a positive impact on the customer experience in marketing?"* 5 respondents agreed that non-human influencers might exercise a very high impact on consumers, whereas the remaining 2 respondents consider that AI influencers might have an impact but not a crucial one justifying their answer as follows: *"this AI tool is still new for the Romanian market and therefore, we cannot guarantee for its potential success"*.

When it came to the importance of transparency when employing AI influencers (*"How important do you think transparency is for a brand when adopting a non-human influencer as an ambassador?"*), marketing experts agreed (7 out of 7) that it is very important given that it impacts consumers' trust towards that particular brand.

Further on, in terms of ethical implications (*"In your opinion, what are the main ethical challenges related to the use of AI-generated influencers in marketing?"*) respondents admitted the high sensitivity of this topic (7 out of 7) emphasizing the importance of taking into account consumers' rights when implementing this new technology in a brand's marketing strategy.

Lastly, 1 out of 7 respondents admitted using AI influencers in their current marketing strategy registering positive outcomes among consumers and increased conversion rates ("Would you be willing to use AI influencers in your marketing strategy?" / "Do you think AI influencers can help increase conversions in marketing?"). Part of the remaining 6 being either skeptical or not having had the chance to adopt this new technology with their marketing strategy.

The limitation of this research should be taken into account. Given the limited number of respondents (7), in order to ensure the accuracy of the study the interview should be further extended to more marketing experts.

## 5. Conclusion

The review of relevant literature and the undertaken research highlighted the positive impact exercised by AI influencers on both customer experience and marketing strategies, considering as well the various ethical challenges implied. In addition, the present research covers issues such as personalisation of the experience, influence on consumer behaviour and legal implications, providing thus a solid research framework for deepening the understanding of this emerging field and guiding ethical and effective marketing practices.

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## Strategic Elements of Diversity Management in the Educational System - Case Study: CLIM

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### Abstract

*CLIM stands for Cooperative Learning in Multicultural Groups, and proposes a certain structure of the teaching contents, based on the pedagogical principle of creative – cooperative learning (CCL). It can be also considered a strategic element of diversity management in a school, whenever one can meet different cultures, ethnics, native languages, political views or religions.*

*The purpose of the hereby study is to analyse the efficacy of this method – does it really enhance group cohesion and an inclusive atmosphere, where all the participants feel themselves and appreciated for what they are?*

*The methodology involved the inquiry through questioning, with a questionnaire as the research instrument. The results showed that using this method when teaching, integrating values and positive attitudes – cognitive flexibility, teamwork, tolerance towards differences, critical approach to cultural stereotypes, interest in discovering socio-cultural and professional life-related aspects - may lead to improved relations among the participants in the education process.*

**Key words:** school diversity, diversity management strategy, education

**J.E.L. classification:** I2

### 1. Introduction

CLIM is the acronym for *Cooperative Learning in Multicultural Groups*, and proposes a certain organisation and structure of the teaching contents, regardless of the subject taught, based on the pedagogical principle of creative – cooperative learning (CCL). Besides its proper instructional purpose, this approach can also be considered a strategic element of diversity management in a school, whenever in the classroom or the teachers' room one can meet different cultures, ethnics, native languages, political views or religions.

Using this method when teaching different subjects, all the abilities of a person can be enhanced and involved, such as oral production skills (in a foreign language class), written production skills (reading, listening, spelling and literacy) and complex competences will be build, integrating values and positive attitudes – cognitive flexibility, communication skills during teamwork, tolerance towards differences, critical approach to cultural stereotypes, raising interest in discovering socio-cultural and professional life-related aspects.

Regarding CLIM as a strategic element of the management of diversity in terms of adults involved in education (in a school), using this method represents an opportunity for managers to organize debates on internal policy applied to schools, to create working tools - documents within different school boards and work teams.

Thus, the hereby study created the premises for the analysis of efficacy of this method – does it really enhance group cohesion and an inclusive atmosphere, where all the participants feel themselves and appreciated for what they are?

## 2. Literature review

The CLIM method was first used in Belgium, in primary schools, in 1995, aiming at a response to the needs for intercultural educational in the form of partnerships within heterogeneous groups, combining the didactical process based on the principle "all together in the same class" with the one where the academic content is presented through direct interaction among students. (Pétursdóttir, 2018) Pursuing this principle, this method is part of a socio-constructivist approach, the interaction factor being a key element of the learning process. The participation of all students in a class in group work is a necessary condition for ensuring equal access to the 21<sup>st</sup> century competences. In other words, working together in small heterogeneous groups in order to solve a task achieves the purpose of higher self-esteem, mutual respect and degree of inclusion, by developing true interpersonal relationships. (Ichim, 2021). Research (Cohan & Lotan, 1995; Freeman et al., 2014, McManus, 2001) has shown that we learn more and better when explain the information to others than when we only listen or present. Group work creates the context for better learning, but does not guarantee the effective participation of each student. Cohen (1997) states that cooperative learning is the most efficient approach of heterogeneous classrooms. According to Pétursdóttir (2018, p. 35), there are more than 280 studies on the impact of cooperative interaction and social support on the quality of relationships, showing that intercultural education can thus be achieved. Paelman (2001) presents the status given to the student as a factor of succes when using CLIM.

According to Petursdottir (2018), there can be identified the following phases (stages):

1. The introductory task: the teacher's objectives are to define the concepts/ notions to be taught and learned, to form the groups, to assign the roles, to explain each intervention of the students involved and the possible role exchanges or group reconstructions, and finally, to offer the details of the task to be fulfilled.

2. Expressing students' impressions on the concepts/ notions to be acquired – this task may be parted into two stages: (a) the student's free individual expression based on a support (word list, drawing, diagram, sketch, Q-sort, picture-based-lecture) then, consequently (b) the exchange within each group of students of the different impressions, followed by a confrontation or debate. This task is aimed at developing an initial level of reflexion regarding the concepts/ notions to be dealt with and at stimulating the intrinsic motivation.

3. Individual, independent reading of the resources given by the teacher/ activity coordinator, each of these resources giving a different perspective on the concept/ notion. Therefore, the coordinator should plan for at least four files of resources (based on the number of students per group) which are to enhance certain abilities, thinking processes, practical abilities related to the concept/ notion to be acquired.

4. Cross analysis among the students who have had the same resources. This task should increase the comprehension degree, the level of accessibility of the problem to be discussed and the cooperation abilities.

5. Going back to the group - or creating new groups in order to insure that all the resources are present in each group – and sharing the key elements of each of the documents.

6. Solving a problem-situation which mobilises the knowledge and the abilities previously acquired, but also personal, experience-based information and values which constitute the involvement of the diversity traits in this particular methodological approach. Each problem-situation is different in each group.

7. Plenary presentation of the conclusions and solutions – the teacher/ coordinator can motivate students to present the information/ data in an original manner, such as role-play, drama, video, experiment.

8. A general conclusion – the coordinator revises the key points to be remembered regarding the theme or the concept, answers the questions which might occur, underlines the difficulties the parties have met, and formulates feed-back regarding the behaviour of the participants, their cooperation (what was appropriate and worked and what did not). Rarely does the teacher/ coordinator need to intervene during the stages 2 through 7; sometimes, there are questions or a necessary revision of the calendar, if some more or less time is to be allowed.



Within each group, each student is given a certain role and specific tasks; these roles permit the group to work independently from other groups or the teacher; the tasks and the roles are customized to the personal abilities of the students, so that they are not placed in a failing position (Ichim, 2020). Consequently, it is compulsory that a role is not repeatedly given to the same student when the method is used systematically by a teacher. According to Cohen (2017), it is important that each participant try a new, different role, the most frequently proposed being: (a) the facilitator (the person to animate the group and conduct the fulfillment of the tasks given by the coordinator), (b) the presenter (responsible for the drafting of the information and plenary reporting), (c) the material/resources manager, (d) the synchronizer (timekeeper, referee and harmoniser); a fifth role could be obtained by dividing one of the statutory roles, such as the synchronizer (timekeeper, referee) and the harmoniser (to observe the others, cheer up and help whenever necessary).

### 3. Research methodology

**The aim** of the study is to measure at low scale the use of CLIM as a strategic element of the management of diversity in terms of young adults involved in education (in a school), in terms of diverse group cohesion, mutual respect, and an inclusive atmosphere, where all the participants feel themselves and appreciated for what they are.

**The objectives** are: (a) to measure the initial level of inclusion, cohesion and mutual respect; (b) to use exclusively the CLIM method during a month of teaching for the experimental group (group A), and (c) to measure the level of the same three social values given by both groups at the end of the study (named in the hereby study *final level*).

**The method** used was the inquiry through questioning, the instrument was the questionnaire. The answers were gathered through the means offered by Google forms and the quantitative analysis was realised using the Eviews program.

**The study was devised as following:** Two high-school ninth grade-classes of students got involved in the study, 56 students altogether, grouped in two 28 student-groups, A and B; they all answered the same set of initial questions - a questionnaire with 3 questions/statements, in order to identify what the level of inclusion, cohesion and mutual respect was in each group. After one month of participation in the author's experimental classes - 3 times a week, 12 sessions - , during which group A were pedagogically approached exclusively using CLIM, and group B exclusively classically (although group work was used to solve tasks), both group of students answered the same set of questions in order to measure the final values and, thus, revealing the pursued results.

**Data analysis** - for group A, the final score was that 28 out of 28 students increased with at least 1 point, which represents a 100 % efficacy of the CLIM approach, compared to the score given by group B which only improved for 10 and, respectively, 11 students out of 28, which represents a 35.71 % and, respectively 39,28 % efficacy of the classic pedagogical methods (including group work) when aiming at the three concepts: group cohesion, inclusion and mutual respect.

### 4. Findings and discussions

Final results of Group A. In terms of the three objectives of the questionnaire (mutual respect, cohesion in the classroom, and inclusion in the classroom), 100% improved appreciation: 28 out of 28 respondents changed their answers into a better value.

Final results of Group B. In terms of the three objectives of the questionnaire, in group B, 39.28 % improved appreciation: 11 out of 28 respondents changed their answer into a better value for the concept of mutual respect; 35.71 % improved appreciation: 10 out of 28 respondents changed their answer into a better value for the concept of cohesion in the classroom, and 35.71 % improved appreciation: 10 out of 28 respondents changed their answer into a better value for the concept of inclusion in the classroom.

The results could be based, though, on more factors, external to the study, as students underwent the approach only during their English classes, and were exposed to different other interventions from other teachers, including their council - teacher, whose impact has not been measured.

The CLIM method has not been used in this study for larger group management, such as teachers in a school, which will constitute the next step for the study, to be undergone in the future.

The coordinator/ teacher must be vigilant regarding the group competence, reaching the highest level of heterogeneity possible and offering each participant the possibility to experiment each role, allowing the groups to be independent from the leadership and control of the teacher.

The pedagogical principle at the core of the CLIM activities combines the intellectual challenge with student-centred tasks in order to teach – learn – acquire a specific, often scientific concept. The diverse tasks are to allow the mobilisation of the personal abilities, competences and views of each participating student. The main criterion for the role choice is Howard Gardner's theory of multiple intelligences. Although it might be obvious that the linguistic abilities are primarily underlined, it is equally important to involve and practice other abilities, such as logic, artistic expression or body language (see the TPR (Total Physical Response) method).

All these constituents require a high level of organisation, so that each participant, each role and each group, according to the personal information of the students. At the same time, the idea of competition among the groups involved in a CLIM project may not be excluded from the students' motivation sector, although the main concern should be not to create the same group with students exercising the same roles, so that the competition does not turn personal.

## 5. Conclusions

The results of the study show that, if consistently applied within a specific, heterogeneous, diverse group, the CLIM approach can improve the degree of cohesion, inclusion and mutual respect of the members of among the members of the group.

Consequently, in terms of diversity management, it is expected to produce a diminishing in the possible conflicts issued by cultural or ethnic differences, enhance the advantages of being different and accepting that each and every person is no but a treasure to be discovered.

## 6. Acknowledgement

This work was co-funded by the European Social Fund, through Operational Programme Human Capital 2014-2020, project number POCU/993/6/13/153322, project title "Educational and training support for PhD students and young researchers in preparation for insertion into the labor market".

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## Education 4.0. Between Generation Z and Industry 4.0 needs

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### Abstract

*The objective of the paper is to briefly find a connections or disconnection between Generation Z needs and wishes and Industry 4.0 needs from its specialists based on Education 4.0 implementations. The method used is secondary qualitative analysis, from information selected from information and hypothesis elaborated by the most known sources in terms of validity and recognition. The findings reveal nine trend that could be added to education principles to develop a just and self-sustaining form for education instead of knowledge. In conclusion we found that the Generation Z has a high expertise of Technology use that can be an advantage for organizations that embrace new technologies. Also, Generation Z needs flexible working hours, a minimum independence and autonomy and an encouraging working environment.*

**Key words:** Generation Z, Industry 4.0, Education 4.0, technology

**J.E.L. classification:** I26

### 1. Introduction

In January 2016 World Economic Forum's (WEF) "Global Challenge Insight Report" said that "By one popular estimate 65% of children entering primary schools today will ultimately work in new job types and functions that currently don't yet exist." (Forum, 2016).

In January 2017 McKinsey Global Institute (MGI) stipulated that "49 percent of the activities that people are paid to do in the global economy have the potential to be automated by adapting currently demonstrated technology. While less than 5 percent of occupations can be fully automated, about 60 percent have at least 30 percent of activities that can technically be automated" (Manyika, 2017). Also, they showed that "At a global level, technically automatable activities touch the equivalent of 1.1 billion employees and \$15.8 trillion in wages".

In April 2018 another news to implementation of machines said that "80% of the skills trained for in the last 50 years can now be outperformed by machines" said (Brianna, 2018).

All this information gave the impression that the human will be replaced by machines. Yet,

The importance of the present research paper emerges from giving a perspective about the education 4.0 and how it would be transformed for the preparation of new generations in using the new technologies like AI, Chat-GPT, Bard, etc. Their results can sketch how the Education 4.0 should be designed for Gen Z and a base for Gen Alpha.

### 2. Literature review

There are three variables that we take we consider in the present paper: Generation Z, Industry 4.0, and Education 4.0. There is a great deal about all the three, so we try to cover, according to the research methodology, the most valid and known sources of information and data.

### Generation Z

The vision of Pew Research Center about Generation Z defines them as the people that were born in years between 1997 ÷ 2012, so in between 11 and 26 years old now. As one can see the higher age of them is reaching 26 years, and consist in numerous college graduates, married, or/and starting families. They trail the millennials generation that were born between years 1981÷1996. As a result of the COVID-19 pandemic, the uncertainty of war in East Europe, Gen Zers meet a future farther ambiguous than most generations before it (Parker & Igielnik, 2020).

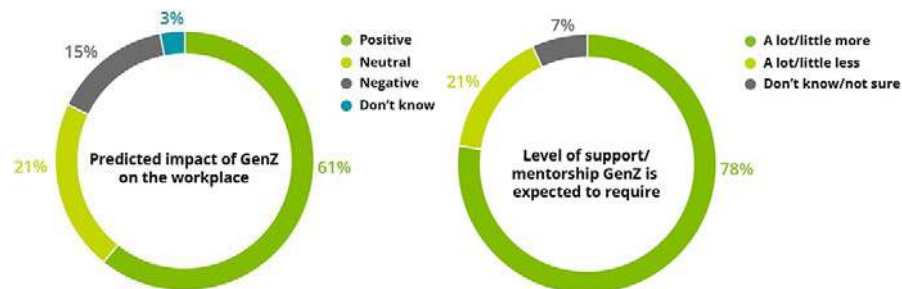
Add all the above with the fact that members of Generation Z are the first generation that understand and interact with the world mostly through the internet. Also, they grew, develop, and learn always using digital tools, making it the most diverse generation yet. As Gen Z turns into adults and enter the workforce, what do we really know about them? (Katz, Ogilvie, Shaw, & Woodhead, 2021)

Millennials asked what advice they can pass the next generation from their own early careers' experiences, the core directions to apply were (Deloitte, 2017):

- Learn everything you can: Start your first days as an employee with an open-mind and behave by learning, as much as you can from others.
- Work relentlessly: Make the best job you can and do not be slothful.
- Be patient: Walk step-by-step through the evolution of workforce.
- Be devoted: Continuously aim to succeed and persist.
- Be ready to adapt: Be open and flexible to adjust and attempt new things.

Considering the diversity met in different country, due to culture or level of training, millennials have various advice for GenZ: in China, GenZ should be "humble;" in South America, it should "be ready to learn;" in the US and Canada, the advice is to "work hard."

Figure no.1. Generation Z and predicted impact on workplace.



Source: <https://www2.deloitte.com/ro/ro/pages/about-deloitte/articles/millennial-survey-generation-z-welcomed.html>

Further, Millennials think that GenZ must mainly learn softer skills, before technical or specific knowledge, to achieve their goals. Millennials in management situations (those implicated in decisions on strategy and path) consider GenZ to be undertrained in terms of expertise and personal attributes such as endurance, responsibility, and integrity (De Witte, 2022).

In research developed by (De Witte, 2022) which implied 120 interviews, recorded from 3 university campuses – Stanford University; Foothill College (community university in Los Altos Hills, California); and Lancaster University (research university in Lancaster, England) (sampled of more than 2,000 adults with age between 18 and 25 years old), some of the most interesting findings were:

- Gen Zers are self-reliant who profoundly worries about others and struggles for a diverse community.
- They used an initial resource with powerful digital tools that permitted them to be self-reliant as well as collaborative (the "norm" they interact as kids was a world that operated at speed, dimension and targets).
- Gen Zers were labelled as "snowflakes" and "unwilling to grow up.". Yet, they have been earning substantial money online over a variety of activities, even involving product placements on fashion-advice sites.

- They are pragmatic, are used to work collaboratively and with flexibility, always being interested to be competent in getting the job done.
- The most pleasant method of communication chosen by them is "in person".

#### Industry 4.0

IBM considered that Industry 4.0 is revolutionizing the way businesses manufacture, advance and deliver their products (IBM, 2023). Manufacturers are incorporating new technologies (including Internet of Things (IoT) and Industrial Internet of Things (IIoT), cloud computing and analytics, AI, and machine learning) into their fabrication capabilities and throughout their operations.

IBM also said that these smart factories are equipped with advanced sensors, implemented software and robotics, that record and evaluate data and allow better decision making. Even higher value is created when data from fabrication operations is combined with operational data from ERP, supply chain, customer service and other enterprise systems to create whole new levels of visibility and insight from previously isolated information.

These digital technologies push to expanded automation, predictive maintenance, self-optimization of process improvements and a new greater level of effectiveness and responsiveness to consumers, which were previously not feasible.

Looking at the present approximations, a growth in production flux availability by 5 to 15% is expected. There are proposal opportunities for energy saving and sustainability by optimization. "For example, in a case study of a multinational in the plastics sector, Industry 4.0, using energy sensors reduced the power consumption in one of its plants by around 40%, which saved over \$200,000 a year in energy. However, only a few countries develop and trade Industry 4.0 technologies." (IBM, 2023)

But Industry 4.0 introduces a series of specific challenges. The most feared the loss of jobs due to AI and automation. Yet is considered that new goods, tasks, and occupations are generated through economy. Industry 4.0 in fabrication can produce massive grows in productivity, but most organizations in developing countries are not even considered to adopt Industry 4.0.

Figure no. 2. Critical skills that Education 4.0 must impart to students.



Source: <https://www.weforum.org/agenda/2023/01/skillsets-cultivated-by-education-4-0-davos23/>

#### Education 4.0

(Advani, 2023) revealed that Education 4.0 reimagines education as an inclusive, lifelong experience that identifies accountability for skill-building on the learner, with teachers and mentors being more as facilitators and enablers. To create an environment needed to implement Education 4.0, existent educational systems must be upgraded and financed. The most important three critical skills that Education 4.0 must transfer to students are: problem-solving, collaboration and share (Advani, 2023) (see figure 2).

As intersect the Industry 4.0 characteristics with Gen Z members specificities, some researches and studies were developed. Their results can sketch how the Education 4.0 should be designed for Gen Z and a base for Gen Alpha.

(Abhijit, 2018) said that Gen Z's lives are filled with virtual world connecting and replicating virtually every aspect of the physical world. Think about it, shopping on Amazon.com, streaming on Netflix or calling a trip on Uber is as common as eating, they are exposed to the current and modern technology, from smartphone, smartwatch, electric vehicle, virtual reality (VR), and more. This virtual world is highly customizable and has proposed new ways of representations and communication such as emojis, memes, or GIFs. If Gen Z had inquiries, they Googled it or see it as YouTube video to assist in its application. Thus, research became a part of their way of life.

(Abhijit, 2018) concluded that curriculums should be progressively aligned to research and focusing on industry challenges. The objective should focus on theoretical research combined with the do-it-yourself, frame of mind of Gen Z. So, they will probably look for satisfaction in a non-hierarchical organizational structure with open office spaces that sustain and lead to collaboration and networking, opposite to older generations which worked in offices and cubicles.

On another research (Kothari, 2021) shows that Gen Z consider equally important the components of job satisfaction with flexibility and independence. Yet there is a powerful yearning for Independence. So it was expected Gen Z representatives do not feel that Industry 4.0 (with Artificial Intelligence, Big Data, Cloud Computing, and other booming technologies) is a threat to their jobs. As they consider that remote working is at their fingertips, Gen Z is flexible in its working hours and is willing to accept the norms of corporation. But in these conditions, they expect a communication transparency, autonomy, and independence from the management of the corporations.

(Šket & Nedelko, 2022) concluded that members of "Gen Z strive to achieve their goals in a 'relatively ethical' way through their own actions and efforts rather than by taking side-roads or shortcuts that, in one way or another, are controversial or even illegal". Also, if despite their best efforts, employees do not complete their demands or hopes, they are more likely to find another employee and less likely to take controversial actions, as they are reluctant to take actions that they themselves would not want other people to take.

### **3. Research methodology**

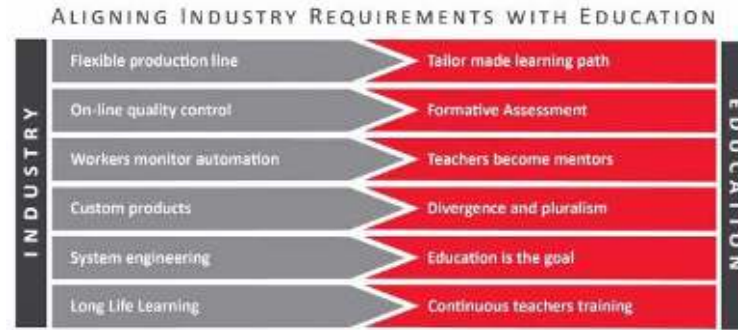
The methodology used in the present paper is secondary qualitative analysis method. Based on the information and hypothesis elaborated by the most known sources in terms of validity and recognition.

### **4. Findings**

Education 4.0 should adopt a flexible, tailor-made curricula, instructed by teachers who must become mentors to their students, and consider them as strong and pragmatic individuals. Education should be regarded as a continuous lifelong activity that generates a diverse and pluralistic society where every person knows and activate to their strengths, developing a fair and self-sustaining model for education rather than knowledge (Graham, 2018).



Figure no. 3. Aligning Education 4.0 with Industry 4.0.



Source: <https://intelitek.com/2018/05/11/what-is-education-4-0/>

Applying the research methodology, we compiled 9 trends related to Education 4.0:

**Trend 1.** Learning should take place anytime, anywhere.

- E-learning tools provide excellent opportunities for distance learning at their own pace.
- The play-based approach in the classroom also plays a huge role, as it allows for interactive learning in the classroom, while the theoretical parts need to be learned outside of class hours.
- Learning can take place beyond the traditional classroom and encourage students to take initiative with their education by extending the “classroom” in any environment. Eg. augmented reality.
- Managed learning electronically without the internet dependency headache.
- Design: learning content must be made beautiful and intuitive

**Trend 2.** Learning should be personalized for each student.

- Incorporating Self-reflection and Goal setting.
- Flexible & Intentional Schedules.
- Using Digital Content and Tools in a Purposeful Way.
- Incorporating Personalized Playlists.
- Planning for Flexible Seating.
- Involving Students in Grading Conversations.
- Train teachers how to assess students and customize their experience accordingly.
- Use “Ed-Tech” to create a personalized learning environment.
- Allow students to have a part in their learning experience.
- Give students multiple opportunities to show their knowledge.
- Build personalized learning playlist.
- Make the classroom flexible.
- Flip instruction so students can learn at their own pace.

Generation Z students prefer to learn through modern technologies, and they want these technologies to be used in the teaching-learning process. The students are comparing their educators with themselves on the use of technology and can characterized them as outdated and less experienced. So, they believe that teachers should be qualified on the use of technology.

**Trend 3.** Students should have the opportunity to choose how they want to learn.

- Students should be able to choose their own classes because it would prepare them better for the real world.
- Students only want to take courses that would help them later in life.
- Students have different minds with different interests, and it's unfair to "universalize" the courses that every student at a school must take.

Gen Z recommendation is the use of technology in all lessons. For this, there should be content prepared for each lesson.



**Trend 4.** Students should be exposed to project-based learning.

- project-based learning encourages students to develop a balanced, diverse approach to solving real-world problems, both on their own and in a team.
- project based learning prepares students for success in the real world like no other teaching style can.

**Trend 5.** Students should be exposed to more hands-on learning through field experience.

- internships, mentoring projects, and collaborative projects.
- development of technology allows the effective learning of certain fields, thus making more space for acquiring skills that involve human knowledge and face-to-face interaction.

**Trend 6.** Students should be exposed to interpreting data.

- education is getting very close to a time when personalization will become commonplace in learning.
- apply theoretical knowledge and to use their thinking skills to make deductions based on logic and trends in data sets.

**Trend 7.** Students should be evaluated differently.

- Change Weighting Scale.
- Use Informal Observation.
- Allow for Self-Assessment.
- Provide Multiple Test Formats.

**Trend 8.** Students' opinion should be taken into consideration when designing and updating the curriculum.

- their entries help in the development of the curriculum.
- the designers keep the curriculum contemporary, updated, and useful.

**Trend 9.** Students should become more independent in their own learning process.

- forcing teachers to take on a new role as facilitators that will guide students through their learning process.

## 5. Conclusions

One of the advantages that Industry 4.0 add to businesses was the speed of collaboration, not only between people but also between machines. Form the research it looks that Gen Zer have the skills and willingness to embrace that speed, but not forgetting, and even demanding, the implications as a person in the collaborative work.

Technology is a natural requirement of Generation Z show this generation, so, use of technology in education is important for the development of this generation. But this means that teachers' qualifications should be at a level that can address the characteristics of the target audience. It looks like that Gen Z are less likely to drop out of high school and more likely to be enrolled in college.

In terms of technology linked to Industry 4.0, Gen Z is more able of taking a positive outlook and value of AI, robotics, automation and how it may help them to accomplish better their profession. In this technically oriented Industry 4.0, if given flexible working hours, a minimum independence and autonomy and an encouraging working environment, Gen Z should thrive and work at their best.

So, Generation Z represent a major challenge in terms of employee management, human resources management, motivation, and work organization in general. At the same time, if understood correctly, Generation Z is an opportunity for employers, as it can offer many advantages to businesses and help to faster digitization and computerization, the implementation of Industry 4.0, increased innovation and quality, and overall business growth and development.

Based on the secondary qualitative analysis of by different organizations and experts about Generation Z, Industry 4.0, and Education 4.0 we found nine trends that sketch how the Education 4.0 should be designed for Gen Z and a base for Gen Alpha.

The nine trends determined are: Learning should take place anytime, anywhere; Learning should be personalized for each student; Students should have the opportunity to choose how they want to learn; Students should be exposed to project-based learning; Students should be exposed to more hands-on learning through field experience; Students should be exposed to interpreting data; Students should be evaluated differently; Students' opinion should be taken into consideration when designing and updating the curriculum; Students should become more independent in their own learning process.

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## Entrepreneurship Trends. How the Future Looks Like

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### Abstract

*The fast-pacing development of disruptive technologies like Industry 4.0, AI, chat-GPT, etc., state the scene for new entrepreneurial trends. Present paper uses qualitative analysis method to achieve the objective of determining Entrepreneurship Trends. Scrolling through the information reported by different organizations and experts we find thirteen trends that presently influences the entrepreneurs' behaviors and are a base of how the future of entrepreneurship could look like.*

**Key words:** Entrepreneurship, trends, disruptive, AI, niche

**J.E.L. classification:** L26

### 1. Introduction

The fast-pacing development of disruptive technologies like Industry 4.0, AI, chat-GPT, etc., state the scene for new entrepreneurial trends. To this need to shifts to fast incorporation of the technologies adding influences rise from COVID pandemic which change the way we work, travel, or deliver goods, among others. Also, we must consider how youngers (especially millennials) react to the present conditions of employment and companies' work environment.

Between at list those conditions the entrepreneurship must react quickly to comply with consumers everchanging demands, intensified by the above facts.

The importance of the present research paper emerges from giving a perspective about the entrepreneurship trends which can be used by implementing possible new insight in a present business or applying them to new ones.

### 2. Literature review

The entrepreneurship trends are annualized continuously as the economic life depends on the good health of the entrepreneurship. The trends are a result of several influencers like location, culture, government, etc. Yet, in a globalized economy the differences tend to diminish alongside with the need to react to a client which has access to information thorough free access to internet and social media.

The present entrepreneurship has even more to consider, like cooping with disruptive technologies (Industry 4.0, AI, chat-GPT), common elements met in COVID pandemic, or how the work is viewed by the employees.

In this regard the analysis and remarks of entrepreneurship can be found in works from different important organization or experts. World Economic Forum (WEF) presents six trends (Sahasranamam, Ionescu-Somers, & Hill, 2022):

1. Positive entrepreneurial sentiment on opportunities suggests global recovery.
2. Entrepreneurial activity rates are still lower in most countries compared to pre-pandemic.
3. There is a rising trend of low-growth entrepreneurial activity.
4. There is a paradox between perceiving it as easy to start a business and intending to do so.

5. Digitalization is rising among low-income countries and new entrepreneurs.
6. Entrepreneurship education in school continues to fail.

The trends showed by WEF can be used as the reasons for the present state of the new trends in entrepreneurship, like, for example, the remote working, younger entrepreneurs, or gig economy.

Forbes in April 2023 talks about five emerging entrepreneurship trends (Stahl, 2023):

1. Social entrepreneurs - businesses that address social or environmental matters or improving the global wellbeing.
2. Scalable or startup entrepreneurs – trying to disrupt the standards, the entrepreneurs find a breach in the market and try to use it as a niche.
3. Small business owners – earning a living and sustain families with their commerce.
4. Large business entrepreneurs - enlarging businesses models to create global empires.
5. Innovative entrepreneurs - creative problem-solvers bring new products or ideas to the market.

Forbes concentrate the conclusion on how the entrepreneurs respond or must conform with the changes in economy or people's behavior, due to reactions to global transformation like implementation of disruptive technologies (Industry 4.0), COVID pandemic or AI and automation replacing human workers.

Entrepreneur site (MASK, 2023) found three entrepreneurial trends coming out of the current economy:

1. A slow economy requires repositioning and refocusing. A slow economy we met from 2009 to 2012, because of the financial crisis, and closer the COVID pandemic (2019-2021).
2. Talent challenges and opportunities. People are more inclined to work remote, or become freelancers, or accept four days work week (with 10 hours a day), or just living the job they just held at the first issue that they find inadequate to personal requirements.
3. Embrace AI now or pay the price later. The younger people especially, but many of us (even just for fun or from curiosity) uses AI powered platforms or applications like DALL-E, CHAT-GPT, Bing Chat, Bard, etc. The motives are numerous and applied in various fields. But how many from the users are interested by the copyright laws, ethical implications, error of the results of this AI tools?

The interest for the present state of the entrepreneurship and for its trends can be found in the research and analysis of different experts, researchers, organizations (private or governmental) and others interested by the subject of the importance of the entrepreneurship in the unfolding and development of economy. As the visions and the principles of research are different, some of the content and results have common ground and conclusions. These common elements are the subject of the present paper.

### 3. Research methodology

The methodology used in the present paper is secondary qualitative analysis method. Based on the information and hypothesis elaborated by the organizations and experts on the subject of Entrepreneurship.

### 4. Findings

After reading and analyzing the literature review several trends were determined, and considered their characteristics and influences, the following trends were considered as the most important trends for present entrepreneurship development:

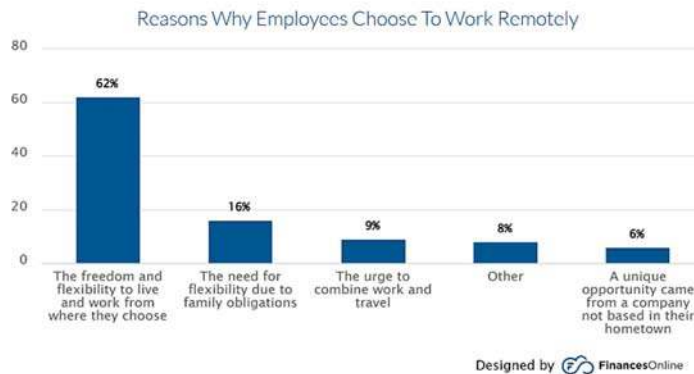
**Trend 1.** Business will be powered by remote work and Digital nomadism.

A digital nomad is a person who works from any location and uses technology (mainly digital) to carry out his work while moving to different locations.

As the COVID 19 pandemic disrupted the activity, the movement, and the productivity of the work force, one of the responses was the implementation of "working from home". After the pandemic a significant part of the workforce chose to stay and work from home. According to (16 Entrepreneurship Trends, 2023) the most common reason for this choice is the "The freedom and

flexibility to live and work from where they choose" (see figure 1).

Figure no. 1. Reason why employees choose to work remotely



Source: <https://financesonline.com/entrepreneurship-trends/>

Upwork, one of the world's largest work marketplaces, revealed that "Based on 147 million non-farm payrolls as of August 2021 and 27.7% fully remote share". Also, the same platform estimates that "22% of American Workforce Will Be Remote by 2025" (upwork, 2020).

Remote work is thriving in particularly sectors, especially media and professional services. As is using digital tools it is perfect for the knowledge economy.

#### **Trend 2. Rise of the Mobile Commerce**

Not new but embracing novel forms of Mobile Commerce can access the customers wherever they are. In 2021 80% of Americans shopped online (16 Entrepreneurship Trends, 2023) as in figure 2.

Figure no. 2. Mobile purchase in 2021 America



Source: <https://financesonline.com/entrepreneurship-trends/>

According to (Alex, 2023) "Americans spend 4 hours, 25 minutes each day on their cell phones" & "Americans check their phones 144 times per day."

#### **Trend 3. Development of Social Commerce**

In 2021 "30% of online shoppers tend to purchase products through social media networks such as Facebook (BigCommerce)" (16 Entrepreneurship Trends, 2023) said. The social commerce grew like a ranch of a tree that also have a branch of social media use. In the last years the two developed an interdependent bond. Examples of social commerce can be:

- user-curated shopping (Mashable, like Lyst, The Fancy, Svsply)
- group buying (like Groupon)
- peer recommendations (like Amazon and Yelp)
- social network-driven sales (like in Facebook).

For almost (if not all) of businesses, social media employment will overcome other forms of classic advertisement.

#### **Trend 4. Growing Gig Economy**

Oxford Languages defines Gig economy as "a labor market characterized by the prevalence of short-term contracts or freelance work as opposed to permanent jobs" (Languages, 2023)

One of the paybacks for the employers that are using short-term contracts or freelance is not paying for employee benefits like regularly employing firms do. As numerous gigs require employees to bring their own gear, the companies do not have long-term commitments to their suppliers or independent contractors. Proof examples are decacorn companies: Uber (\$75.5 billion in 2019) and Airbnb (\$100.7 billion, in 2020).

#### **Trend 5. Importance of the Niche Markets**

Based on the current powerful believe that we are each unique and we want to be unique, the markets shift to high customer centricity. In fields like food industry, fashion, web platforms, and even gadgets, companies tend to find and deliver personalized and customized products. Also, the prices for eccentric goods are high and this kind of goods are on an increasing trend.

*Figure no. 2. Niche markets in 2019*



Source: <https://financesonline.com/entrepreneurship-trends/>

Examples of Niche Market targets are (Turner, 2023):

- left-handed people
- conscious consumers
- the LGBTQ+ community
- female business owners
- casual clothes
- travelers / adventurers
- remote workers
- larger men
- gamers
- ethical cosmetic consumers
- homeowners that rent out their homes
- vegan baking
- ...

As the interests and choices become more specific, the niche markets will become more profitable.

#### **Trend 6. Overwhelming Subscription-Based Business**

Who doesn't use a subscription. A subscription business can reduce firm's customer acquisition costs and make accessing the product more fitting for subscribers. Subscription business models are built on the principle of selling a product or service for a recurring monthly or annual subscription income. The firms concentrate on customer retention over customer acquisition. Subscription business models looks to how revenue is produced so that a single client pays multiple payments for

prolonged access to a good or service instead of a one-time high upfront price. Now the economy is trending towards more subscriptions instead of ownership for cars, software, entertainment and shopping. This increases customer lifetime value as (Tarner, 2022) said. Example of subscription business content:

- Streaming Service. For a low monthly fee, subscribers have instant access to thousands of movies, music files, videos and audiobooks. (example: Netflix)
- Software as a Service. Customers are charged an annual or monthly fee in exchange for access to the latest edition of the software with real-time updates, bug fixes and customer support for word-processing program or antivirus. (example: Adobe)
- Content Subscriptions. Different from streaming services are made to be consumed in more of an "active" rather than "passive" manner.
- Health and Wellness Subscription. Health and wellness subscription models use access to some facilities to create a package deal, such as 24/7 gym access, 24/7 doctor access and a monthly or annual session with a personal trainer.
- "Perks" Subscription Business Model (example: Amazon Prime). Subscriptions that give members exclusive access to insider discounts and faster service.
- Vehicle Subscription. (example: Porsche Drive)
- Curated Subscription Boxes. Curation deliver a box of varied products each month to introduce the customer to different brands.
- Replenishment Subscription Boxes. curation deliver a packet of varied products each month to familiarize the customer to diverse brands.
- Food Service Subscription. Company sends the customer a varied packet of food based on the customer's selected dietary plan.
- Repeat Service Subscription. Content marketing firms, advertising firms and even cleaning firms that perform ongoing services for clients and acquire a price for these services monthly. (example: Cleaners in Europe)

#### **Trend 7. Adoption of Disruptive Technology**

Everyday life product that we use, but do not give them the real importance: the wheel, the light bulb, and the cellphone are examples of disruptive technologies. Disruption is an axiom for many years now (COVID-19, Industry 4.0, AI's ChatGPT).

According to (Smith, 2022) disruptive technology is an innovation that significantly alters the way that consumers, industries, or businesses operate. Also, disruptive innovations can democratize goods, services, and the benefits that come with them (innovations are disruptive only when they allow a whole new population of consumers at the bottom of the market access to products or services that were inaccessible to them before).

But disruptive technologies also pose a threat to new entrepreneurs.

#### **Trend 8. Importance of Social Responsibility**

Most Millennials prefer buying from ethical brands - ethically-sourced raw materials, better working conditions for employees, gender equality, and environment-friendly policies. Many entrepreneurs take advantage of this trend. A company's social responsibility can be easily checked as people tend to find and share information in an instant. Thus, companies' insincerity is therefore easily detectable. Also, businesses that are socially responsible can also appear more attractive to investors.

Businesses that take social responsibility seriously can win costumers and grow a platform to market and earn more attention from the consumers. Social responsibility can help people see companies as a positive energy in society. The projects companies develop can aid to raise consciousness for important causes and keep business top of mind (Heyward, 2020).

#### **Trend 9. Increasing Diversity**

The diversity has always been around. Many people in minority groups still do not have equal opportunities to succeed. Many businesses and entrepreneurs will likely go for diversity as a metric.

Is also arguably better for entrepreneurs to have a diverse set of points of view to draw information and inspiration from.

If you're a successful entrepreneur, focus on hiring a more diverse group of employees, and mentor them to be leaders of their own. As more diversity is encouraged in the startup world, it can only serve to benefit our society, increasing innovation and opportunity for all involved.

#### **Trend 10. More Specialized Business Education**

As the disruptive technologies flood the entrepreneurial world new educational programs were build and many educational programs needed renewing. Also, more specialized courses will be developed in local colleges, universities, or on e-learning platforms.

For example, as the Industry 4.0 disrupted the manufacturing industry, there are more and more ongoing cross-disciplinary teamwork going on between business schools and other academic disciplines such as engineering and computer science. Two important trends in business education were considered in 2019 (see figure 3).

Figure no. 3. Education trends in 2019



Source: <https://financesonline.com/entrepreneurship-trends/>

Some trends in Business Education are (Novellis, 2022):

- Rise of the Virtual Campus - MBA programs in hybrid or online formats, and most schools have a lasting impact of the pandemic on their programs.
- Climate Consciousness - reducing program-related carbon emissions.
- Stackability - business schools offer ever more flexible ways of learning. Council of the European Union (EU) issued The Recommendation seeks to support the development, implementation, and recognition of micro-credentials across institutions, businesses, sectors and borders.
- Interdisciplinarity - collaborating departments, integrating the insights from diverse fields—humanities, political science, natural sciences, and design—into the curriculum.
- Return of the International Candidate - more international students arriving on business school campuses, as international applications continue to recover from the hit they took at the start of the pandemic.

#### **Trend 11. Younger Entrepreneurs**

Because of difference of vision about work condition and wages, it is hard for Millennials to find good-paying jobs. This is added to the fact that younger people have strong motivations to become businessmen. This is why many of them to seek out non-traditional career paths like going into business by building their own businesses (see figure 4).

So, young people (about of quarter of them) go into business because they want to be their own bosses. Others want to pursue their passions and young people don't seem to lack reasons to become entrepreneur.

#### **Trend 12. Hyperlocal Specialty Shops**

As niches are getting created, many localities are getting fertile for specialty shops. They sell products and services uniquely relevant to their localities. They don't go for big. Instead, they go for unique: religious shops, thrift stores, fireworks retail, smokers' accessories, art supplies, and



antiques.

Many hyperlocal businesses in these markets position themselves to be environmentally conscious.

Figure no. 4. Millennials motivations for business



Source: <https://financesonline.com/entrepreneurship-trends/>

### Trend 13. Green Businesses

As the entrepreneurs tend to be younger, the interest in climate change is more intensive. Eco-conscious movement spans different industries, including green consulting, green app development, energy efficiency auditors, and recycling businesses. Environmentally conscious policies, products, and information drives have affected the psyche of consumers. Thus, companies offering recycled office supplies, green architecture services, non-toxic cleaners, and social innovation firms are more attractive to consumers.

## 5. Conclusions

Based on the secondary qualitative analysis of by different organizations and experts about Entrepreneurship Trends, 2022 until 2023, we found 13 trends that, from our point of view, already started to influence how entrepreneurship behaves. The major reasons for this trends change are COVID pandemic, technology disruptions, and AI technology implementation.

The thirteen trends determined are: Business will be powered by remote work and Digital nomadism; Rise of the Mobile Commerce; Development of Social Commerce; Growing Gig Economy; Importance of the Niche Markets; Overwhelming Subscription-Based Business; Adoption of Disruptive Technology; Importance of Social Responsibility; Increasing Diversity; More Specialized Business Education; Younger Entrepreneurs; Hyperlocal Specialty Shops; Green Businesses.

As the entrepreneurship is a dynamical field that must react and adapt the market, competition and customers, the above trends are supposed based on the current situation, yet we are sure that new trends will appear with the development of new technology and rapid change in the customers behavior.

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## Marketing of Tourism Destinations in the Post-Covid Era – Challenges of the New Normal

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### Abstract

*The COVID-19 pandemic has triggered an unprecedented crisis, causing an awkward impact on human life and the world economy. Despite the resilience that tourism has shown in response to previous crises, the depth and breadth of the impact of this pandemic on tourism have brought the sector to an almost total standstill, causing long-term difficulties for most tourist destinations. As the pandemic has evolved, how we live, work, and travel has changed, and demands, expectations, and preferences have become different. But an unprecedented crisis requires unprecedented action. Destination marketing is widely recognized as an essential component of destination management. As a result, the tenets of conventional marketing have been challenged in a struggle to adapt to the new normal. Thus, the objective of this paper is to identify and explore, based on the current literature review and direct survey research, the challenges faced by marketers in tourism destinations in an attempt to counter the adverse effects of the COVID-19 pandemic and facilitate the recovery and further sustainable development of the sector.*

**Key words:** marketing, tourist destination, COVID-19, the new normal, sustainable development

**J.E.L. classification:** M31, Q01, Z32, Z33

### 1. Introduction

At the start of 2020, the future looked very promising for the tourism sector. People traveled more and more, more often, and over longer distances. The tourism industry has been on the rise for many years. According to the World Tourism and Travel Council, in 2019, tourism had a total contribution of 10.3% to the world GDP generating 330 million jobs. One in ten new jobs has been created in the tourism sector in the last five years. The tourism industry also grew by 3.5% compared to the global economy - 2.5% (WTTC, 2020).

With the onset of the COVID-19 pandemic and the resulting blockade of society, an unprecedented crisis in the tourism industry has broken out. The estimates of international organizations (UNWTO, WTTC, and OECD) indicate a decrease of about 70% in international tourism in 2020. In the last two years, the economy was gradually recovering to 2009 levels, and it will take some time to fully recover (UNWTO, 2023)

Tourist destinations (countries, regions, cities, etc.) joined forces in trying to find solutions and strategies to help them face the unprecedented challenges in modern history created by this pandemic. Some destinations were more exposed and affected by this crisis, and as the impact varied from place to place, so will the recovery. The socio-economic impact at the destination level depends on many factors, like the tourism offer, the degree to which businesses and jobs are dependent on tourism, the impact of travel restrictions on tourist flows, the extent to which the restrictions coincide with periods of seasonality, scale, and complexity of business operations, domestic market size, exposure to international source markets, etc. In the wake of the COVID-19 pandemic, tourists' wishes,

preferences, and behaviors have changed significantly, leading to changes in society-traveler relations that define the new normal.

Destination marketing is widely recognized as an essential component in destination management, an integral part of sustainable development in line with the community's interests, and maintaining the popularity of tourist destinations.

In this paper, we will briefly examine tourism trends and challenges for tourist destination marketers arising from the COVID-19 pandemic to ensure their survival, reopening, reinvention, and communication as better places to live and better places to visit.

## **2. Theoretical background**

Destinations are the focus of most tourism activities, so they are the core element of the tourism system and are the most important units of tourism research (Buhalis, 2000; Pike 2004; Wang & Pizam, 2011). According to David Bierman (2003), destinations are countries, regions, or cities marketed as places to visit by tourists.

In general, the destinations are a combination of direct and indirect tourist facilities (e.g. accommodation, catering, transport, recreational facilities, etc.) an extensive selection of natural and cultural tourist attractions (e.g. landscape, monuments, atmosphere) offered to a tourist during a stay in a particular location (Hall, 2008). For economics and marketing, a tourist destination is more than that (Bieger, Beritelli & Laesser, 2009; Bornhorst, Ritchie & Sheehan, 2010). Often, tourists perceive a destination as a whole, so this area is often considered not only a "tourist place", but a "tourist product". As a product, the destination is a mixture of tangible and intangible assets. Tangible assets are represented by the local infrastructure, such as hotels, tangible cultural heritage, natural landscapes, etc., and intangible assets are considered services and situations such as safety, stability and security, friendship, political situation, and the atmosphere of a destination. And intangible assets are more dependent on customer behavior and are one of the most important determinants of destination profitability (Swarbrooke și Horner, 2001). In other words, the tourist destination is the central point of the tourism activity. But the destinations are not infinite, neither individual nor collective. It is not possible for every place to be a tourist destination and the destinations themselves cannot receive an unlimited number of tourists.

To attract tourists to a particular destination, the distinctive aspects and strengths of that destination must be highlighted. This is especially crucial when one destination competes with another for the same tourists or visitors. One of the roles of destination marketing is to promote the destination as superior to the alternatives by highlighting the things that make it unique or the elements that make it a must-visit place.

Destination marketing can contribute greatly to sustainable place development, especially for hoteliers, restaurants, transport companies, and other tourism suppliers). Nowadays, destination marketing has become fundamental. Marketing is largely responsible for the number and type of tourists visiting a destination, for the image and awareness among their potential visitors, for ensuring the viability of destinations, and for their contribution to sustainable development.

Sustainable development of tourism in destinations is a difficult task. As stated by Byrd (2007) and Middleton and Haekins (1998), achieving a balance between stakeholders' interests with a vision of the environment of a destination and keeping up with the requirements and expectations requires long-term planning and constant communication between stakeholders. However, destination marketing is now recognized as a pillar of future growth and sustainability of tourist destinations in an increasingly globalized and competitive market. (UNWTO, 2011).

But no matter how efficient the DMOs are, no matter how efficient the management and marketing of some destinations, they were not prepared for the crisis that would start at the beginning of 2020. The unprecedented crisis of the tourism industry was aggravated by the evolution of the health situation, the sector facing stop/start cycles. Despite the tourism industry's proven resilience to previous shocks, the scale of this crisis is having a devastating effect on the sector. By reducing travel restrictions and reopening tourism activities during the summer, domestic tourism has provided a boost to support tourist destinations and industry, continuing to be a key factor in the short- and medium-term recovery, but international tourism remained at a low level. Also, not all destinations or companies have benefited equally from the resumption of tourism due to a large

number of illnesses and associated restrictions or changes in the behavioral patterns of tourism demand.

The COVID-19 pandemic has led to significant changes in the behavior of potential tourism consumers in terms of search, planning, and demand. Added to this is the lack of previous information regarding the response to post-pandemic tourist demand. Little is known about how tourists will perceive travel in the future. In general, studies in the specialized literature on post-crisis tourist behavior refer to destinations in a state of war or terrorist attacks, or natural disasters. Research on health crises has generally considered diseases such as Ebola in Africa, SARS in 2003, or the AH1N1 influenza virus in 2009 (Lau et al. 2005, Lee et al. 2012, Maphanga 2019, Rossello et al. 2017). But none of the health crises created by these viruses can compare to the pandemic that just ended. This affects several usual industry practices, with conventional marketing principles being challenged in a struggle to adapt to new trends.

### **3. Research methodology**

This study focused on obtaining detailed information to identify the main challenges for marketers to ensure tourist destinations' survival, recovery, and sustainable development. Thus, both secondary and primary research was conducted. The desk research was conducted by analyzing the studies and literature that emerged from the beginning of the pandemic on the evolution of the tourism industry, as well as direct research. The direct research consisted of qualitative, semi-open interviews with actors from the Romanian tourism industry and carrying out surveys (questionnaires) among the population. The interviews were a useful tool for gathering more nuanced information on the views, attitudes, and experiences of stakeholders. The interviews were attended by 45 people, representatives of the Romanian tourism industry, as follows: 24 from the hospitality industry, 11 from travel agencies, 4 from culture providers, 3 from marketing and PR, 2 from staff training companies for the industry tourism, and a developer of tourism projects. The questioning of the population aimed to find out the intention to travel for tourism purposes as well as to identify some important aspects and changes in the behavior of potential tourists. The survey was answered by 3,731 adults in Romania (the questionnaire was sent online to 5,500 people). Of the people who provided valid answers, 62.79% were women, and 37.21% were men. Most respondents had a high level of education: 40% - postgraduate studies, 49.58% - higher education, and 10.42% - secondary education. According to the age distribution, most of them were middle-aged adults. Thus: 18-25 years - 8.98%, 26-35 years - 21.98%, 36-45 years - 39.77%, 46-55 years - 21.79%, 56-65 years - 5.2%, and over 65 years - 2.28%.

### **4. Findings**

The impact of the crisis created by the COVID-19 pandemic is felt on the entire tourism ecosystem, causing serious damage to inbound and outbound tourism, forcing tourist destinations to update their thinking regarding the innovation of marketing practices in the new environment and to reconceptualize the changes in tourist behavior in the new circumstances. Rebuilding destinations will require a combined approach that considers: restoring traveler confidence and stimulating demand through destination safety labels, responsible visitor information, and intensive and ongoing promotional campaigns. Studying and fully understanding the change in tourist demand, building new perceptions of the market, and satisfying new tourist requirements by adapting the form, content, and structure of tourist products will be the key to revitalizing tourist destinations beyond the pandemic.

It has been necessary for many people to change their lifestyles to deal with the outbreak and keep safe. And with these changes and restrictions, consumer travel habits have had to change and will continue to evolve. In these conditions adaptation is the norm as destinations seek to maintain their businesses and retain their consumers. Continuous adaptation to new trends is vital.

According to the results obtained from our research, among these new trends, which are challenges, at the same time, for destination marketing are:

Increased attention to leisure. Although the fear of illness had its say, the fact that most people have been subjected to lockdown, and forced to stay and work from home has given rise to the growing desire to be able to travel again. According to the survey, 84% of the respondents stated they did not change their intention to travel during the pandemic. In Romania, the decrease in tourist traffic during the pandemic was high, but within the limits of the average recorded in the member states of the EU, mainly as a result of the decrease in the number of foreign tourists. In 2020, after a period of harsh restrictions between March and May, their gradual easing determined a similar trajectory of tourist activity as in previous years, although with a considerably lower intensity, recording a 32% decrease between August 2019 and August 2020. In July, for example, in 2021 and 2022, the tourism industry recovered part of the losses recorded, with the number of tourists arriving in accommodation units being approximately 13% lower than in July 2019 (in accordance with the data published by the NIS, 2023). Destination marketers need to constantly analyze this data and adjust their distribution channels and promotional messages.

The evolution of demand. Travelers' preferences and behaviors have shifted to nature, familiar, predictable, reliable, and uncrowded. Various travel restrictions, as well as a reluctance to travel abroad, have increased the demand for domestic tourism, at least for the short- and medium-term.

Thus, 60% of the respondents stated that they spend their vacation in a national destination, 37.5% both in the country and abroad, and 2.5% only abroad.

Regarding the type of destination, the seaside took first place in the travel intention of the participants in the sanding. Given that some respondents intended to undertake more than one trip, multiple responses were accepted. Thus, 54.5% of the respondents were/intended to go to the sea, 53.9% - to the mountains, 22% - to the country, 17% - to visit a city, 12.9% - to a spa, and 7% to a tourist circuit.

Depending on how the trip was organized, 89% travel on their own, and 11% use the services of a travel agency.

Regarding the chosen type of accommodation, 46% of the respondents opted for tourist pensions, 21% - for hotels, 15% - for relatives and friends, 10% for renting spaces, and 8% - for camping.

It is thus observed that both geography and demography play an important role. The coast, the mountains, and the countryside are more popular as destinations that correspond to the need for open space, nature, clean environment. Also, less populated destinations offer more confidence.

In this regard, destination marketing should focus on motivational factors and let new travel behaviors guide the implementation of new strategies that create a more loyal audience.

Safety and hygiene. Safety and hygiene standards have become paramount. This is a vital part of marketing, and destinations need to clarify what their safety and hygiene policies are and what measures are being taken to maintain the safety of both residents and visitors.

According to the survey conducted among the population, safety is the main criterion for choosing the tourist destination for 39.5% of respondents (the other criteria were: previous personal experience - 20.6%; price - 13.5%; attractiveness of the place - 12, 5%, knowledge recommendation - 9%; reputation - 3%, another - 1.9%).

Health and hygiene measures within destinations remain a top priority for consumers around the world. Future travelers are likely to gravitate to destinations that are seen as clean, healthy, and safe.

Indeed, while price still drives bookings, consumers are now equally focused on health and safety. Amadeus survey showed that 47% of global travelers cite a factor related to COVID-19 as the most influential factor in choosing a destination, and two-thirds expect an understanding of the COVID-19 prevention measures in place before booking (Amadeus, 2020).

Thus marketers need to clearly communicate safety measures so that visitors feel safe.

In fact, several interviewees in the hospitality industry acknowledged that health safety protocols have helped to improve guest confidence, as their transparent communication is particularly important. "Our industry needs to do more to inform potential tourists about all the health and safety protocols that have been implemented to restore people's confidence in travel" - a hotel manager interviewed.

Innovation and digitalization. Restrictions to combat the pandemic and restore health security have led to accelerated innovation and integration of new technologies. Against the backdrop of home orders, the adoption and growth of digital consumption, consumers now expect contactless technologies, for example, as a basic precondition for a safe travel experience.

Contactless payments have become an essential element, which has also led to improved check-in and check-out speeds.

The Internet is also the main source of information when it comes to choosing a tourist destination. Thus, 82% of the respondents to our survey declared the Internet among the main sources of information, 47% - relatives and friends, 41% - travel agencies, and 14 media/press. Also, most of the people in the tourism industry participating in the interviews stated that they focused on digital marketing, social media marketing, and e-mail marketing becoming the dominant tactics.

Virtual reality is another major tourism trend that marketers can take full advantage of. Presentation of online tours of the destination, through which potential visitors can explore the inside of the accommodation and/or food units, tourist attractions, etc. It can positively influence the decision to buy the trip and attract undecided consumers. Likewise, augmented reality could provide tourists with virtual maps, details about museums or other abstractions, menus for restaurants, etc.

In the post-pandemic era, the high dependence on online interactions makes consumers expect immediate feedback with unique and personalized products and experiences. Tourist destination marketing must face the transition from empiricism to digitization. It is a need triggered by the development of information technologies such as cloud, AI, and blockchain. According to our survey, 55% of the respondents consider the digital experience very important in choosing the destination and tourist services. In other words, digital transformation and tourism marketing innovation are no longer a choice but a necessity.

Sustainability. While sustainability has been a priority for the tourism industry for some time, it has become even more prominent through the pandemic. Consumers are becoming more aware of their impact on the environment and searching for more sustainable options. The travel hiatus has inspired 83% of global travelers to prioritize sustainable travel in the future (Booking.com, 2021). Therefore, the crisis created by the COVID-19 pandemic may also be an opportunity. About 50% of the interviewees believe that it is the end of mass tourism. "We can use this unique moment to create a positive tangible impact on destinations, to develop the type of tourism we want to attract" - said a participant in the interview. "The only way to achieve truly sustainable development of tourist destinations is through a concrete and strong partnership between the public sector and the private sector" - says another participant in the interview.

When asked what destination marketers can do to encourage sustainable tourism experiences, the answers of the interviewees were diverse:

- creating and implementing new performance indicators that take into account the quality of tourism rather than its volume;
- putting a greater emphasis on the interest of the locals when carrying out the marketing strategies;
- encouraging and promoting longer stays so that tourists spend as long as possible in the destination;
- the involvement of local businesses and residents is essential, as they are ultimately the most affected and the main beneficiaries;
- hiring staff among the locals, their training would be beneficial both for the development of the local economy and would bring an extra authenticity to the tourist experience;
- orientation towards niche tourism, alternative tourism on the principle, if you want to be respected, respect yourself, the main way to educate tourists to be responsible for the cultural and natural environment of the destination is for it to become self-sustaining, to function responsibly.

Visitors will behave responsibly if sustainability is part of the mentality of the host community and if environmental responsibility is a part of the norm. However, 58% of respondents to our survey consider that there are not enough sustainable travel options, but 63% would like to travel more sustainably in the future. It is clear that the trend towards sustainability is here to stay, with more consumers planning to travel more responsibly and sustainably in the future.

The role of target marketing should be rethought. Destination marketing is often associated with attracting as many tourists as possible. Marketers should rethink their strategies based on what they want to market and how. To give priority to sustainable initiatives, to support local politics by promoting ethical initiatives, collaborating with the local community, and influencing responsible tourism behavior.

## 5. Conclusions

The Covid-19 pandemic has caused a major impact on societies and the world economy and brings unprecedented challenges to the tourism sector, and in addition, there are opportunities to encourage innovation, develop new marketing strategies, discover new markets, etc.

This study highlighted several trends: despite the fear of illness, people's desire to travel remained unshaken, people rediscovering domestic destinations, less crowded and even unknown destinations; tourists looking for fresh air and space; sanitary safety and hygiene are paramount, hospitality becomes a priority; innovation, digitization, the latest technology, and IT breakthroughs are highly valued by potential consumers, communication, and transparency are very important; sustainability is a real opportunity for destination marketing to focus on the quality of experience rather than attracting large numbers of tourists, to better tourism and for longer periods.

In the context of an accelerating travel recovery, consumers, as well as the public and private sectors, have a responsibility to ensure tourism destinations become more resilient, sustainable, and inclusive. Understanding the changing context, emerging trends, and consumer expectations will support destination managers and communities to adapt and deliver authentic experiences while prioritizing sustainable, inclusive, and resilient growth. The trend is to expand traditional tourist destinations, in the spatial, digital, macro, and micro dimensions. The extended limits of tourist products lead to the imagination of new tourist experiences. In an attempt to adapt to the changes produced by the pandemic, marketers in the field of tourism must look for new opportunities and explore new types of personalized and digitalized products based on the demands of the new generation of consumers and sustainability. The pandemic has drawn attention to the things that really matter, social interaction, and the natural environment. It offers a unique opportunity to redesign destinations to meet the new normal standards, to create sustainable destinations, better to live in, and more attractive to visit.

However, this study also has limitations. Further research is needed on behavioral changes for potential consumers and destinations, in the tourism industry, in general, to be able to draw more vigorous conclusions.

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## **Recent Evolutions and Trends in the Trade Fairs and Exhibitions Industry, before and after the COVID-19 Pandemic. The ROMEXPO Company's Case (Romania)**

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### **Abstract**

*Exhibitions are one of the most important marketing tools, especially in terms of B2B communication. Before the COVID-19 pandemic there had already been a tendency towards organizing online or hybrid events. Following the pandemic, trade fairs have shown that they are able to transform themselves, and the exhibition industry has recovered, however, without reaching the performances recorded in the year 2019. Nevertheless, there have also been exceptions. Both exhibitors and visitors have expressed, in large numbers, a desire to meet physically; nonetheless, an increase in online or hybrid events is expected. The objective of this paper is to analyze the main developments of the exhibition industry before, during and after the end of the COVID-19 pandemic, at international level, including the case of the evolution of the Romanian company ROMEXPO, from Romania, which recorded a spectacular development in 2022.*

**Key words:** Trade fairs and exhibitions industry, developments and trends, the COVID-19 pandemic, the ROMEXPO company, Romania

**J.E.L. classification:** D91, I18, L26, L89, M31, M38, M51, O12, Z30

### **1. Introduction**

Exhibitions remain a very important platform for exhibitors and visitors in terms of approaching new customers and presenting the latest products and technologies.

Of all marketing tools, trade fairs/shows have, by far, the widest range of functions. They directly influence both business administration and national economies and society, as a whole and test markets for new products, they are also important market research tools. Moreover, trade shows allow companies to raise the brand's recognition level, to analyze competitive environments, and to prepare to sell products and services.

#### **The role and importance of trade fairs (shows) and exhibitions**

According to the definition used by UFI and Oxford Economics, an exhibition, a trade show or fair is an event in which products, services or information are displayed and disseminated. Exhibitions include Trade exhibitions: exhibitions which promote trade and commerce and are mainly attended by trade visitors and they exclude flea markets and street markets (UFI and Oxford Economics, 2022, p. 6)

Trade fairs started to be organized in ancient times. Thus, for example, during the Middle Ages, trade fairs represented a particularly important framework for the development of commercial acts, in European countries such as Germany, France, The Netherlands, Switzerland, Italy, Spain and many others (Constantin, 2014). Considering the difficulties and high costs of long-distance journeys, at that time, as a rule, trade fairs were organized annually and they represented the only possibility, for the visitors, to purchase certain goods or products brought from great distances (Zamfir, 1997).

Trade fairs and exhibitions are particularly important platforms through which companies from various fields of activity can launch their new products or services, access new outlets, find new business partners and strengthen their relationships with the existing ones. Furthermore, during these exhibition events, both exhibitors and visitors could learn about the latest trends in a certain field, and they can follow the offers of the competing companies.

The main advantage in participating in such exhibition events is the possibility to communicate directly, to engage in a direct dialogue with partners or potential business partners, and, at least until now, the performance of new information technologies has not been able to replace inter-human contacts (Constantin, 2014).

Three main categories of participants interact at trade fairs and exhibitions: exhibitors, professional visitors (to whom, in certain categories of exhibition events, visitors from the general, non-specialized public are also added) and the organizers of the respective events. Obviously, in a situation in which the event is not held in the organizer's own exhibition spaces, another important category of partners appears - the owners of the exhibition spaces. Each of them seeks to achieve their own objectives. Nevertheless, in a marketing approach, ensuring the convergent interests of all parties involved should be considered, as a condition for the success of the trade fair, seen as a marketing tool (Jugănaru and Jugănaru, 2016b, p. 332).

Regarding the organizers, they must be aware that some disagreements and contradictions may appear between the objectives and goals set by the 3 categories of participants. For this reason, the organizers should make the necessary efforts to know the objectives of each participant, in order to identify the most suitable ways and means to achieve their harmonization. On the other hand, all three categories of participants should show flexibility during the entire process of organizing an exhibition event (Jugănaru and Jugănaru, 2016a, p. 326).

#### **General economic functions of trade fairs**

Trade fairs provide benefits not only to exhibitors and their visitors, but also to the economies around the localities which host such events, given that they generate strong side effects, particularly for the hospitality sectors, namely those that provide accommodation, meals for the participants, as well as their transportation, but also for the companies which provide, for exhibitors and visitors, the services specific to exhibition events, from sectors such as stand design and construction, logistics, translation and interpreting, hosting and others.

According to some estimates, regional economic effects can be five to seven times higher than the sales for the organizers, especially if event venues have a strong international focus. On the other hand, trade fairs create a significant number of jobs in the areas in which they are organized, especially in small and medium-sized companies (Hochheim, 2020).

#### **The ROMEXPO company from Romania (Bucharest)**

The ROMEXPO company from Bucharest owns the most important exhibition center in Romania, being a reference point for large-scale events organized not only in Romania, but also in South-Eastern Europe. Trade fairs and exhibitions, as well as congresses, conferences and other types of meetings, business meetings, shows, concerts, events and sports competitions and private events are organized and hosted here (Romexpo, 2020). The company has its own exhibitions Center, called ROMEXPO Exhibitions Center, on a total area of 300,000 sqm, of which approximately 57,000 sqm is the exhibition area, including the outdoor platforms, the actual exhibition space (Romexpo, 2023).

The history of this company began in the year 1959, when the leaders of the communist regime in Romania decided to build an exhibitions center to host a large exhibition of the achievements of the national economy, and the new construction to use avant-garde architectural solutions for that period. The works on the Exhibitions Pavilion were carried out in the 1960-1963 period. On April 27, 1962, it was initially put into use, for the organization of the extraordinary session of the Great National Assembly (the Parliament of the country, at the time), with over 11 thousand participants, brought there to mark the completion of the collectivization process of agriculture in Romania. However, in March 1963, with the beginning of the melting of the snow on the dome of the Central Pavilion, it "overturned" under the weight of the snow and it had to be rebuilt.

In the year 1964, the Central Pavilion of the Bucharest Exhibitions Center was put into use, and it hosted the first edition of The Exhibition of National Economy Achievements (EREN). The Central Pavilion building has become symbolic for Bucharest, the beneficiary of the works being the Chamber of Commerce and Industry of Romania - CCIR.

In the year 1968, EREN became the Company of Trade Fairs and Exhibitions, specialized in organizing trade fairs and exhibitions in the country, as well as in organizing Romania's official participation in trade fairs and exhibitions abroad. Then, in the year 1970, the first edition of TIB (Bucharest International Trade Fair) was organized, with over a thousand exhibitors, from 30 countries, on an area of 70,000 square meters, and in 1974, the first edition of TIBCO (National Consumer Goods Trade Fair) was organized, an international exhibition, in which various products were exhibited. Later, starting with the following edition, the profile of the trade fair was completed with agri-food goods. In the year 1981, TIB and TIBCO merged, thus a single annual exhibition remained.

In the year 1984, the Company of Trade Fairs and Exhibitions was reorganized, through its merger with the Publicity Agency for Foreign Trade (PUBLICOM), with the new name of Trade Fairs, Exhibitions and Publicity Company for Foreign Trade - ITEPCE (Romexpo, 2023).

Romania's change of regime brought, also for this company, radical changes in terms of its strategy, so that, gradually, starting from a single exhibition event per year, the activity would be expanded and diversified, achieving the organization and hosting, annually, of over 40 trade fairs, exhibitions and trade shows, with international participation, most of them being specialized events.

In the year 1991, based on the new legislation regarding companies, the transformation of the former ITEPCE into the joint-stock company ROMEXPO took place, with the Chamber of Commerce and Industry of Romania (CCIR) as its majority shareholder.

ROMEXPO is the leader of the Romanian trade fairs and exhibitions industry, recognized internationally, being a full member of The Global Association of the Exhibition Industry - UFI, the Central European Fair Alliance - CEFA, The International Exhibition Statistics Union - CENTREX and The European Federation of Agricultural Exhibition and Show Organizers - EURASCO.

The ROMEXPO company obtained, from the TÜV Thüringen body, the certification of Quality Management System, which certifies the implementation by ROMEXPO S.A. of the requirements of SR EN ISO 9001: 2015 standard, for the following three fields of activity: Organization of trade fairs, exhibitions and events; Rental of pavilions, outdoor spaces and conference rooms; Design, construction and arrangement of exhibition stands.

Starting from the year 1991, ROMEXPO company's development strategy focused on three priority directions: modernization, diversification and specialization. In the year 2016, an ambitious program was launched in order to renew the exhibition complex and to expand the exhibition area. By completing and putting into use the two B pavilions, the most modern exhibition area in Romania was added to the existing capacity, totaling approximately 30,000 square meters (Romexpo, 2020, p. 4).

In this paper, we have analyzed several studies on the evolution of the trade fairs and exhibitions industry, at international level, before, during and after the COVID-19 pandemic, with the aim of making a comparison with the evolution of the ROMXPO company, from Romania.

## **2. Literature review**

Exhibitions are still considered one of the best forms of marketing. Ellen Sokes supports this statement with statistical data, taken from various sources:

- 64% of exhibition participants are not current customers of exhibitors' companies, and attending such events will provide plenty of opportunities for exhibitors to have meaningful conversations with new business prospects;
- 92% of exhibition participants state that the main reason why they attend exhibitions is to see new products being presented, therefore it is necessary to offer the best chance to make the company's new product or service stand out at the next exhibition;
- The perception of a brand which is not represented at an important exhibition event decreases by 5%. This is true even for global brands. For this reason, companies should ensure that they are present at key industry events, for both publicity and brand awareness;

- 76% of exhibitors state that their event is integrated into their other marketing campaigns. Exhibitors choose to create content from their exhibitions, such as videos, to use throughout the year in their other marketing campaigns;

- 81% of exhibitions' participants have buying power; trade exhibitions visitors are often decision makers in their companies, and exhibitors should take advantage of this opportunity (Stokes, 2019).

Hendrik Hochheim, Head of Trade Fairs Germany, Managing Director of FKM - Managing Director of the Society for Voluntary Control of Fair and Exhibition Statistics (FKM), Berlin, carried out an overview of all the advantages of trade fairs as a marketing tool and he identified 10 important reasons for the participation of exhibitors in trade fairs and formulated a justified question, which is currently being asked: how will trade fairs develop in the digital age? (Hochheim, 2023).

He also emphasized the role of trade fairs, as a communication tool, as well as the economic and social role of these exhibition events (Hochheim, 2020).

Jung and Lee analyze the changes in the organization of conventions and exhibitions due to the COVID-19 pandemic, questioning whether and to what extent the virtual and hybrid formats of these events will replace the traditional way of organizing them, with the physical presence of participants (Jung and Lee, 2022).

The latest Global Exhibitions by UFI - The Global Association of Exhibition Industry (30th edition), based on a survey of 367 respondents from 56 countries and regions, analyzes the results of the responses received regarding the evolution of the exhibition market in the year 2022, compared to 2019, also conducting 21 studies for 21 markets (UFI, 2023).

Mordor Intelligence recently produced the Report entitled Event and Exhibition Market Size & Share Analysis - Growth Trends & Forecasts (2023-2028). The report covers the global market for event management and exhibition companies, it includes a market forecast up to 2028 and a historical overview, and it is segmented into types of Exhibition (Mordor Intelligence, 2022).

### **3. Research methodology**

This paper, including the case study from this article, is based on desk research, in a longitudinal profile, in which we have processed secondary, quantitative information, represented by the levels reached by the main economic indicators, recorded in the interval 2018-2022, by the ROMEXPO company, from Romania. The information received during the discussions with the management of the ROMEXPO company proved to be very useful to better understand certain aspects which do not result only from the analysis of the Annual Activity Reports (Jugănaru, 1998; Jupp, 2010).

### **4. Findings**

According to UFI data, in the year 2019, exhibitions directly involved almost 353 million visitors and almost 5 million exhibitors, in more than 180 countries of the world and generated over €125.6 (\$140.7) billion of direct spending by visitors, exhibitors and additional exhibitions-related expenditures. Furthermore, these activities generated over €73.5 (\$82.3) billions of direct GDP, supporting 1.4 million direct jobs, globally. If both direct and indirect and induced impacts are considered, the global economic impact was of €298.7 (\$334.5) billions of total outputs (business sales), a total number of 3.4 million jobs were created and the contribution to global gross domestic product was €179.3 (\$200.7) billion (UFI and Oxford Economics 2022).

#### **4.1. How the future of trade fairs was seen, by the exhibitors, in the period before the pandemic**

The UK company Display Wizard conducted a survey between April and May 2017 using SurveyMonkey, disseminated via email to the company's customer database, and conducted at various trade fairs in the year 2017. The survey had 100 respondents, among marketing/sales professionals who regularly exhibit their products/services at trade fairs.

Regarding the industry's outlook, 75% of respondents predicted a positive future for commercial exhibitions, with only 25% of respondents expressing a negative perspective. The reasons given by the respondents for the positive outlook for commercial exhibitions were mainly based on the importance of face-to-face communication, but also on the ability to generate brand awareness, the

importance of bringing the industry together, as well as the ability to promote new products and the ability to generate a positive ROI (return-on-investment).

The main reasons why respondents predicted a negative outlook were the fact that trade fairs are becoming less relevant, given the fact that more and more business is conducted online, but also other reasons such as the high cost of attending exhibitions and the reluctance of some event organizers to adopt new technologies.

Most respondents were positive about the future of this form of marketing, although event organizers need to embrace the new technologies and offer good value for money in order to keep exhibitors happy (Display Wizard, 2017).

A few months before the outbreak of the COVID-19 pandemic, in November 2019, 500 representatives selected from German companies exhibiting mainly at business-to-business fairs, were surveyed. The result clearly showed the strong positioning of the fair as an important marketing tool used by German companies. Thus, according to the results of the survey, 29% of exhibitors intended to spend more money for participating in trade fairs in 2020/2021, 53% wanted to spend approximately the same amount and only 17% planned to spend less. These were the conclusions of AUMA Messe Trend 2020, a survey conducted by Kantar TNS on behalf of AUMA. However, even from this survey, it has become clear that real experiences and virtual reality will complement each other in the future, at least regarding the exhibition stands of the German exhibitors (AUMA, 2023).

In February 2018, CEIR (Center for Exhibition Industry Research) launched research that studied how much business-to-business (B2B) exhibitions capture exhibitors' marketing budgets, with the results presented in its 2018 Marketing Spend Decision Report (CEIR, 2018). The results of the online survey are based on research carried out by CEIR in the spring of the year 2017 to which a total of 424 exhibitors responded.

The respective report showed the continued importance of B2B exhibitions. "It's the face-to-face marketing channel of choice for the marketing agencies who use it," remarked CEIR CEO Cathy Breden, who added that this report provides exhibitors and exhibition organizers with valuable insights. However, whereas B2B exhibitions were capturing the largest shares of these brand marketing agencies' marketing budgets, the research revealed the fact that marketing budgets are stagnating. This aspect, combined with the documented increase in the average number of exhibition participations have led to the conclusion that there has been no increase in the budgets allocated to the average expenditure per exhibition, since the last reporting in the year 2015. Taking inflation into account, in fact, expenditure has decreased marginally.

As for the year 2018, the number of exhibitions they were going to attend, according to the estimates in this research, were expected to be stationary. Moreover, a positive movement was also anticipated to come from several exhibitors who were planning to increase their stand sizes at the events they attended, as well as by adding new exhibitions to their 2018 schedule.

#### **4.2. Issues faced by exhibitors before the pandemic**

The most important problems faced by exhibitors were related to costs, namely the high price of exhibiting (63%) and the difficulty of measuring ROI (54%).

Additionally, 20% of respondents chose the cost of trade show displays as one of their biggest concerns. Other issues related to exhibiting at trade exhibitions included time away from the office (38%), logistical difficulties (24%) and others.

Moreover, a trade exhibition can often seem expensive, but it is up to event organizers to communicate the less obvious benefits of trade exhibitions to exhibitors, such as increasing brand awareness and developing long-term customer relationships (Display Wizard, 2017).

#### **4.3. The COVID-19 pandemic and trade fairs. The consequences of trade fair cancellations due to the COVID-19 pandemic**

The cancellation of exhibitions has not only brought losses to those directly involved, such as event organizers, exhibitors, visitors, and service providers, but there were also other serious macroeconomic consequences. Among others, the hotel industry, gastronomy, transportation, etc. were affected. For example, according to the calculations of the Institute of the German Trade Fair

Industry (Ifo), the global economic losses caused by the pandemic were about 60 billion euros, and 10 billion of tax revenues were lost by the Treasury (Schulze and Böhl, 2023).

In relation to the COVID-19 pandemic, trade fairs have proven, once again, that they are able to transform themselves. It was quickly understood that, in the future, virtual activities will extend live events. As producers of most of the world's leading trade fairs, the organizers can draw on extensive knowledge and skills. Moreover, regarding this report, the trade fair industry is eager to restart, stated Joern Holtmeier, Managing Director of the Association of the German Trade Fair Industry AUMA. In addition to this, the report showed that the German trade fair and exhibition industry was one of the business sectors most severely affected by the pandemic. Thus, between March 2020 and September 2021, the German Exhibition Centers were forced to stop their activity for almost 19 months. The sales losses of trade fair organizers in Germany in the year 2020 were estimated at 42 billion Euros. In the year 2021, until September, more than two thirds of the 380 scheduled trade fairs had to be cancelled (Hochheim, 2021).

#### **4.4. A few of the main predicted trends of the future events and exhibitions market**

According to the results of a survey carried out by Ifo, German exhibitors continue to rely on real trade fairs. "True" or "real fairs", i.e., traditional fairs with a physical presence, will continue to be of crucial importance for exhibitors. However, trade fairs will be supplemented to a greater extent by virtual event formats. This is the conclusion of an analysis carried out by the German Trade Fair Industry before, during and after the COVID-19 pandemic, by the German Ifo Institute for Economic Research. The outlook is based on a survey on economic development among more than 2,000 exhibitors, of which nearly 1,600 from the manufacturing sector and more than 530 from the wholesale sector. Ifo shows that, to a large extent, exhibitors continue to rely on real fairs with physical participation. Nevertheless, the Trade Show Industry has always had to be extremely flexible.

Mordor Intelligence recently produced the Report entitled Event and Exhibition Market Size & Share Analysis - Growth Trends & Forecasts (2023-2028). The report covers the size of the global market for event management and exhibition companies, it includes a market forecast up to 2028 and a historical overview, and it is segmented into types of Exhibition (B2B, B2C, Mixed/Hybrid), Revenue Stream (Exhibitor Fee, Sponsorship Fee, Entrance Fee, Services), End-user (Consumer Goods & Retail Sector, Automotive & Transportation Sector, Industrial Sector, Entertainment Sector, Real Estate & Property, Hospitality Sector), and Geography (Mordor Intelligence, 2022).

According to this Report, it is estimated that the size of the events and exhibitions market will grow from USD 45.71 billion in 2023 to USD 52.68 billion by 2028, at a CAGR of 2.88% during the forecast period (2023-2028). However, this growth will be differentiated, by region. Thus, Asia-Pacific will see the highest growth, whereas Europe will continue to hold the largest market share.

The COVID-19 pandemic has severely affected global exhibitions and events around the world, with events being canceled or postponed across the globe. Nevertheless, following the pandemic, event organizers have adopted new working models, either fully digital, hybrid or, where possible, holding events in a physical, face-to-face format. Moreover, entertainment activities, such as film festivals, cinema events, music festivals and concerts are gaining significant traction, along with more and more music concerts and world tours of musicians from many parts of the world, thus providing substantial opportunities for the market. Exhibitions are also expected to pick up momentum during the estimated period.

UFI-The Global Association of Exhibition Industry, in its report published in January 2023, highlights the fact that, in the following period, respondents overwhelmingly believed that, following COVID-19, the interest in organizing face-to-face events increased (88% of responses, in December 2022, compared to 64%, two years before). Furthermore, respondents believe that the sector will recover rapidly (with 59% of responses being "Yes, for sure" and 29% "Most probably" (UFI, 2023, p. 16).

#### 4.5. A few trends in the exhibition sector in the year 2023

According to Mordor Intelligence experts, who conducted the study, the *major market trends* shaping the events and exhibitions market are:

- After the pandemic, people around the world are interested in attending *physical entertainment events*, such as music and film festivals and sports, given the fact that during the COVID-19 pandemic, due to restrictions, planned trips to attend global events were postponed by visitors, which drives the global events and exhibitions market.
- *Europe will continue to hold a significant market share*

Europe is a popular destination for events and exhibitions, since the region has many international event locations, mainly in countries such as the United Kingdom, France and Germany. The success of the MICE industry in Europe is primarily attributed to the high degree of customer service, safe and pleasant transportation, hospitality, the provision of fast and safe accommodation conditions and the physical infrastructures to host events.

The European events industry is characterized by an increase in corporate activities, including brand promotion, conferences, seminars, and employee training activities, as well as the rapid development of the tourism and hospitality industries and the expansion of IT centers in Europe.

#### 4.6. Ifo survey: German exhibitors continue to rely on real trade fairs

"True" or "real fairs", i.e., traditional trade fairs, with a physical presence, will continue to be of crucial importance for exhibitors. However, trade fairs will be supplemented to a greater extent by virtual event formats. This is the conclusion of an analysis carried out by the German Trade Fair Industry before, during and after the COVID-19 pandemic, by the German Ifo Institute for Economic Research.

Devi Paulsen-Abbott, the Chair on the board for AAXO, the association representing credibility and professionalism for African exhibition organizers, has identified 5 major trends in the exhibition sector in the year 2023: Quality, more than quantity (the organizers will have to focus their efforts on improving the quality of the audience among the participants); engagement goes beyond "entertainment" (extravagant receptions and dinners are expected to be fewer, within many exhibitions, primarily due to budget constraints); a better localization of a participation in trade fairs on a geographical basis; marketing activity is becoming more and more complex (80% of people on Earth will have a digital online presence by 2023, compared to just over 40% in 2015); incorporating, into the exhibition sector, the Environmental Sustainable Goals (There is huge support for sustainable change in the events industry. We see much more emphasis on a circular economy, sourcing responsibly, achieving social value and reducing the carbon footprint of each event).

#### 5. Case study: The evolution of the ROMEXPO company before, during and after the COVID-19 pandemic

In the years before the start of the COVID-19 pandemic, from the year 2015 up to (including) the year 2018, Romexpo company recorded uninterrupted increases in its turnover and net profit. In the year 2019, there was a slight, cyclical decrease in the results of the two indicators (0.22% decrease in turnover and 1.7% decrease in net profit), and in the year 2020, starting on March 25, due to the outbreak of the COVID-19 epidemic, the authorities in Romania prohibited the organization of any event (OECD, 2020, p. 292), which led to a real collapse of the activities in this sector. The turnover of Romexpo company decreased by 32.4%, compared to the value recorded in 2019, and from a net profit of over 4.3 million RON, obtained in 2019, it had a loss of over 17.7 million RON, in the year 2020 (see Table no. 1).

In the period between March 25, 2020 and March 8, 2022, the organization of events, such as concerts, festivals and exhibitions was prohibited in Romania, which led to the almost total blocking of the activities of event organizers (Juganaru, 2021).

As of March 9, 2022, Government Decision no. 171 of February 3, 2022, regarding the extension of the state of alert on the territory of Romania and the establishment of the measures to be applied during it in order to prevent and combat the effects of the COVID-19 pandemic, was repealed. Thus,



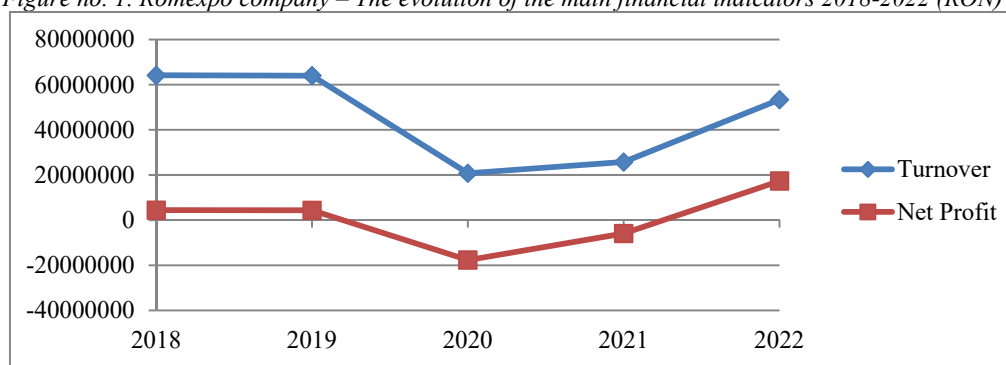
from March 9, 2022, in Romania, all restrictions regarding the restraint or prohibition of certain activities, as stipulated in the above-mentioned normative act, including the organization of exhibitions, ended (Government of Romania, 2022).

*Table no. 1. Romexpo company – The evolution of the main financial indicators and of the number of employees 2018-2022*

Indicator	Turnover	Net profit	Average number of employees
Year	(RON)	(RON)	
2018	64,134,475	4,402,687	214
2019	63,993,793	4,328,704	209
2020	20,740,278	-17,714,980	199
2021	25,739,775	-5,922,597	100
2022	53,360,993	17,310,251	81

Source: (RisCo, 2023. Financial results - ROMEXPO S.A.)

*Figure no. 1. Romexpo company – The evolution of the main financial indicators 2018-2022 (RON)*



Source: (RisCo, 2023. Financial results - ROMEXPO S.A.)

From the analysis of the data presented in Table no. 1 and Figure no. 1, one can emphasize, among other things, the fact that in the year 2022, ROMEXPO company achieved a turnover more than double compared to the previous year and went from a loss of almost 6 million RON, in the year 2021, to a profit of over 17.3 million RON, with only 81 employees, compared to 100 employees, in the year 2021 (average annual number). Considering that the number of employees in the year 2022 was only 37.85% of the number of employees in the year 2019 and 38.8% of the number recorded in 2018, and the fact that the profit obtained in the year 2022 was 3.93 times higher than in the year 2019 and almost 4 times higher than in the year 2018, the performance of ROMEXPO in 2022 can be valued as exceptionally good. Moreover, it must be considered that, due to the restrictions, lifted by the Government only from March 9, 2022, few events could be held in the second quarter of the year, and important events could only be organized in the second semester.

This performance was possible thanks to the company's management team, which adopted the most suitable measures when it was faced with a particularly serious situation, i.e., losing a large part of the staff. During the pandemic, most of the ROMEXPO employees from the years 2020-2021 were laid off, due to restrictions on the organization of events. With the resumption of exhibition activities, in the year 2022, most of the old employees did not return to their old jobs, since in the meantime they found jobs in other sectors of activity, unaffected by the restrictions of the pandemic. The Romexpo company's management team then made the decision to substantially increase the salary level for its employees, thus succeeding in recruiting new, better qualified employees, satisfied with the salaries they received. It should be mentioned that, in the year 2007, the company had 475 employees and it achieved a turnover of 96,526,750 RON and a profit of 25,698,075 RON. This means that in the year 2022, in terms of its turnover, it barely reached 83.38% of the value recorded in the year 2019 and only 55.28% of the turnover recorded in the year 2007.

Therefore, in terms of reaching turnover values comparable to the highest recorded in the last decade, ROMEXPO company still has a lot to recover. Nevertheless, the current management team of the company has displayed an efficient management, by reducing non-essential costs, bringing in new, better motivated employees, so that it has managed to achieve a very good net profit and a net profit rate of 32.4%.

## 6. Conclusions

The main conclusion which can be drawn is that, after the total or partial lifting of the restrictions imposed by the authorities around the world, the exhibition industry has recovered very well, but with important differences from one country to another.

Recent studies have demonstrated, to a large extend, the growing desire of most exhibition participants to meet face-to-face at these events. On the other hand, the organizers must consider the rapid technological progress, so that certain categories of events can be organized in virtual or hybrid formats. Moreover, since the years before the COVID-19 pandemic, many exhibitors had identified high costs, especially those related to rent and arrangement of exhibition stands, as the main obstacle to their participation in exhibitions. In addition to this, following the pandemic, we are witnessing a galloping increase in prices in all areas of activity, including transportation and hotel accommodation rates. These additional expenses will certainly influence the participation in the exhibition events of some categories of potential exhibitors, who will not be able to bear these costs.

The limited space granted for the publication of the paper did not allow us to further analyze certain aspects.

The ROMEXPO company, from Bucharest, the leader of exhibition organizers in Romania, achieved remarkable financial performances in the year 2022, even though the restrictions on the organization of events were only lifted by the authorities on March 9.

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## The impact of Intelligent Virtual Assistants on Buying Behavior

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### Abstract

*The way in which virtual assistants can influence the marketing paradigm through various uses within the interactive media, present on the web, within eCommerce websites, but also through indirect action, starting from social media, is a very complex and interesting process, which is worth studying.*

*From the perspective of virtual assistants, all consumer buying behavior models are a simplification of reality, since there can be many other sub-models which can be derived from the main ones.*

*The objective pursued within this research has been the presentation of the impact of the use of intelligent virtual assistants on the direct marketing activity of the companies, and the correlation with consumer behavior, especially in terms of the different decision levels and the way in which it is being supported.*

**Key words:** virtual assistant, digital marketing, direct marketing, change in buying behavior

**J.E.L. classification:** D83, D91, L15, L21, L22, M15, M31, M37, O33

### 1. Introduction

Nowadays, digital marketing (based on the assimilation of digital technology) offers more diversity, allowing businesses to connect with a very large number of customers, provided that these businesses are adapted to the online environment, by using as many promotional tools as possible on the Internet, the existence of eCommerce-based websites, secure payment systems, email campaigns and social media.

In order to be successful, companies must know the advantages, but also the potential pitfalls of digital marketing. One of the very effective tools of digital marketing is represented by intelligent virtual assistants. They are made available to customers in order to provide useful information about the products offered by the suppliers, being increasingly used on the websites of the suppliers of products and services.

Virtual assistants have a very friendly communication interface, through which the customer can communicate with them, through written questions from the computer or the phone keyboard (Raul from Banca Transilvania, ȘteFAN from Fan Courier, Eliza – the virtual assistant of OTP Leasing, etc.), respectively through conversational interaction in natural spoken language (Siri, Google Assistant, Bixby by Samsung, or Cortana from Microsoft).

The presence of virtual assistants has already caused changes in the buying behavior of customers, and the IT progress will generate new challenges throughout the entire marketing activity.

## 2. Theoretical background

It is considered that each virtual assistant is unique in terms of its mode of operation and in particular in terms of its technical characteristics (its program's parameters). Describing how software agents operate requires first and foremost analyzing the technology which underlies its behavior and determines its intelligence. Intelligence can thus be attributed through three dimensions (Brenner *et al.* 2018):

- knowledge;
- processing (thinking);
- learning.

The knowledge of an intelligent agent, in a virtual assistant, consists of information and rules. Information must be given with precise meanings, such as user preferences or product data. The rules are of the decisional form "if ... then" (if ... then), with the help of which the inference engine relates or represents complex neural networks. Thus, the system structures its database, consisting of prior knowledge and learned knowledge.

The information and rules must be processed, with the results being sent to the virtual assistant so as to be able to respond in the context of the requests, or they are indicated directly by the instructor.

Another category of assimilated elements is learned knowledge (also called dynamic knowledge), which is deduced from the interaction with the environment or from the derived conclusions obtained on the basis of prior knowledge. In order to use this knowledge, the intelligent software agent must have processing capacity (thinking), through which two things are achieved: on the one hand, the agent must assimilate and recognize the events in its environment, provided by sensors (touch screens, web cameras) or interaction interfaces (keyboard, microphone), and on the other hand, the inference mechanism must associate the assimilated and recognized events with its knowledge (memorized in the form of information and rules), within a "thinking process" (Koda *et al.*, 2016).

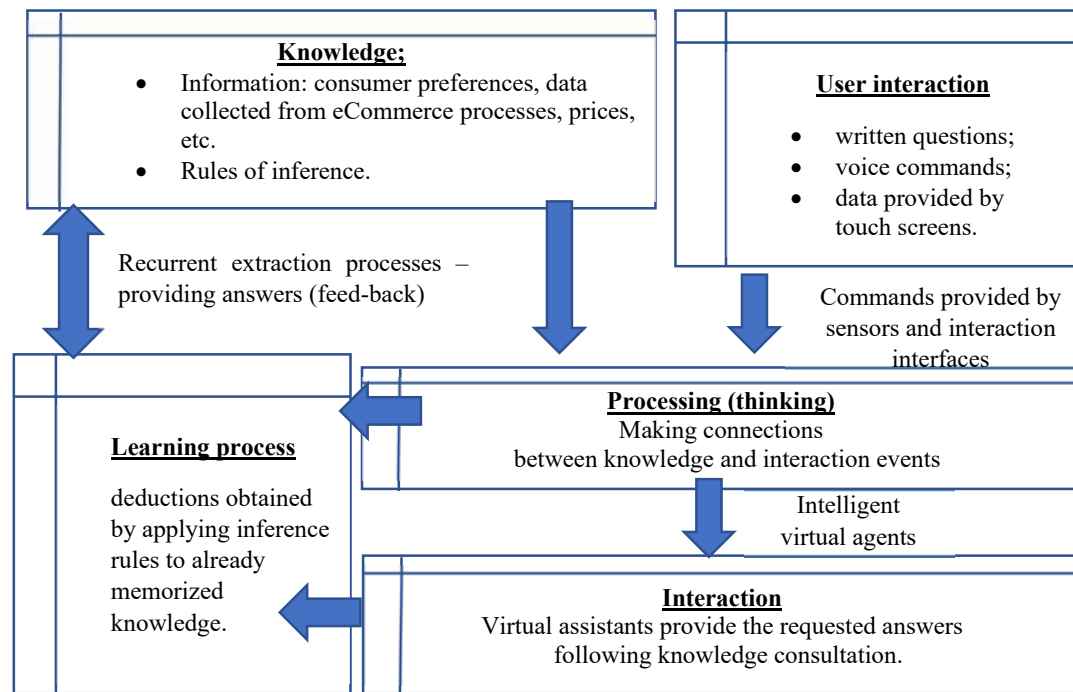
By making these connections the intelligent software agent can draw conclusions. Then, based on these conclusions, the agent can act autonomously, thus without the intervention or the statements of the instructor, through its software mechanisms. In order to perform an action, the intelligent software agent must, in some cases, have authorized access. If access authorization is granted, then the agent can carry out its task by interacting with humans, other computers, or other software agents.

The virtual assistant's intelligence grows by expanding its knowledge database. Thus, by expanding the available information and rules, it can draw better conclusions from the events in its environment. Learning processes contribute to expanding the knowledge database. At the same time, learning can cause a change in behavior as a result of certain experiences.

An intelligent virtual assistant learns to use learning software agents through the following mechanisms:

- from the connection between knowledge and events, the mechanism of the intelligent agent can deduce new conclusions, which enter into the knowledge database via the learning engine;
- the interaction with the environment activates subsequent learning processes - these learning processes are usually oriented towards adding or modifying the rules or information;
- moreover, the intelligent agent can also learn without an interaction or reaction to events, e.g., information is deduced through statistical methods if there are trend hypotheses or not - by using data extraction procedures (*data mining*).

Figure no. 1. Mode of operation of software agents in intelligent virtual assistants



Source: Authors' own interpretation

**Types of intelligent software agents** - they can be classified based on the environment in which they operate, as follows:

- **Desktop agents** – they automatically sort through detailed emails into special topics and create calendar appointments, provide support for users by sending automatic notifications at a specific time reference (e.g., for a report whose delivery deadline is approaching).
- **Network agents** - they access the information distributed within the networks, in order to carry out the actions imposed by the instructor or even by the user.

Network agents are divided into Internet and Intranet agents. The range of Intranet agents is limited to network connections between/within organizational departments or between organizations, whereas Internet agents operate in the field of electronic commerce, and they are specialized in accessing information distributed via the Internet.

Internet specialized agents, depending on their processing capabilities, can be of several types:

✓ **Web searching agents** make it easy for a user to search the Internet. They will mainly be found in the operation of virtual assistants that provide answers to the user's query. They supplement the results obtained from the local query, performed by the agent into the database (or knowledge database) found on physical storage media, with results obtained by the Web searching agent (Crawler), which extracts access links and information content from web pages. The efficiency of the agents is influenced by the correctness of the interpretation of the query phrases formulated in natural language by the client and the identification of keywords, on which the relevance of the results found and provided to the user depends.

✓ **Filtering agents** extract a small subset of information from a large amount of data, characterized by increased relevance to the user, depending on his/her individual preferences. They filter the relevant information and edit it. Filtering agents are mainly used to customize the orders requested by a customer. The specification of preferences is the basis on which the filter is created; it can be a direct one (the keywords in the request are part of the query phrase - filtering) or an indirect one, through which the customer's preferences are suggested by intelligent agents. Thus, the user's preferences are determined by the list of purchases from different eCommerce sessions, his/her web browsing history, topics of interest on Facebook, keywords used in search engines, or support

requests. Upon user requests, the intelligent assistant will provide personalized links for further search.

✓ *Agents which are resident in the active memory of the system* are systems which are working continuously, they monitor the user's activity, can determine his/her preferences or store important data, such as birthdays of important people for him/her, they can inform about the exchange rate reaching certain values or identify deadlines for the completion of certain tasks and notify of these events in real time.

### 3. Research methodology

The use of virtual assistants and their impact on digital marketing activity should be tackled as a very complex and interesting process which is worth studying.

The starting point, in the analysis of this process, is represented by the customer's buying behavior model, structured into three stages. When a customer wants to buy a product, he/she goes through the following stages:

- *choosing the product* - the customer decides what product he/she would like to buy; at this moment, he/she must realize what characteristics the product should have;
- *the selection of the supplier* - the customer decides where he/she would like to buy the product;
- *the negotiation and transaction* - the customer decides to buy a certain product from a supplier and completes the purchasing process (Kollmann, T., 2007).

Software agents are able to illustrate the buying behavior at different levels of the model and make decisions for their instructor independently. This is achieved, on the one hand, by the individualization of their actions and, on the other hand, by their efficiency in terms of solving independent tasks in eCommerce sessions over a longer period of time.

### 4. Findings

In order to analyze the influence of virtual assistants upon the buying behavior of a customer, an identification of the automation of the interaction processes between suppliers and the applicant is necessary.

Consequently, four scenarios are distinguished (represented in Figure no. 2):

- human-to-human interaction; the Internet is used only as a communication medium, for the digital products used and as a distribution medium (scenario I);
- a software agent at the level of a virtual assistant applicant interacting with a human supplier, who does not use an agent (scenario II);
- a software agent, operating through a support interface provided by a supplier on its website, interacting with a human applicant (scenario III);
- intelligent agents interacting with each other (scenario IV) (Kollmann, T., 2007).

#### ✓ **Scenario I – Interaction between two human subjects (Consumer – Supplier)**

At least in the B2C (Business-to-consumer) area, one can often come to the conclusion that the Internet is nothing more than a digital catalog, with a content increasingly represented by multimedia elements and interactive components. The differences in the purchasing process time compared to "non-virtual" markets are relatively small. The customer must make the selection of the product, then that of the supplier, and if necessary, the negotiation and management of the business. The marketing paradigm currently prevailing on the Internet differs only in terms of the information transfer of non-virtual markets.

In the product selection phase, from the buying behavior model, the customer decides which product he/she would like to buy. He/she achieves this, on the one hand, by searching for possibly suitable products and, on the other hand, by analyzing the information he/she has collected while searching for these products. The Internet makes available all the significant information that exists in digital form, globally, unrestricted by time. However, the fact that the Internet is also a huge and unclear repository of unstructured and unsorted information, of the most different types, should not be omitted. The potential trading partners can be determined by using web searching agents; nevertheless, with a very large number of possible trading partners at his/her disposal, it is very difficult for the user to check all the possible options in order to determine the optimal solution.



The suppliers can influence the choice of products sought by advertising comparable to the non-virtual world, which they place in either online or non-online media. Presentations of product alternatives are usually placed on company websites or in so-called virtual malls (e.g., eMag).

The supplier selection issue can be quite complex if a multitude of different suppliers is available with strongly differentiated conditions for the selected product. Finally, a step back to the product selection level or a synchronous product and supplier selection occurs.

If product selection and supplier selection are settled, the customer contacts the supplier, executes possible purchase negotiations, and establishes, if necessary, the agreed performance contract.

Obviously, with this type of interaction in eCommerce, the buying behavior differs from the non-virtual world, given the fact that the alternative spectrum of the products offered and the number of suppliers of these products is constantly growing.

#### ✓ **Scenario II - Interaction human supplier - virtual agent applicant**

If an applicant uses software agents in the purchasing process, he/she can reduce his/her searching costs. Agents can be used to replace all customer buying behavior models.

The software agent accepts the request at the product selection level by searching for products which match the applicants' preferences. The substantial performance of these filtering agents then lies in choosing one product, or a small selection of products, from a huge amount of possibly suitable products. Nowadays, modern technologies usually originate from the area of artificial intelligence. Agents extract useful information from text documents and web pages and automatically draft documents in the form of reports, plan trips according to the requests of the individualized instructor, recommend CDs or movies or find the appropriate car.

Filtering agents, used in the product selection stage, can be divided into content-based and non-content-based agents.

Content-based product agents require the existence on the market of product ranges with characteristics similar to the searched product category.

Non-content-based systems are used in domains where an objective product description is based on subjects or topics (e.g., film or music).

Price agents are the simplest type of content-based agents. They search for price information, for a given product, from all its known suppliers and they compare prices extracted from the Internet, a procedure performed in a few seconds and without personnel expenses.

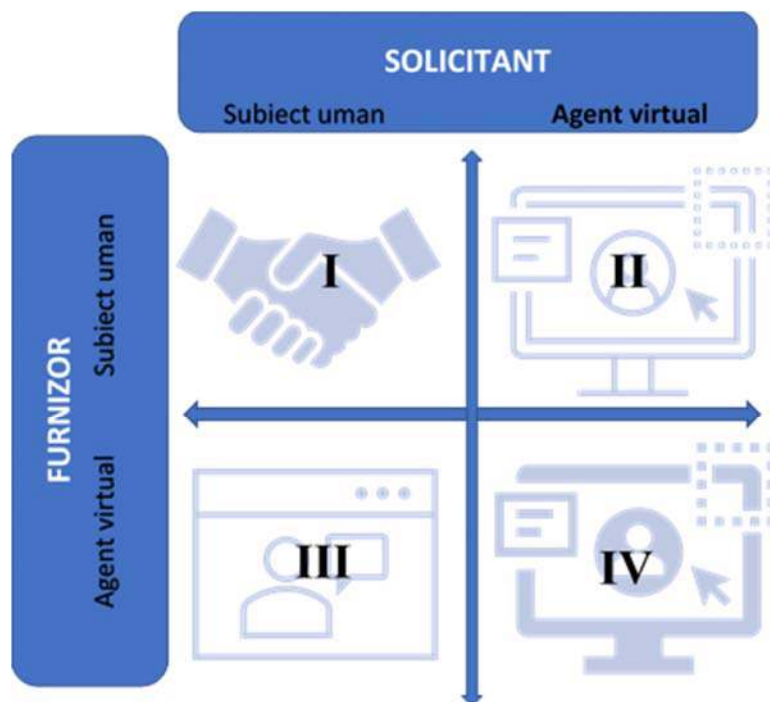
For a supplier which allows access to price agents, the advantage is that it will find out, via these smart mechanisms, that it offers the best price, while also identifying suppliers of similar products which have higher prices.

By using filtering agents, customer preferences can be stored in the applicant agent's knowledge database. This aspect has consequences for the suppliers' offers, since classic advertising no longer works in this case; therefore, with the use of content-based agents, promotion will only be successful if the product has really advantageous features for its consumers.

#### ✓ **Scenario III – Interaction between a software agent and a consumer - human subject**

We now consider that the supplier uses software agents in order to optimize the marketing mix for each individual customer. Supplier agents may be used during the product selection phase for advertising, product policy and pricing.

Figure no. 2. Automation of interaction processes between applicants (consumers) and suppliers



SOLICITANT	APPLICANT
Subiect uman	Human subject
Agent virtual	Virtual agent
FURNIZOR	SUPPLIER
Agent virtual	Virtual agent
Subiect uman	Human subject

Source: Authors' own interpretation

Advertising agents can control advertising in such a way that the inefficiency of marketing activities is minimized, and they can often be combined with product agents, which are able to determine individual user preferences.

For example, the product selection process can be influenced by content-based advertising within search engines. Entering the search term "mobile phone" into any of the search engines will lead to the advertisement of a mobile phone company in a banner above the search results (Figure no. 3).

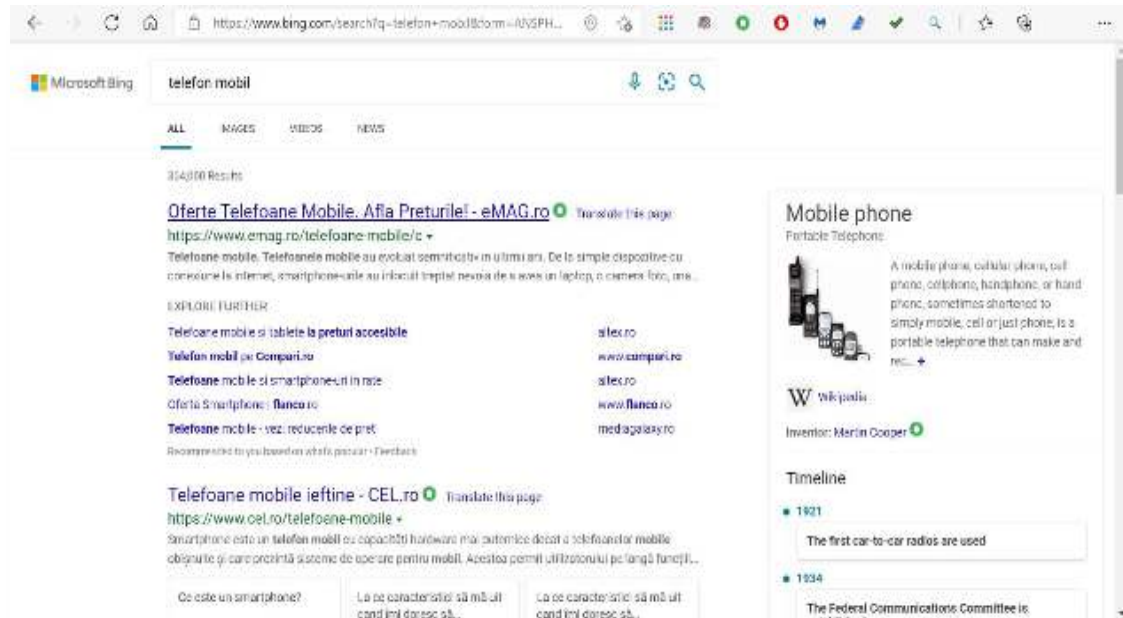
Individualized advertising can also be favorable to the user, as it has a targeted informational character and it is less intrusive, since it largely corresponds to his/her interests. The advantages for the supplier are obvious. Already nowadays, major Internet advertising suppliers place targeted advertising based on the time of day (e.g., promotional emails or text messages with offer announcements will not be sent at night) and the user's transaction profile, through which "click rates" of up to 25% are obtained (Figure no. 4).

In addition to this, advertising software agents can configure new parameters targeting directly interested people in order to select the right advertising message. For an advertising campaign, a series of different advertising messages will be displayed, the effectiveness of which can be measured, among other things, based on "click rate". After a short time, the advertising agent already knows with great certainty which advertising message is the most effective, without needlessly

placing many ineffective ads. Another differentiation of individualized advertising is possible if socio-demographic data of the user are present.

Customers who respond positively to emotional ads may receive one type of promotional message, whereas another type of customers who respond to informative advertising receive another type of message. Selecting the right ad is, therefore, highly individualized based on the customer's profile.

Figure no. 3. Search results provided by a searching agent at the level of the "Bing" search engine



Source: Authors' own interpretation

The intelligent agent determines in a very short time, which advertisement achieves the best results for a certain type of people, at what time of day.

Advertising agents may be used in particular in combination with the filtering agents used by the suppliers. Online stores, such as Amazon ([www.amazon.com](http://www.amazon.com)), determine based on transaction data whether a particular customer is only interested in Apple mobile phone products. In this case, on this consumer's search pages or in his/her social media newsfeed, Apple promotions (products or accessories which the customer has not yet purchased) will be prioritized.

Software agents from the suppliers' applications can also be used in order to achieve individualized product promotion tailored to the profile of the customer being addressed. For example, computer manufacturer Dell, depending on customer preferences, can offer more than 10,000 possible hardware configurations of PCs or laptops ([www.dell.com](http://www.dell.com)).

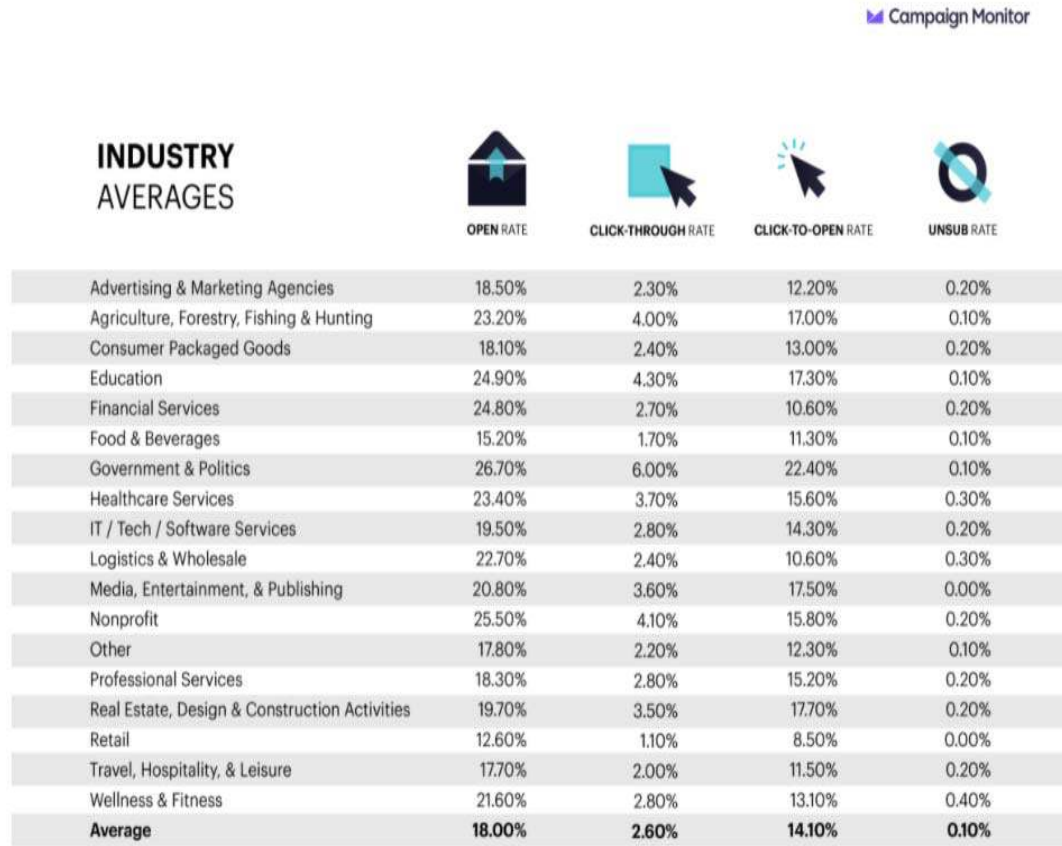
From the perspective of online deliveries, individualization can be profitably used by intelligent agents given the fact that, based on user preferences determined by the previously detailed extraction mechanisms, targeted advertising and product placement can be done substantially more efficiently.

#### ✓ Scenario IV – Interaction between two software agents (supplier – consumer)

This is the case with quite a large number of online auction sites, e.g., e-Bay or OnSale ([www.onsale.com](http://www.onsale.com)), where the trading interaction is done through automated intelligent agent mechanisms used by both categories (suppliers and customers).

The use of software agents, by both sides, brings a clear benefit in terms of lowering transaction costs, while developing a fully automated market process in which supplier agents and applicant agents negotiate with each other and execute transactions on behalf of their customers.

Figure no. 4. Statistics of click rates recorded in email marketing campaigns in the year 2022



2021 Global Email Benchmarks data

Source: Campaign Monitor – Guides Ultimate Email Marketing Benchmarks for 2022: By Industry and Day

Virtual assistants with high-performance intelligent mechanisms will learn and assimilate as many inferential rules as possible over time, related to how they should act within virtual markets, whereas agents which do not have a similarly well-developed intelligence will become victims and will be withdrawn very quickly from the virtual markets.

A critical point regarding the use of software agents can be summarized under the frequently used term "confidentiality", represented by all the information protection mechanisms related to the coordinating customer and the trading rules imposed by the customer, one of their main operating objectives being that of protection against unwanted espionage by potential transaction partners. Therefore, an applicant agent will not disclose the same information about its customer's preferences and personal data to every supplier agent. On the contrary, a supplier agent can use personal preferences to the advantage of the applicant by making individualized purchases. Data security thus becomes, apart from a matter of trust, also an object of negotiation, and therefore a typical application for software agents that will act on this in order to protect the customer's interests.

## 5. Conclusions

In the online market, suppliers of products and services interact with their customers through various communication channels, such as telephone, e-mail, websites and social media platforms.

Nowadays, customers, through access to the Internet, can identify what they want and can purchase the chosen product in a few seconds, without much effort.

A company will have more time and will better manage its financial resources by using intelligent virtual assistants that interact with the users (24 hours a day and 7 days a week) through natural conversations, via a wide variety of communication media.

Intelligent virtual assistants are only accepted if there is a perceptible advantage compared to the conventional transaction mechanisms. This trust must be earned, on the part of users, through a gradual authorization of the agent for the functions which are deemed necessary.

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## Investigating Jewellery Buying Behaviour During the Pandemic

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### Abstract

*The investigation of consumer buying behavior represents an attraction for both academic marketing specialists and practitioners. Deciphering, interpreting, and influencing the complex process of how individuals think and act when they are searching, selecting, and purchasing a product/service or brand are concerns as tempting as they are difficult to achieve, sometimes, from a theoretical and practical point of view.*

*The two-year period of the COVID-19 pandemic has attracted changes in people's social and professional lives, including within the manifestation of purchasing behavior for different groups of products or services.*

*The objective of this article is to identify the changes in the buying behavior of customers for the group of jewellery products, during the pandemic, through analyzing the evolution of the sales volume, by product range, recorded at the level of a store in Constanța, which belongs to a well-known company on the Romanian marketplace.*

**Key words:** buying behavior changes, jewellery products, marketing research, COVID-19 pandemic period

**J.E.L. classification:** D91, L21, L22, M21, M31, M37

### 1. Introduction

History reflects the abiding concerns of beautifying all objects in human existence starting from buildings/constructions to vestment articles and adornments. Within the whole economic-social activity of people, they have sought to make useful but also pleasant products, considering that their lives can become more beautiful by doing so. The two dimensions of a product - utility (reflected in the ability to satisfy a need/desire) and aesthetics/design (manifested in the harmonious structure, the ability to like, to delight) are approached differently by socio-economic sciences, the technical and artistic ones.

In marketing, it is considered that the two aspects contribute, equally, to the increase of the value offered to the customer, respectively within the degree of satisfaction/contentment, which will further influence buying behavior in the future.

### 2. Literature review

Archaeological evidence illustrates the historical itinerary of jewellery deriving from the custom of the most distant civilizations to bury their fellows alongside the richest vestments and adornments. Ancient people wore accessories made from natural elements. Accordingly, those who lived near the seas or oceans adorned themselves with decorations made of bones or fish teeth, shells, feathers, and

colored pebbles of different sizes. (Gregorietti, 2022) People wore jewellery for a wide variety of reasons. For example, the first ornaments contained elements from the hunt (teeth, horns, bones) and were associated with trophies from a won battle, hunters wearing them because they believed those would bring them luck during the next hunt. Other jewels were used by some members of the villages/tribes as amulets against disease and bad luck. The significance of jewellery was later associated with both human connection and engagement, as well as wealth, social status, and power. (LeGrand, 2021) In Ancient Egypt, the royal jewellers manufactured gold and silver, combining it with semi-precious stones such as amethyst, chalcedony, turquoise or lapis lazuli, thus making amulets, talismans, bracelets, necklaces, and crowns. They have created ornaments with symbols such as the eagle (Upper Egypt) or the cobra (Lower Egypt) to highlight the ruled territory. Jewellery usually held apotropaic powers for the wearers, both in their material and spiritual forms. The colours and materials chosen for these jewels were very important, as these characteristics were generating the level of protection against disease and danger while they were alive, later guiding them through eternity when they died. (Moroney, 2019) Throughout the history of Ancient Greece, the main characteristic of specific jewellery was the representation through the processing of precious materials of miniature sculptures that were indicating figures or scenes of a religious, mythological or warrior nature. For the Roman Empire, the most popular element was the massive gold ring whose wearing had political connotations and illustrated the material symbol of well-being, being the main accessory of ambassadors, senators, and nobles. (Gregorietti, 2022)

Throughout history, the fascination of ancient civilizations with the origin of diamonds has led to the rise of various fascinating stories. The Hindu people described the formation of diamonds as being produced by lightning striking the stones, the Greeks considered them dust from shooting stars, and the Roman philosophers referred to diamonds as the tears of the gods or even the celestial incarnation of spirits. Although rough forms of diamonds were present on the ornaments of ancient civilizations (pharaohs' crowns or kings' scepters), shaped diamonds only became a popular choice for making jewellery in the 14th century, when people began to understand the methods by which they must be cut to highlight their brilliance. They belonged exclusively to the royal reserves, illustrating the symbol of power and divinity, and used exclusively in the manufacture of jewellery to illustrate social status and wealth, followed by that of femininity and refinement, and taking on the main role of beautifying appearance and clothing style. (Nolen, 2016)

Therefore, the perception of illustrating social status through wearing jewellery with diamonds had been radically changed, being determined by the creation of the diamond engagement ring, its giving being not just an aspiration, but a real possibility to mark the transition to another stage in a person's life, namely the eternal promise of loyalty for the loved one. This custom was initiated by the DeBeers Group, which in 1947 launched its promotional campaign entitled "A diamond is forever".

Nowadays, the general conception about jewellery has suffered changes among the population. The luxury goods industry is facing major global changes in terms of sustainability, digitalization, and consumer preferences.

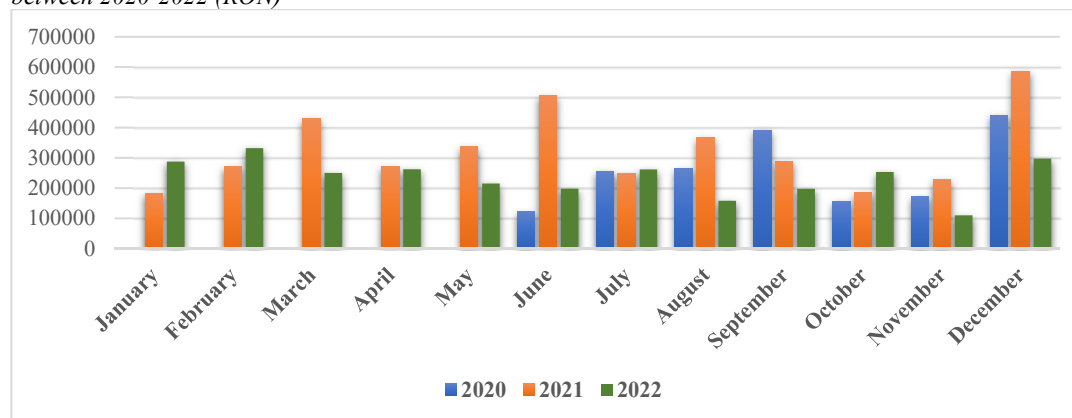
### **3. Research methodology**

In order to achieve the proposed objective, the identification of changes in the buying behavior of customers for the group of jewellery products, during the pandemic period, we carried out office research, in a longitudinal profile, through which we used secondary information (represented by the sales volume, on the range of products), collected from the internal records of a store in Constanța, which belongs to a well-known company. (Jupp, 2010; Silverman, 2004; Jugănar, 1998) While processing the information, we have used statistical-mathematical methods, and for the graphic representations we have personally interpreted the company's internal data through bar and line charts.

#### 4. Findings

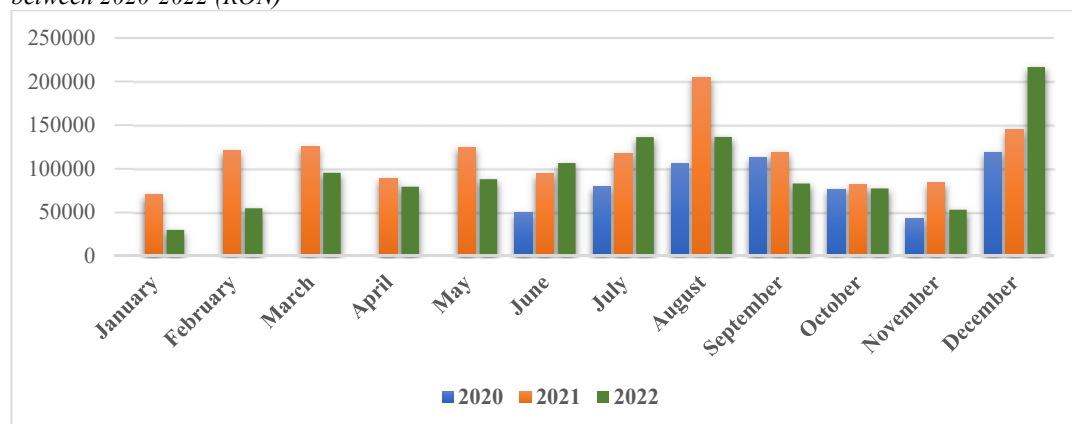
The main objective of the research was to identify significant, general aspects of customer purchasing behavior for the jewellery product group. We processed quantitative information, existing at the company, regarding the total volume of sales, which we broke down into total sales of jewellery with and without precious stones. We mention the fact that the data began to be recorded, at the level of the studied unit, starting from June 2020. The evolution of the sales volume is represented in Figure 1 and Figure 2.

Figure no. 1. Graphic representation of the evolution of total sales of jewellery with precious stones, between 2020-2022 (RON)



Source: Personal interpretation of the company's internal data

Figure no. 2. Graphic representation of the evolution of total sales of jewellery without precious stones, between 2020-2022 (RON)



Source: Personal interpretation of the company's internal data

From the comparative analysis of the data presented in the previous two figures, it can be observed the fact that, during the examined period:

- the value of the sales volume of jewellery with precious stones is significantly higher than the value of sales of jewellery without precious stones;
- there are certain months within the structure of each year in which sales volume increases were recorded.

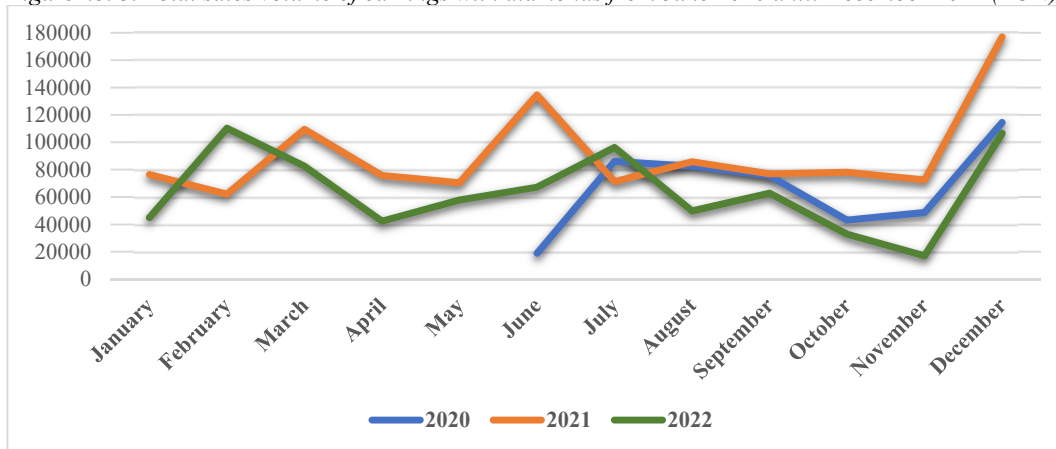
In 2020, the months of August, September and December are obviously the periods with the highest sales levels for jewellery without precious stones, meanwhile September and December show the highest sales for those with precious stones. In 2021, August is significantly differentiated than the rest of the months, even if there were also recorded high levels of sales of non-gem jewellery in February, March, May, September, and December. For the category of gemstone-crafted jewellery, the highest levels were registered during December, June and March.



The highest sales volume of jewellery without precious stones of the entire analyzed period was recorded in December 2022. July and August were also months with high sales values. However, 2022 sees a significant drop within the sales of jewellery with precious stones compared to the sales levels of 2021. The most prolific months, from the total sales perspective, were February, December, and January.

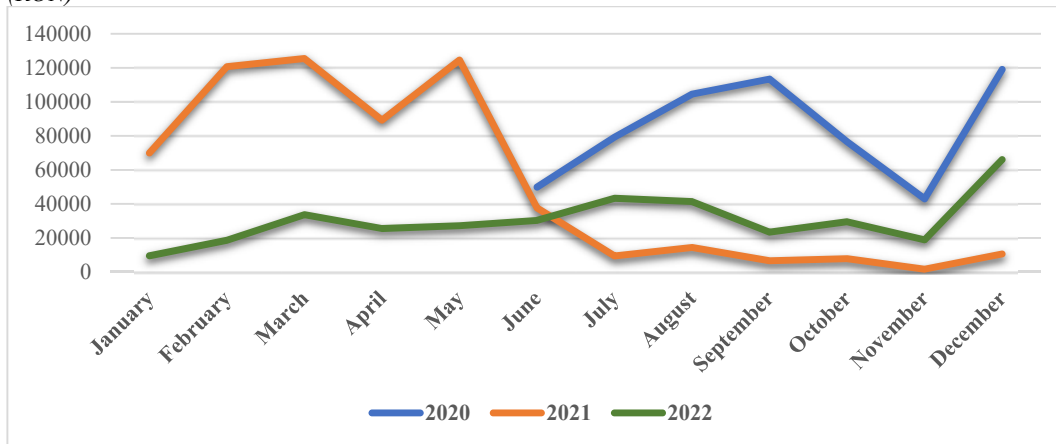
The next objective of the research was to comparatively analyze the evolution of the sales volume by the main categories of jewellery: earrings, bracelets, rings, pendants, necklaces, engagement rings which we grouped (as in the first part of the research) into the two types: with and without precious stones.

Figure no. 3. Total sales volume of earrings with diamonds from June 2020 until December 2022 (RON)



Source: Personal interpretation of the company's internal data

Figure no. 4. Total sales volume of earrings without diamonds from June 2020 until December 2022 (RON)

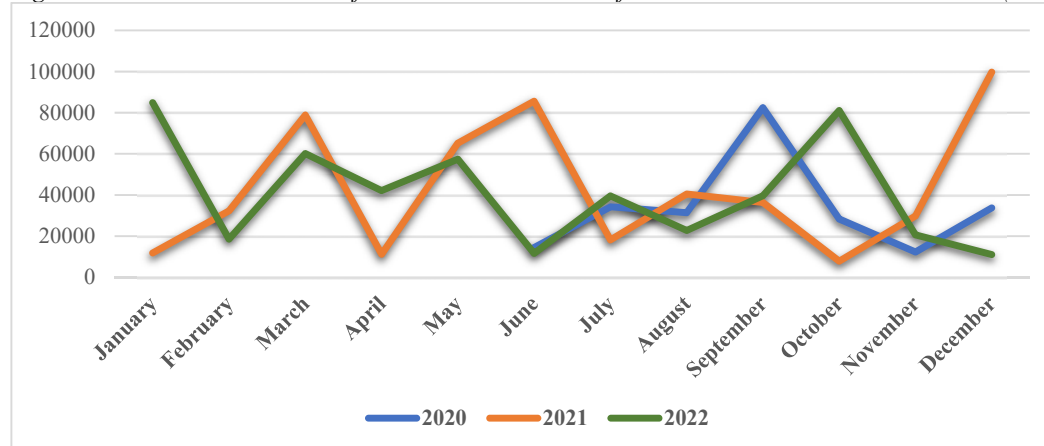


Source: Personal interpretation of the company's internal data

Comparing the evolution of earrings sales (Figures 3 and 4) it can be observed the fact that in December of each year the highest volume of sales was recorded only for earrings with precious stones, while earrings without precious stones recorded the highest sales levels in December only in 2020 and 2022, and in 2021 the maximum level was reached in May, March and February. One aspect that holds attention is the high volume of sales of earrings without precious stones in the months of July, August, and September 2020, compared to the same time frame in the years 2021 and 2022.

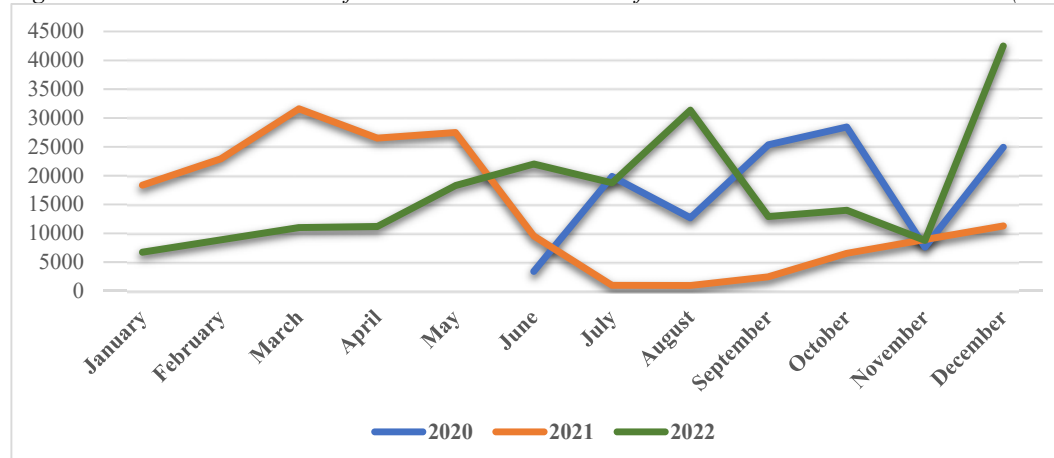
Overall, in 2021 the highest sales volume was recorded for both earrings with precious stones (1.020.115 RON) and those without precious stones (618.215 RON).

Figure no. 5. Total sales volume of bracelets with diamonds from June 2020 until December 2022 (RON)



Source: Personal interpretation of the company's internal data

Figure no. 6. Total sales volume of bracelets without diamonds from June 2020 until December 2022 (RON)



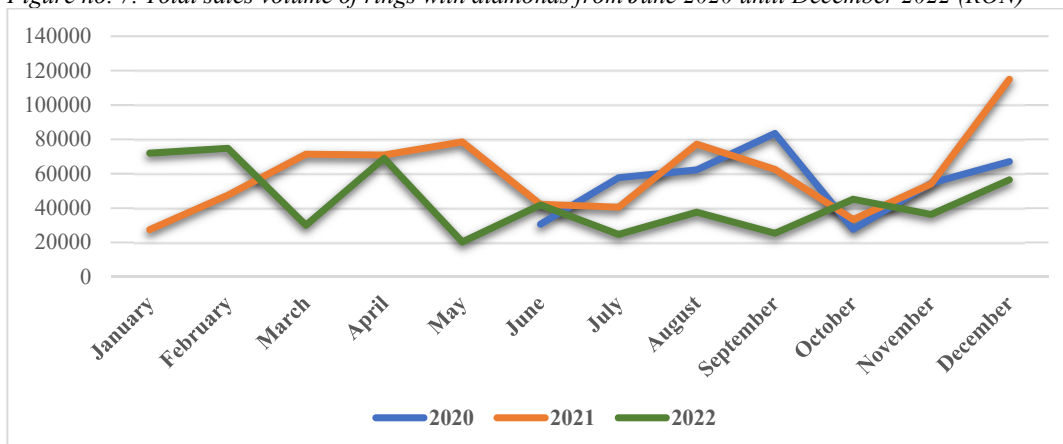
Source: Personal interpretation of the company's internal data

Regarding the evolution of bracelets sales (Figures 5 and 6), December was the month during which the maximum sales value of bracelets with precious stones was recorded, only in 2021, and for those without precious stones, in 2022.

The month of March 2021 is highlighted by the high volume of sales in both categories of bracelets (with and without precious stones). An interesting aspect is related to the high volume of sales of bracelets with precious stones, recorded in January and October (even if was a month with few holidays/events) from the year 2022.

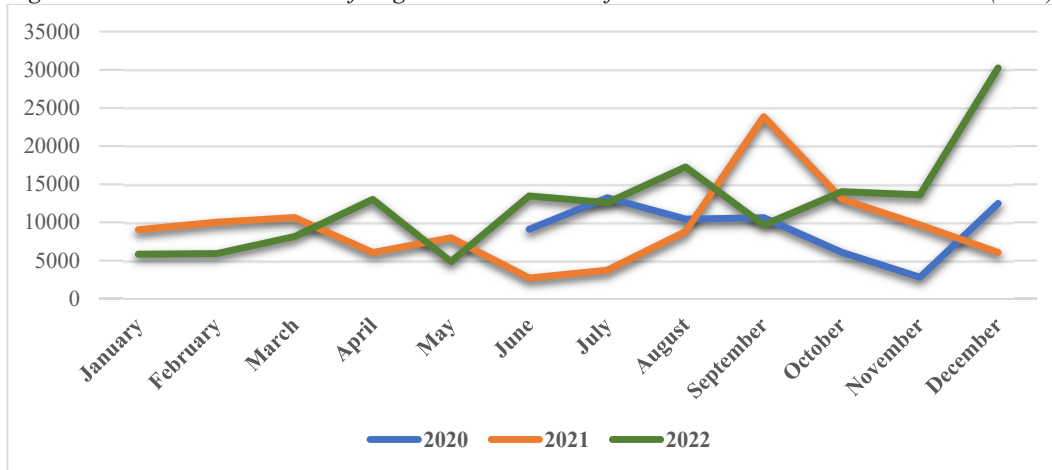
Sales value of non-gemstone bracelets slumped in the second half of 2021. The company's internal records show that the highest volume of sales of gem bracelets was recorded in 2021 (517.100 RON, but this was still close to the one registered in 2022, respectively 489.330 RON). In the other range - bracelets without precious stones, the highest sales volume was recorded in 2022 (206.255 RON).

Figure no. 7. Total sales volume of rings with diamonds from June 2020 until December 2022 (RON)



Source: Personal interpretation of the company's internal data

Figure no. 8. Total sales volume of rings without diamonds from June 2020 until December 2022 (RON)

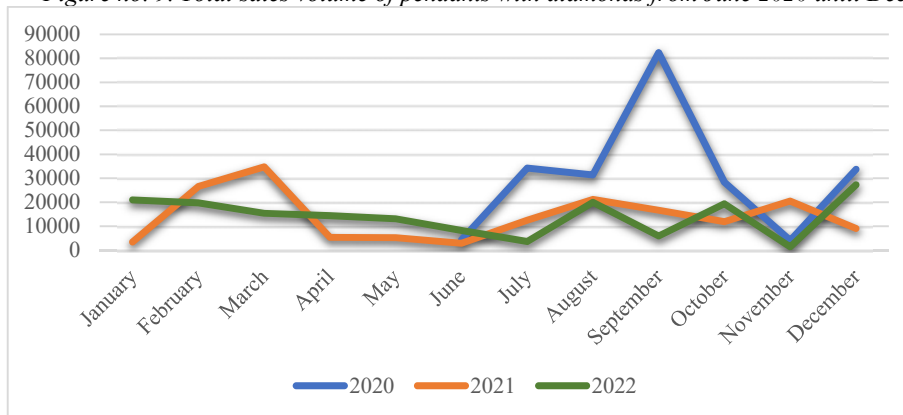


Source: Personal interpretation of the company's internal data

It is interesting the fact that a similar evolution (to that of bracelets) was recorded within the rings sales (Figures 7 and 8), respectively the maximum sales values were recorded in December, but for rings with precious stones in the year 2021, and those without precious stones, in 2022. It should be noted that, in the year 2021, the maximum level of sales of rings without precious stones was recorded in the month of September, meanwhile the minimum levels in the months of June, July and, somehow unexpectedly, in December.

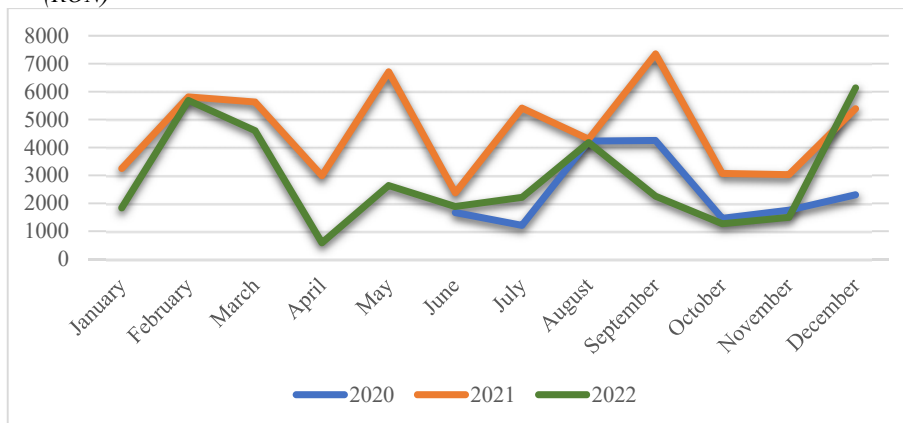
The company's internal records show that the highest volume of sales for rings with precious stones was recorded in 2021 (720.665 RON), and for rings without precious stones in 2022 (148.570 RON).

Figure no. 9. Total sales volume of pendants with diamonds from June 2020 until December 2022 (RON)



Source: Personal interpretation of the company's internal data

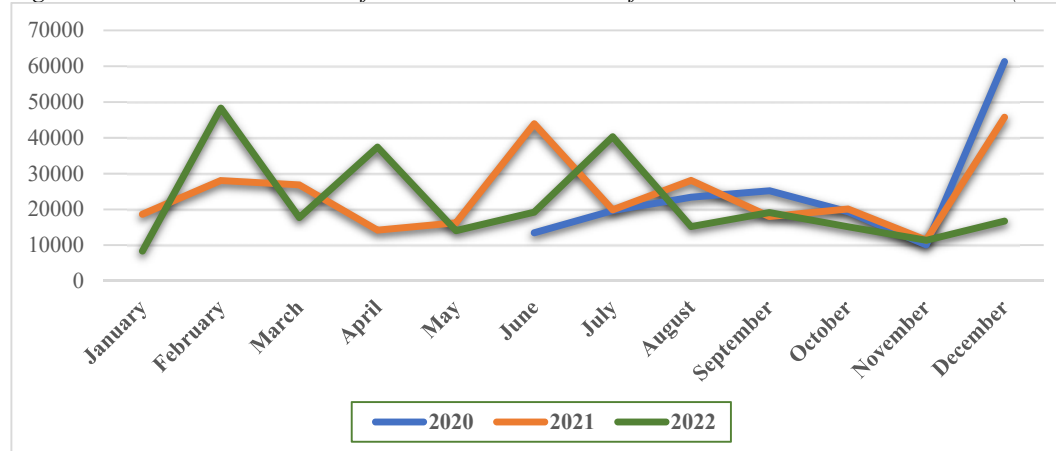
Figure no. 10. Total sales volume of pendants without diamonds from June 2020 until December 2022 (RON)



Source: Personal interpretation of the company's internal data

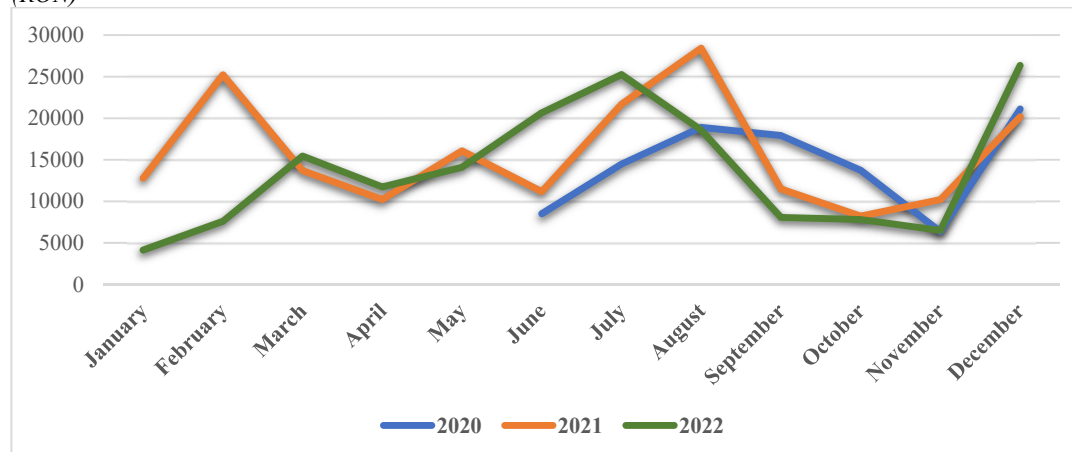
The evolution of pendant sales (with and without precious stones, represented in Figures 9 and 10) is totally atypical, compared to that recorded for most jewellery categories, in the sense that the month of December no longer represented the reaching point of the maximum level of sales. Paradoxically, the highest sales level (over the entire period under review) for gemstone pendants was recorded in September 2020, but higher levels than those of 2021 and 2022 were also reached in July, August, and December 2020. Another less common aspect is given by the high sales volume of pendants without gemstones during the months of February, March, May, June, September, and December of year 2022. The total sales volume of pendants with gemstones is quite close in 2021 (170.025 RON) and 2022 (169.410 RON), but within the category of pendants without precious stones, the highest sales volume was achieved in 2021 (55.295 RON).

Figure no. 11. Total sales volume of necklaces with diamonds from June 2020 until December 2022 (RON)



Source: Personal interpretation of the company's internal data

Figure no. 12. Total sales volume of necklaces without diamonds from June 2020 until December 2022 (RON)

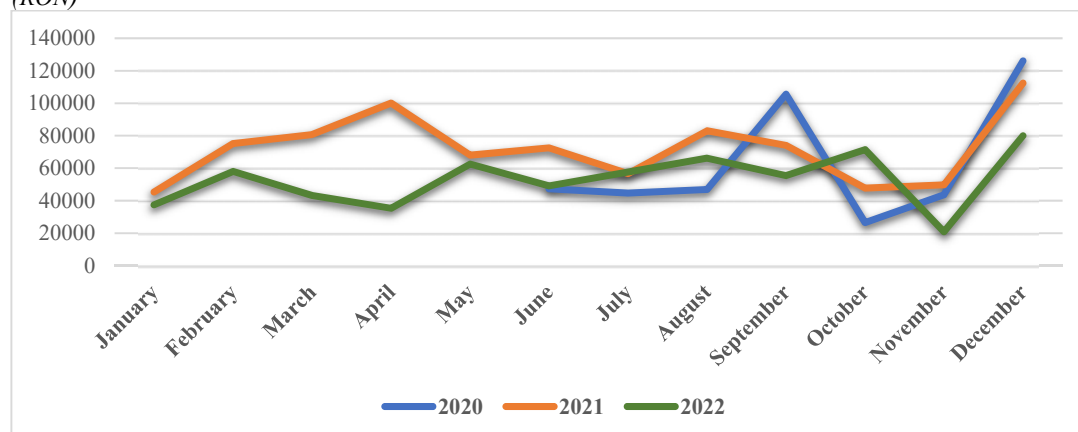


Source: Personal interpretation of the company's internal data

The sales volume of necklaces with precious stones reached the highest level in June and December of 2021, meanwhile in 2022, the same phase was recorded in February, July, and April and from August until the end a considerable drop in sales of this category of jewellery followed.

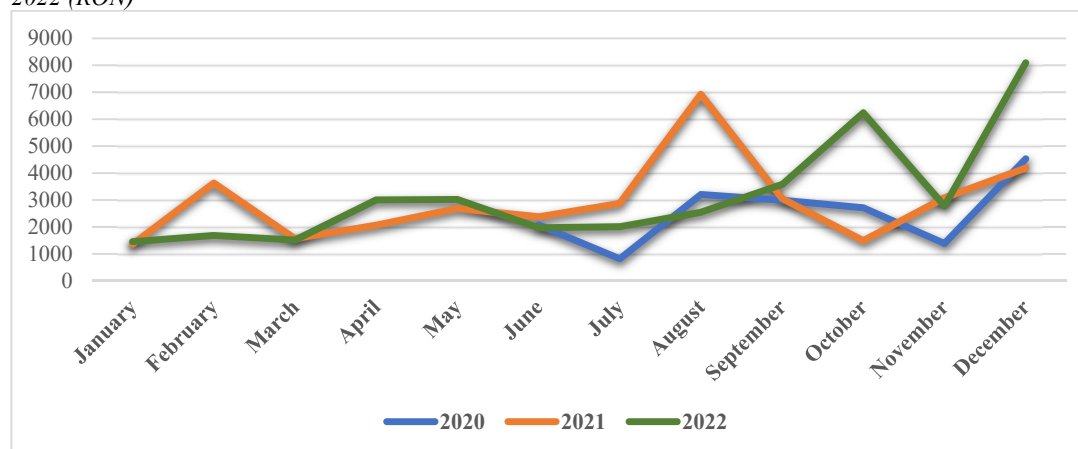
A common aspect for necklaces sales (with and without gemstones) is that November had seen the lowest sales values of each year. The year 2021 highlights the highest sales levels, in total – 291.190 RON for necklaces with precious stones and 189.410 RON for those without precious stones.

Figure no. 13. Total sales volume of engagement rings with diamonds from June 2020 until December 2022 (RON)



Source: Personal interpretation of the company's internal data

Figure no. 14. Total sales volume of engagement rings without diamonds from June 2020 until December 2022 (RON)



Source: Personal interpretation of the company's internal data

For the last analysed category of jewellery - engagement rings (with and without precious stones, Figures 13 and 14) it is observed that throughout the entire month of December, every year, the highest volume of sales is registered. There is one exception respectively, for the engagement rings without gemstones, even though sales increased in December 2021, the highest level (of the year) was recorded in August. Attention is drawn to the high level of sales of engagement rings with precious stones recorded in September 2020 and April 2021. In the year 2022 there was a decrease in sales (637.275 RON), compared to that of 2021 (865.560 RON) of engagement rings with stones precious, but an increase in the range of those without precious stones (37.845 RON, compared to 35.250 RON, in 2021).

## 5. Conclusions

Through conducting the office research, we believe that during the analysed period (2020-2022) there were registered obvious changes in the buying behaviour of customers, and we identified this aspect indirectly, by processing the quantitative information about the evolution of the sales volume of jewellery (in total, but also on the main categories, at the level of a store in Constanța, which belongs to a well-known company on the Romanian marketplace).

Jewelleries are products that satisfy a higher order need (if we refer to the most used classification of needs, known as Maslow's Pyramid). The decision whether to buy a piece of jewellery or not is determined by numerous factors: economic (income level, price level, inflation rate, economic situation, propensity to consume and propensity to save/invest), social and psychological (social class, education level, personality/character, lifestyle, brand awareness, fashion trends, etc.).

At the same time, customers buy jewellery for several reasons such as personal use, but also to offer them as gifts. This last aspect is reflected through the increase of the sales volume in the months within which are celebrated certain religious holidays (Christmas, Easter, name days), other types of holidays and traditions (Valentine's Day, March, Women's Day, Children's Day), as well as special events in people's lives (birth, baptism, coming-of-age ceremony, engagement, marriage). The aspects that influence jewellery acquisitions are different in these two presented situations (personal use or offered as a gift), depending on the characteristics of the person who represents the end user.

The analysis of sales evolution reflects the fact that both mentioned influential factors and the purchase reasons acted differently from one year to another (from the analysed period, affected by the pandemic), on the buying behaviour of consumers regarding the main categories of jewelleries: earrings, bracelets, rings, pendants, necklaces, engagement rings (grouped into two types: with and without precious stones), which leads us to the conclusion that it is difficult to explain and anticipate the buying choices of customers.

However, the research shows that: the highest levels of sales are reached in December; earrings are noticeably the most preferred jewellery category (probably women have several pairs of earrings, which they wear on different events/occasions, and match them with specific clothing pieces), meanwhile engagement rings register the lowest level.

Knowing the changing trends in customer behaviour regarding jewellery can represent a concern of management to improve the organization's activity in each store, so that the gratification of customer wishes would be reflected both within the increase of their satisfaction level and the economic performance of the company.

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## Organizational Culture - Promoter of Technological Innovation and Sustainable Development

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### Abstract

*As it is more and more included in socio-economic life's area, sustainable technology has become a competitive advantage for organizations with a relevant performance. The paper proposes, based on a specialized literature systematic review, a study of the ways through which organization can integrate innovative sustainable development policies in various fields within the organizational culture. The topic addressed is one of maximum interest for the business environment, so the research attention to these aspects is constantly increasing. The transition of the organizational culture towards a digital culture, by promoting a responsible leadership, results in the appreciation of the final performance through the filter of sustainability. The outcome obtained from this study have both theoretical and managerial implications, the organizational culture representing one of the main pillars of the company's orientation towards digital innovation and sustainability.*

**Key words:** organizational culture, technological innovation, sustainable development management, social responsibility, organizational change

**J.E.L. classification:** M14, M15

### 1. Introduction

The sustainable development that characterized the beginning of the third millennium is a subject that has enjoyed a growth at an overflowing rate, becoming from a simple desire (WCED, 1987) a condition sine qua non for organizations committed to respecting the values of the organizational culture directed towards sustainability (Enquist et al., 2007; Epstein M., 2008; Ihlen & Roper 2014). Such organizations that have chosen to protect, support and permanently improve relationships with human, capital, technological or financial resources in accordance with innovative and sustainability requirements become development models with multiple economic advantages. This business model represents an intelligent method of solving all kinds of challenges of an economic, social, ethical, personal or environmental nature. Although innovation is associated with progress and novelty and sustainable development plays an essential role in maximizing performance and increasing reputation (Dinu, 2010), managers' access to the "ingredients" of success that facilitate change within their own organizations is quite limited. Changing visions, missions, values, beliefs, behaviours, plans is the starting point in connecting to sustainability principles. Organizational culture (OC) is the one that creates the bridge between the national culture and the individual culture of its members who, in turn, adapt the elements of national culture to the specifics of the activity and act as an interface of the other organizational elements (Mansour et al., 2022).



Within this new competitive context, innovation represent a critical principle associated with the know-how and intellectual property transfer, the innovation potential being dependent on the level of training and of the organization improvement. The leaning of reducing innovation cycles increases the innovation pressure inside the organizations.

This work *relevance* emerges from the strong influence that organizational culture manifests on the organization transformation, but also from its trend oriented towards innovation and sustainability.

The *purpose* of this paper is to identify the most effective ways of integrating innovative sustainable development policies within the OC and what is the impact of these policies on organizations.

In order to achieve this goal, we systematized and analysed relevant works from the literature and identified two work objectives:

*Objective no. 1* aims to identify and propose a supporting framework for improving organizational culture.

*Objective no. 2.* Pursues in the specialized literature to identify the processes and the ways through which organizations can integrate innovative sustainable development policies in various fields within the OC.

Solid transdisciplinary communication, qualified, dedicated human resources, recognition the innovative performance in the organization development are basic requirements of OC directed towards innovation and sustainability.

The used *methodology* in order to achieve these established objectives consisted into a specialized literature systematic review in order to build a basis for analysing the ways through which OC can promote innovation and sustainability within organizations.

The present work is intended to be useful to the business and research environment in understanding the need to develop strong OC, oriented towards innovation and sustainability in this extremely dynamic and complex socio-economic environment. Approaching this topic at a time when specialized literature has moved from the phase of conceptual presentation of OC to the analysis of the factors that influence it, but also to the analysis of the implications of high-performing organizational cultures development, gives these papers relevance. The level of scientific development of a research field is what determines the interest of researchers and the speed of publications growth, supported by the information emergence (Mansour et al., 2022).

The results demonstrate that the complex interdependencies between various factors (OC, support for innovation, resources allocation for research-innovation activities, clear, common vision, management and capital holder common interest) area the starting point of the joint for successful innovation. The conducted study represents a contribution to enriching the literature in the OC field, directed towards technological innovation and sustainability. The necessary requirements for the existence of an open framework for the identification, testing and evaluation of innovation initiatives are found in the organization's ability to implement and maintain dynamic working relationships, high team spirit, to prioritize the allocation of resources in order to introduce new ways of working, new products, services or technologies.

Following this introductory section, the article is structured into four further chapters. Chapter number two presents a conceptual review of organizational culture as a means of promoting sustainable innovation. Chapter three describes the research methodology and this paper limitations. Then, in chapter four, the analysis, implications of the research are presented and a general framework is proposed to support organizational culture change. The final chapter presents the conclusions and future research opportunities. Of course, the paper presents and bibliographic references that served as a scientific foundation.

## 2. Literature review

The study of organizational culture debuted at the beginning of the 1980s (Hofstede, 1980, Sathe, 1983; Smircich & Stubbart 1985; Schein, 1985) and has intensified since the 2000s (Zhang & Liu 2005; Ahmadi et al., 2012) as a result of its importance awareness', in the context of organization - strategy - performance. Despite the numerous definitions found in specialized studies, they are not antagonistic, they do not exclude each other but only complement each other and emphasize its

extremely complex character, resulting from the very complexity of the human resources that determine it. Hofstede (1980) defines it as a collective mental programming that differentiates members of a group or a certain one, Sathe (1983) appreciates it through the prism of mutual and significant understandings of a group regarding beliefs and values and Smircich & Stubbart (1985) consider it the "social glue" that binds different groups of people. For Schein (1985) this represents the deepest level of beliefs about oneself and one's environment unconsciously shared by an organization members. The culture of an organization is represented by its unique personality like the individuals who compose it (Martins & Terblanche, 2003).

In recent years, companies have been subjected to unexpected external pressures: the Covid-19 pandemic, the Russian-Ukrainian conflict, the energy crisis, pressures that companies cannot control, but what falls to the company's management is to handle the internal factors that are crucial for performance and survival and which, in turn, react to these external pressures (Barney, 1991). OC is what mobilizes the organization's resources and directs them toward the external challenges responses (Zhang & Liu, A., 2005; Cheung et al., 2011). This includes a complex system of social values and organizational norms with a determining role in the organization's results and in establishing the competitiveness level, succeeding in modelling the employee's behaviour, in improving operational routines, in increasing the development of specific skills aspects that generate innovation, respectively performance (Zhang & Liu, 2005). In order to establish the links between OC and performance, researchers exploited the mediating roles of different factors: motivation (Hartman, 2006), competitive strategies (Dadzie et al., 2012; Han, 2012), quality management (Panuwatwanich & Nguyen, 2017), national culture (Chang et al., 2021), innovation (Naranjo-Valencia et al., 2016; Aboramadan et al., 2020; Munir, et al., 2022; Liying & Ismail 2023) and sustainable development (Shin et al., 2023; Metz et al., 2020; Liying & Ismail, 2023). Among them, we focused our study on the last two factors, namely the emergence of organizational culture in innovation and sustainability activities.

Technological innovation emerged and developed as a consequence of the need to improve productivity and efficiency, social and environmental well-being having a determining role in complying with the philosophy of sustainability (Sinha et al., 2020; Yang & Yang, 2015; Kemp & Pearson 2007). On the way of research and promotion of innovation within organizations, an important contribution is made by OC, in its capacity as conductor of norms, values and members attitudes (Scaliza et al., 2022). Through its intrinsic power to direct the human resource behaviour, the CO based on innovation brings performance (Chang & Lin, 2007; Mortara & Minshall, 2011). Buschens et al. (2011), Hogan & Coote (2014), Wiener et al. (2018) studied the components of innovative CO that can negatively affect companies' performance: employees' resistance to novelty, reluctance to exchange knowledge between employees, lack of desire to promote innovation within the organization. In the adoption of technological innovation at the organizational level, an extremely important role is attributed to the responsiveness of stakeholders within the organization (Scaliza et al., 2022). Innovation within the organization can take different forms: product innovation (advancement of product offering), process innovation (concerns improvement of production processes with effect on efficiency), organizational innovation (implementation of business policies and strategies), marketing and advertising innovation (improvement of marketing strategies) (Zeb et al., 2021). At the same time, the implementation of technological innovations to achieve sustainability is a basic tool for improving the organization performance on the three levels: economic, social and environmental (Chege & Wang, 2020). Thanks to the developed technologies, new products and services appear on the market that comply with the requirements of sustainability, aimed at meeting the needs of consumers and increasing the organizations performance level (Chege & Wang, 2020). The philosophy of sustainable development and corporate social responsibility incorporation has as an immediate but also long-term consequence the expansion of innovation in the product offering (Reverte, 2015; Briones et al., 2018), the improvement of social and environmental performance, the implementation of ecological practices and the migration to cleaner production (Besser, 2012). The organization overall performance is improved thanks to the implementation of technological innovation that has the effect of increasing productivity, efficiency, the capabilities of using all the company's available resources, reducing the level of waste and the level of pollution (Chege & Wang, 2020).

### **3. Research methodology**

In order to identify the most appropriate ways of innovative technologies and sustainability implementing within the organizational culture, we performed a systematic review of the specialized literature, based on the methodology proposed by Webster & Watson (Webster, J., Watson, R, 2002).

The searches were conducted in the scientific databases Elsevier, Emerald, ProQuest, SpringerLink, Web of Science and Wiley Ebooks and we aimed for a comprehensive coverage of publications especially in the last 10 years. The search used terms were "organizational culture & innovation" and "organizational culture & Sustainability", limited to the title, abstract and keywords, considering them relevant. The works selected for analysis are books, conference and journal publications, doctoral theses, sources of international legislation, reports of international organizations, all in English.

Selected works were analysed and then the results considered useful for research were registered in areas of interest. The paper takes into account the specialized literature's view on the ways in which the organizational culture can be oriented towards technological innovation and sustainability, aiming to highlight inter-conditional relations between them. We have synthesized the direct implications and causal links between the analysed phenomena by means of the study and the antithesis.

Like any other work, this also has its own limitations, related to the high degree of theorization for the addressed concepts, to the lack of empirical studies carried out at the national level in order to confirm the results from studies in different geographical areas.

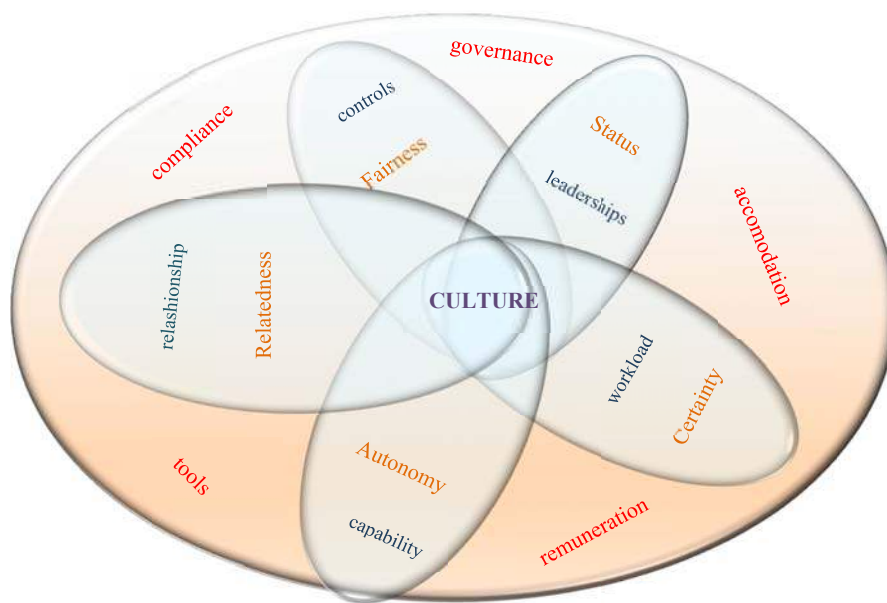
### **4. Findings**

#### **4.1. Valuating organizational culture in strengthening sustainable activities and technological innovations**

Organizational culture is presented as an enabling factor of innovation and modern business models, perceived through intangible challenges, consisting of symbolic reminders (visible artifacts), beliefs, mindsets, symbols, behaviours values (Yan et al., 2021) shared by its members implicitly or explicitly. We have identified seven notable features that can determine the construction of a healthy, effective and sustainable OC: company structure, management support, risk appetite, performance reward policy, individual employee autonomy, identity, conflict tolerance (Weeks & du Plessis, 2011). OC can be oriented in four directions regarding the competing values framework: support orientation (focused on the organization internal support and emphasizing the structure' flexibility), innovation policy (contracted organizations towards the external environment), regulatory orientation (focused on the internal environment with emphasis on its control) and goal orientation (externally focused with an emphasis on internal control) (Solomon & Brown, 2020). Epstein (2008) emphasizes the need for a stable connection between OC, the strategic objectives and business practices, and to achieve these objectives it is imperative that all organizational and management processes to be properly implemented.

Hofstede (1980) highlights the existence of certain "cultural models" that characterize the different nations and considers that the cultural endowment that they possess and that wears specific manifestation forms is reflected in the social compartment and the national culture represents one of the strongest determinants of an organizational culture. Many other determinants of organizational culture have been revealed in the literature: current culture development, organization strategy, governance, control, managerial commitment, decentralization (Dadzie, et al., 2012; Chang et al., 2021; Panuwatwanich & Nguyen, 2017), collaboration, communication, knowledge sharing to individual attributes, rituals, internal beliefs, digital leadership (Shin et al., 2023) these being graphically represented in fig. Not. 1. OC represents the driving force that sets in motion the whole mechanism of an activity directed on customer, through appropriate managerial practices, common values, which is transposed, in the end, into competitive advantage. (Metz et al., 2020).

Figure no. 1 The key factors that determine organizational culture



Source: Authors' contribution

The innovative culture of the organization is determined by the innovative behaviour of its members (innovative professionals), influenced in turn by a number of factors: autonomy, risk preference, adaptability, multidisciplinary, high error tolerance, low bureaucracy (Moraes & Cunha, 2023).

The ways, processes and methods that an organizational culture is implemented directed towards technological innovation and sustainability but also those that improves the existing one, found in the studied literature are summarized as follows: innovative factors, that can support change identification (Lienert, 2015; Yanet et al., 2021), professionals involved in change identification (Peillon et al., 2018), new employees integration (Ahmadi et al., 2012), empowering employees (Buschgens et al., 2011), accountability employees and their involvement in change processes (Munir et al., 2022), connecting and supporting stakeholders responsible for strategic management, design thinking approach (Wiener et al., 2018), promoting innovative behaviour, establishing individual performance indicators, involving all the organization members in its change, communicating change decisions among stakeholders, promoting a customer-oriented perspective (Zeb et al., 2021), training employees in the communication process development, in negotiation, crisis management skills, follow-up, adaptation and the communication about all the changes that take place within this process and the communication process development at each organizational level (Scaliza et al., 2022), figures no. 2.

Along with all the challenges that have appeared in recent years on the socio-political level, the specialized literature highlights the tendency of organizations to focus on social responsibility, as an integral part of this world; social responsibility is considered, in second place, as a factor of social importance, after the products quality (Hartman, 2006). Sustainability does not mean reducing companies' earnings, but achieving this in a socially and environmentally responsible way (Pirnea & Popa, 2015). Sustainable development cannot have the desired effects if it is implemented individually, the imperative condition is that it to be based on cooperation and collaboration, on partnerships (Mansour, L., Spătariu, C.E., 2023). In the same time, it can be hit, within the various organizational structures, by inflexible barriers of some organizations or by the management resistance to change. Promotion of innovative OCs, based on information technologies and sustainability can remove the danger of all these obstacles. Organizational culture leaves its mark on sustainability reporting practices, being a determining factor of different financial and non-financial reporting (Mansour & Spătariu 2023; Mansour et al., 2023; Mansour et al., 2023).

Figure no. 2 Organizational transformation for innovation and sustainability



Source: Authors' contribution

Green organizational culture comprises the set of principles and assumptions that lead the organization towards a sustainable one, that tends to bring about a series of major changes in the way of approaching sustainable business issues (Sinha et al., 2020).

The existence of high performing strategic objectives focuses on strong organizational cultures, whose goals are well determined on all three dimensions – economic, social and environmental – oriented towards the client and based on a values system shared by all members (Metz et al., 2020).

#### 4.2. Digital culture, the innovative component of organizational culture

The fast innovations movement, accelerating the degree of moral attrition of the technologies and information puts additional pressure on the human factor, which requires a series of skills and knowledge, measures, techniques, policies to be able to facilitate overcoming these pressures, aspects that depends on the organizational culture involved, in the literature referring at this time to a new form of culture - digital culture (Shin et al., 2023) which manifests both in the online environment as well as offline. The latter is defined as an emerging complex of values, practices, expectations regarding the way that people interact within different computer networks (Deuze, 2005), capable of innovation and to generate new knowledges, without affecting the employee's performance (Muniroh et al., 2022), being able to provide to the members the isolation they need but also the feeling of belonging, of connection with other system members (Deuze, 2005).

The digitalization of information, of all processes, of business models, of interactions between human resource and technology are results of technological innovation (Solomon & Brown, 2020) and are also reflected in the organizational environment (Shin et al., 2023). To quickly meet these ongoing challenges the organization must be oriented towards adaptability and innovation. For innovation, it is necessary to ensure employees room for manoeuvre, decision and risk, to show tolerance towards errors, to promote the emphasis on teamwork, and to have an idea management that promotes employees' new ideas, be open to bottom-up platform communication for individual voices, against of top-down messaging to the organization collective masses (Shin et al., 2023).

#### 5. Conclusions

The organizational culture concept highlights the soft components, being under the pressure of the changes dictated by international competition, the exchange of values in society, those dictated by the information society. Although each organizational culture is unique, a series of fundamental characteristics specific to this phenomenon experienced by its members can be identified.

OC cannot be the object of direct observation, it has no physical, material existence, it is the result of an indirect deduction of its members' values system, its mediatization takes on forms specific to each organization, being informal and unofficial. However, its implications on the company's

performance are profound, its orientation and organization model strongly influence all the company's activities. A series of implicit, deep mechanisms sets the cultural tradition in motion, the process of socialization of new members being the one that ensures its unconscious but permanent and profound transmission.

The culture of innovation is an integral part of the organization with deep roots in his history, promoted by members, regardless of the hierarchical level. Collaboration, communication, respect, openness to risks and opportunities govern the organization values. Forward-looking OC promotes innovative solutions, has capabilities to identify its weaknesses and accept its errors, and devises innovative measures for analysis.

At this moment, a migration of research interest can be observed from the phase of disseminating the advantages offered by the fundamentals of strong organizational cultures, directed towards innovation and sustainability, to studying the impact of these implementations at the levels of different corporations so as to research theories from this area alongside of companies that have already implemented strong organizational cultures based on sustainable technological innovation practice can facilitate the process of widespread expansion.

Over this society directed towards sustainability, which has access to information and innovation as its basic economic resource, informational technologies emerge and make a strong impression, all of which led to a *green informational organizational culture*.

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## Study on Measuring and Analysing the Quality of Road Freight Transport Service

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### Abstract

*The study aims to measure and analyse the quality of road haulage services in order to identify and implement best practices for quality improvement. The assessment of the quality of road haulage services was carried out from the external perspective of the customer with a focus on the dimensions of quality, based on their perceptions of the satisfaction of the requirements and conditions demanded by the 43 customers, represented by companies from the food industry, light industry and wholesale trade. As research methods, a survey based on a structured questionnaire was used, which included 51 items/primary variables that formed the basis for the construction of the 5 aggregate variables, which express both the quality of the road haulage service provided to the approached as a process and the human resource practices that contributed to quality assurance.*

**Key words:** road freight management, quality of service, quality dimensions, quality management

**J.E.L. classification:** M10, M19.

### 1. Introduction

As customer demands increase, competition in the market becomes stronger and stronger, and ways of measuring how customers perceive the quality of road transport services influence customer behaviour and their decision to purchase the service, which many managers see as a major strategic issue. A strategic view of the quality provided to customers, coupled with a positive customer experience ensures competitive advantage in an increasingly dynamic and sometimes turbulent market with sudden changes that are increasingly difficult to anticipate. For this reason firms are increasingly concerned to identify and minimise market risks, and to capitalise as effectively as possible on opportunities and respond appropriately and quickly to market changes, among which changing customer requirements and behaviour are critical success factors. (Goodman, 2009).

Road haulage companies, in order to secure a competitive advantage in the market, need to address quality issues from the customer's perspective. According to many authors the quality approach must take into account their ability to provide high quality services and focus on customer service evaluation, process and human interactions (Parasuraman *et al*, 1988; Grönroos, 2007). Also customer behavioural intentions are convincing evidence that customers are influenced by service quality (Zeithaml *et al*, 1996).

Service companies are beginning to understand that quality improvement cannot be achieved unless it is measured. (Reichheld & Sasser, 1990, p. 105). Nowadays more and more researchers are of the opinion that business strategies focused on improving the quality provided to customers, with the greatest applicability, such as quality management, customer experience management and customer relationship management, emphasize the evaluation of customer behaviors regarding their experience with the service provider, which has required the development and use of customer

feedback programs (Asher, 1996).

## 2. Literature review

Quality expresses "the degree of predictability, availability and uniformity of products/services at the lowest cost and which meet the requirements of the customers, i.e. the market" (Ilies & Crisan, 2011, p. 34). J. Juran (1999) approaches quality from the customer's perspective, considering that we can only speak of the quality of a product/service to the extent that it meets the needs of consumption/use in terms of conformity to specifications, scope of use and market requirements. At the same time Oakland (2003) argued that the most important feature of quality is the assurance that the product/service offered to the customer satisfies the need for which it was purchased. This means that the author makes the link between producer-based and user-based quality (operational approach to quality). Companies in general, including road haulage companies, need to understand that "quality improvement cannot be achieved unless it is measured" (Reichheld & Sasser, 1990, p. 105).

Based on the principles of the SERVQUAL model of Parasuraman *et al* (1985; 1988), in order to measure and analyse the quality of road haulage services provided by the TR transport company, a scale with four dimensions of quality was used in the study, taking into account the particularities of this sector of activity and the services provided, namely: *Reliability: Responsiveness/Responsiveness: Assurance/Competence Tangibility*.

Despite the progress in the approach to quality brought about by the emergence and development of quality measurement and analysis models based on quality management and customer relationship management, a number of authors in studies concerning the road haulage sector successfully use both subjective criteria largely reflecting customer perceptions and attitudes and more concrete objective criteria based on precise standards negotiated with customers (Rushton *et al*, 2014).

This creates difficulties in measuring the quality of road haulage services, as firms with more complete information about customer perceptions of service quality can make better decisions to serve customers according to their expectations and requirements (Sighiartău, 2022). Since service quality is "intangible and non-standardised", measuring service quality, according to many authors, has a high degree of subjectivity and is largely defined by customers (Hartline and Ferrell, 1996). The requirements for a service quality measurement process in the road haulage sector require knowledge of the key factors that determine quality from the customers' perspective by taking into account the particularities and complexity of these services. At the same time, achieving and delivering a quality service to the customer requires direct and effective interaction with the customer, taking into account the firm's ability to serve the customer according to their expectations and needs and the effectiveness of the interaction with the customer (Cook, 2008, p. 5).

Perceived service quality refers to the ability to continuously and accurately deliver the service to the standards promised to customers as they have been assured it will be delivered. It encompasses credibility, reliability, the ability to perform the service exactly to the promised standards as well as the ability to deliver the service to the promised quality standards the first time and every time without failure (Ross, 1994). Customer feedback is becoming an increasingly important factor in actions to improve the quality of road haulage services (Grönroos, 2007). Improving the quality of service provided and the relationship with customers is considered key to improving business performance (Asher, 1996).

## 3. Research methodology

The study undertaken aims to develop an appropriate and effective model for measuring and analysing the quality of road freight transport services focusing on the relevant dimensions of service quality, in which the quality delivery process and human interactions play an important role, based on a scientific rationale and underpinned by management strategies, policies and practices.

For this purpose, the road transport company "TR" was chosen as supplier, relevant in the field for the activity carried out and the results obtained, which has 113 vehicles with a capacity of more than 3.5 tons and 186 well-trained employees. The aim is to identify and implement best practices to improve the quality of transport services provided by "TR" as a major source of competitiveness in an increasingly dynamic competitive market. The study undertaken, from the external customer

perspective, was based on a survey administered to the main customers of the road transport company "TR", made up of "client companies" from the food industry (51.17%), light industry (16.28%), to which were added wholesale distributors (32.55%). The respondents to the questionnaire are persons with managerial responsibilities for customer relations and customer service delivery. In order to measure the quality of the road haulage service based on respondents' perceptions, a questionnaire was used as a research tool, which expresses both the degree to which the road haulage service meets the specifications imposed by the customer regarding the level of service provided and the degree to which it meets the customer's requirements. The Likert scale measuring agreement was used for the evaluation, with values ranging from 1 (total disagreement or very dissatisfied) to 5 (total agreement or very satisfied).

Given the aim and objective of the research, 5 relevant aggregate variables were defined, which formed the basis of the construct consisting of 51 items/primary variables. The 5 aggregate variables of the analysis model, which express the dimension of the quality of the service provided, are the following: *Quality of the transport service provided (Clt.pr)*; *Reliability (Fbl)*; *Responsiveness (Rcp)*; *Competence (Cmpt)*; *Tangibility (Tg)*. Table 1 presents the results of the reliability analysis based on the determination of internal consistency, using *Cronbach's Alpha* coefficient as a tool calculated with the statistical software STATA 16.

Table no. 1 Reliability analysis test scale

Variable	Sign	Number of items in the scale	Cronbach's Alpha	Average interitem covariance
<i>Fbl</i>	+	8	0.8462	.1124917
<i>Rcp</i>	+	9	0.8137	.0918431
<i>Cmpt</i>	+	7	0.8681	.1033514
<i>Tg</i>	+	6	0.8603	.1771825
<i>Clt_pr</i>	+	21	0.9135	.1967782

Source: Authors' contribution

As can be seen in Table 1, the variables used in the analysis model applied in this study, record values between 0.8137 and 0.9135, which means that all aggregate variables have acceptable internal consistency and are relevant for the analysis performed.

## 4. Findings

### 4.1. Analysis of variables expressing the quality of road haulage services at "TR" company

The analysis of the quality of service provided by the company "TR", adopted in this study, in order to measure the quality of road haulage services provided by the company "TR", is based on the quality of service related to the whole process of its provision to the customer, represented by the variable *Clt\_pr* which is defined by the respondents' (customers') perceptions determined by the relevant characteristics of the whole process of ensuring and providing the road haulage service as well as by the 4 dimensions of quality represented by the variables *Ftb*, *Rcp* and *Cpt*, *Tg*.

Based on the descriptive statistics indicators (mean, sd, cv, se(mean), calculated on the basis of the questionnaire administered to the 43 clients who are part of the research sample, in order to determine the construct validity of the 5 aggregate variables, we can find the following:

1. The quality of the road haulage service, represented by the variable *Clt\_pr*, and the four dimensions represented by the variables *Ftb*, *Rcp* and *Cpt*, *Tg* have a relevant structure in relation to the primary variables that compose them, for a sample of 43 statistical units. Based on the data in Table 2, we see that the average score recorded by the aggregate variable *Clt\_pr* is 3.8641. If we refer to the variables representing the quality dimensions that make up the variable *Clt\_pr*, we find that the best average scores, in the opinion of the respondents to the questionnaire, are recorded by the reliability represented by the variable *Fbl* (3.9021) and the responsiveness represented by the variable *Rcp* (3.9025). These are followed by competence represented by the *Cmpt* variable with an

average score of 3.8517 and the *Tg* variable which records the lowest score, due to the fact that the tangibility of the road haulage service is more difficult to define, it can only be assessed according to the transport conditions, the type of goods with their defining characteristics and the equipment and facilities at the loading, unloading and storage points.

Table no. 2. *Clt\_pr*, *Fbl*, *Cmpt*, *Rcp*, *Tg*, statistics ( count mean sd cv semean )

Variable	N	mean	sd	cv	if(mean)
<i>Fbl</i>	43	3.9021	.4063	.0933	.0341
<i>Rcp</i>	43	3.9025	.4133	.0616	.0391
<i>Cmpt</i>	43	3.8517	.5271	.0974	.0428
<i>Tg</i>	43	3.6803	.3971	.0853	.0324
<i>Clt_pr</i>	43	3.8641	.5752	.0818	.0512

Source: Authors' contribution

2. The mean scores of the 5 variables are dispersed on average around the observed scores, with acceptable values between 0.3971 and 0.5390 representing the standard deviation (*sd*).

3. The standard error is between 0.0342 and 0.0512, which means that the observed mean value, with a 95% probability, will be in the range: 3.7617 - 3.9665 for the variable *Clt\_pr*; 3.8419 - 3.9703 for the variable *Fbl*; 3.7822 - 3.9373 for the variable *Cmpt*; 3.8243 - 3.9807 for the variable *Rcp*; 3.6155 - 3.7451 for the variable *Tg*;

4. The size of the coefficients of variation (*cv*), is between 0.0616 and 0.0974, which means that the statistical population has an acceptable degree of homogeneity.

#### 4.1.1. Analysis of the quality represented by the variable "*Clt\_pr*"

The quality of transport services provided by the road haulage company "TR", represented by the aggregate variable *Clt\_pr*, is composed of the sum of the 21 primary variables included in the questionnaire administered to 43 customers, and expressing the respondents' perception of the quality provided throughout the process and human interactions.

From the analysis of the descriptive statistics indicators of the primary variables, which make up the aggregate variable *Clt\_pr*, the highest scores, above average, refer to: Responsiveness to customer request for renegotiation of tariffs and transport conditions with customers; timeliness of responses in receiving and resolving complaints through effective and appropriate actions; ensuring a fair relationship between quality of services and transport tariff/price; providing adequate and timely information to customers on monitoring and providing transport service; employees of the transport company have adequate knowledge and skills to respond to customer requirements; completing transport documents with high clarity; ensuring an optimal transport route according to customer requirements and economy of the transport process, etc;

Lower scores, compared to the average score, according to the perception of the respondents to the questionnaire, are recorded for the variables referring to: the frequency with which customer satisfaction is assessed at well-defined intervals; responding promptly to customer requests for assistance (packing, loading, unloading, preparation of transport documents; application of incentive discount policies); informing the customer promptly in the event of transport delays; providing a website to communicate effectively with customers; developing employees on the basis of appropriate and effective training programmes: ability to honour orders on an emergency basis.

#### 4.1.2. Analysis of the quality dimensions of road haulage service

Given that improving the quality of road haulage service is a major factor in improving the competitiveness of transport firms, quality provision is vital to their survival in an increasingly competitive and uncertain market and is considered a critical success factor. Thus in this study we set out to carry out a more extensive analysis that takes into account the dimensions of quality. The model used in this study is based on the principles of the SERVQUAL model of Parasuraman et al.

(1985, 1988, 1996), as well as the criteria of the EFQM Excellence Awards, which are expressed in four dimensions relevant to road freight transport quality: reliability; competence; responsiveness; tangibility. In the following we will analyze the quality of transport services provided to the 43 clients of the transport company "TR", represented by the four dimensions represented by the variables *Ftb*, *Rcp* and *Cpt*, *Tg*.

#### **4.1.2.1. Analysis of "Reliability" represented by the variable "Fbl"**

Reliability as a dimension of the quality of road haulage services, represented by the variable *Fbl*, composed of 8 primary variables, refers to the commitment made by the road haulage company to honour orders, i.e. to perform the contracted service, in accordance with the standards negotiated and included in the offer.

From the analysis of the average scores obtained from the processing of the questionnaire we can see that the primary variables with the highest scores, above the average score of the aggregate variable, represent in the opinion of the respondents the key factors for ensuring the reliability of the road haulage service provided to customers by the transport company. These relate to: the ability to provide the service to the standards promised in the offer; meeting promises of on-time delivery and honouring urgent orders; ensuring flexibility when changes are desired in the scheduling and execution of orders; ensuring an adequate schedule for performing services according to the conditions imposed by the customer.

Lower scores, below average but within the acceptable range, include variables relating to: providing sufficient and timely information to monitor the status of customer orders; taking responsibility for ensuring the integrity of the goods being transported; ability to provide the promised service to customers on time and accurately based on the standards contained in the offer; ensuring a sufficient number of trips on the route/itinerary agreed with the customer.

#### **4.1.2.2. Analysis of "Competence" represented by the variable "Cmpt"**

According to Parasuraman et al. (1985) "competence" as a service dimension expresses the ability of the firm's employees to have the knowledge and skills needed to deliver quality, as well as their attitude and behaviour which should convey confidence and trust to customers. It is represented by the aggregate variable *Cmpt*, composed of 7 variables, has a good internal consistency (Table 1), and records a mean score of 3.8517.

From the analysis of the structure of the aggregate variable *Cmpt*, it appears that the following primary variables/items have the highest average scores: skills and experience required to provide a quality service; professional training of employees and their involvement in solving customer problems; trust conveyed to customers by transport company employees through their attitude and behaviour; professional training and involvement in solving customer problems

Lower scores, below the mean of the aggregate variable *Cmpt*, sum up the primary variables that relate to: effectiveness of employee communication with customers; providing adequate and effective training programs for employee development; providing employees with the necessary skills and interest in building good customer relations.

#### **4.1.2.3. Analysis of "Responsiveness" represented by the variable "CPR"**

Responsiveness, represented by the variable *Rcp* as a dimension of the road haulage service, expresses the ability of the haulage firm's employees to respond promptly to all customer requests in order to improve the relationship with the customer by providing quality according to the needs and conditions required by the customer. As an aggregate variable *Rcp* has 9 primary variables in its structure, with good internal consistency (Table 1), with mean scores determined based on the perception of customers who are part of the research sample.

From the analysis of the structure of the aggregate variable *Rcp* we can see that the primary variables that compose it in the perception of the respondents to the questionnaire, which record the best scores above the average of the aggregate variable, refer to: employees understand the customer's needs and expectations, show promptness and help to satisfy them; employees of the transport company show availability and politeness in responding to customers' requests; promptly inform customers about the status of orders and the extent to which standards are met regarding the execution of the order; employees of the transport company understand the customer's specific needs and help

to satisfy them; employees of the transport company offer solutions when customers contact the department dealing with "customer service" to file a complaint and facilitate its resolution in a short time.

Lower, below-average scores given by respondents to the primary variables that make up the aggregate variable *Rcp*, refer to employees' attitudes and behaviour regarding: Promptness and professionalism with which they act to resolve special customer requests; promptly compensating customers for loss or damage of goods caused by the fault of the transport company; readiness and helpfulness of employees when customers request changes in the transport schedule; employees of the transport company show kindness and helpfulness in meeting the standards contained in the quotation for meeting delivery deadlines.

#### 4.1.2.4. Analysis of "Tangibility" represented by the variable "Tg"

Tangibility, as a dimension of the quality of road transport service, represented by the aggregate variable *Tg*, composed of 6 primary variables, includes a series of elements relating to: the performance and external appearance of the means of transport; the equipment on board and at the loading/unloading and transshipment points; the image and behaviour of the transport company's employees and drivers; the state of the infrastructure, etc.

Starting from the structure of the aggregate variable *Tg* with the primary variables that compose it, we can see that the highest scores, above the average of the aggregate variable, are recorded by the primary variables that refer to: the provision of transport vehicles with technical characteristics and equipment that meet European standards; the employees working for the transport company have a neat appearance; the equipment of the means of transport ensure the safety of the cargo during the transport process and handling operations at the loading-unloading points; the provision of transport capacities requested by customers.

The primary variables in the structure of the aggregate variable *Tg*, assessed on the basis of the perception of the respondents to the questionnaire, which score lower than the average of the aggregate variable refer to the following: providing customers with sufficient transport capacity; the transport company has adequate facilities for monitoring the cargo during the journey and loading/unloading operations.

## 4.2. Analysis of statistical relationships between variables *Fbl*, *Cmpt*, *Rcp*, *Tg*, *Cl\_t\_pr*

The analysis of the statistical relationships between the variables of the model for measuring and analysing the quality of road freight transport services focuses on determining the impact of the dimensions of the quality of road freight transport services provided by the transport company "TR", represented by the independent variables *Fbl*, *Cmt*, *Rcp*, *Tg*, on the dependent variable *Cl\_t\_pr*. For this purpose, an econometric model with a single independent variable was used to carry out the regression analysis, the results of which are presented in Table 3.

Table no. 3. Influence of independent variables, *Fbl*, *Cmpt*, *Rcp*, *Tg* on of the dependent variable *Cl\_t\_pr*

Independent variable	N	Prob > F	R-squared	Reg. Coef.	t	P> t
<i>Fbl</i>	43	0.0000	0.7832	.6276	9.22	0.000
<i>Cmpt</i>	42	0.0000	0.7692	.6635	10.48	0.000
<i>Rcp</i>	41	0.0000	0.8170	.7591	8.57	0.000
<i>Tg</i>	43	0.0000	0.4752	.4159	6.62	0.001

Source: Authors' contribution

According to the data contained in Table 3 it results that the econometric model used to determine the influence of each independent variable, *Fbl*, *Cmpt*, *Rcp*, *Tg* on the dependent variable *Cl\_t\_pr*, is correct, which is demonstrated by the fact that:

- "F" test whose Prob > F = 0.0000 < 0.05;

- the regression coefficient of the variables is positive and between 0.4159 and 0.7591 and is estimated with  $P > |t| = 0.000 < 0.05$ .

All these results show that among the 4 independent variables expressing the dimensions of road haulage service quality (*Fbl*, *Cmt*, *Rcp*, *Tg*) have a significant and positive influence on the dependent variable *Clit\_pr*. The variation of the independent variables *Rcp*, *Fbl*, *Cmt*, ranging from 81.70% to 76.92%, explains in the highest proportion the variation of the dependent variable *Clit\_pr* (R-squared ranges from 0.7692 to 0.8170). The variation of the variable *Tg* explains in the lowest proportion (47.52%) the variation of the dependent variable *Clit\_pr* (R-squared = 0.4752), given that the tangible elements of the road haulage service throughout its duration are more difficult for customers to assess, which influences the measurement of quality based on customers' perception of the quality of the service provided.

## 5. Conclusions

The empirical study was carried out, based on relevant literature and an appropriate methodology for measuring and analysing the quality provided to customers, by a firm representative of the field under study. As it results from the study of the literature and from the application of the proposed model for measuring and analysing the quality of the road haulage service, it can be seen that this type of service is standardised to a small extent, which is why we consider that extensive and in-depth studies are needed to establish standards for the relevant quantitative criteria in ensuring the quality of road haulage services. For this purpose managers should identify quality problems and find the most appropriate solutions for improvement, both in relation to the transport process and human resource practices that have a significant impact on the quality provided by the TR transport company.

Both the measurement of the quality of the road freight service and its dimensions and the regression analysis show that there is a significant relationship between the quality dimensions and the quality of the road freight service measured at the whole process level, which is true for all the variables characterising the quality dimensions. It thus results that the dimensions of quality of the road freight transport service represented by the variables *Fbl*, *Rcp*, *Cmt*, and *Tg*, are good predictors for the improvement of the quality of the service provided by the transport company "TR".

The information and findings provided by the study undertaken highlight the fact that the road haulage company "TR" must intensify its efforts to provide a transport service at high standards of quality delivery according to the needs and expectations of customers by :

- strategic approach to the road haulage service provided to customers and the alignment to quality improvement strategies and policies;
- promoting a culture of excellence in customer service delivery, where quality improvement and customer satisfaction must be core values of the company;
- ensuring permanent contact and effective communication with customers;
- evaluation of customer satisfaction at well-defined intervals;
- constantly updating the company's website to communicate effectively with customers;
- providing effective feedback on the operationalisation of the transport process and quality delivery;
- developing employees' customer relations skills based on appropriate and effective training programmes, primarily for front-line employees (managers, drivers, dispatchers, technical and commercial staff);
- ensuring transport capacity to meet emergency orders;
- implementing effective transport management software to ensure better monitoring of operations for the entire process of providing service to customers (preparation of transport documents, invoice processing, customs clearance, real-time monitoring of orders, etc.), with the effect of improving customer service. At the same time, computerisation improves the efficiency of the road haulage company's business processes by reducing administrative and operating costs and increasing productivity;
- integration into competitive logistics chains that facilitate the planning, execution and optimisation of physical flows and the efficiency of the transport process;



- an appropriate and effective transport management system that encompasses all functions of the organisation to help ensure operational efficiency, optimise costs and improve customer satisfaction.

As the quality of transport service associated with customer experience is a major strategic objective for both managers and other employees who must demonstrate commitment to achieving performance through quality in the short, medium and long term, we believe that to ensure quality improvement to meet customer needs and demands, the management of the road haulage company must have an up-to-date customer relationship database, which ensures that all employees of the haulage company are aware of the need to focus their quality improvement efforts on customer issues taking into account their experience with the "TR" haulage company. This should include:

- the customer's experiences with the transport company related to the provision of the road haulage service, associated with the characteristics and type of services offered, such as the service provider's customised offers for special requests;
- costs expressing the expenditure on the entire transport process, i.e. the total cost of transport, which includes, in addition to the actual transport costs (travel), the costs of storage, handling and packaging of goods for transport;
- ensuring the transport and integrity of goods.

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## The Impact of Major Crises on the Behaviour of the Consumer of Tourism Services - A Perspective on the Impact of the Covid-19 Crisis

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### Abstract

*Tourism is one of the industries that has experienced spectacular growth in recent decades, while obviously influenced by socioeconomic developments and transformations. Recent crises have left their mark on the development of international tourism and the behaviour of tourism services consumers, at the same time revealing tourism's surprising resilience and pace of recovery from the effects of these crises that proved superior to other industries.*

*In this sense, the health problems associated, especially with international tourism, attract the interest of researchers from a wide area of social sciences and medical disciplines. This article aims to briefly present a perspective on the impact of the Covid-19 crisis on tourism and the behaviour of the consumer of tourism services, starting by highlighting the characteristics of consumer behaviour during major crises and bringing into focus particular aspects of the impact of the Covid-19 crisis on the industry and tourist behaviour.*

**Key words:** consumer, tourism services, major crisis, Covid-19, impact

**J.E.L. classification:** M30, M31

### 1. Introduction

As Deb and Ahmed pointed out, rapid growth and development of tourism since 1950 has transformed tourism into a key sector at global level (Deb and Ahmed, 2022).

In 2019, before the Covid-19 pandemic that imposed travel restrictions and implicitly triggered a dramatic contraction of the industry, international arrivals reached 1.5 billion, with all regions recording increases compared to the previous year (UNWTO, 2020).

However, the development of the industry has not been without challenges, as various crisis events have had a more or less significant impact in the recent decades. Just to name the most relevant events, one may recall the events on September 11, 2001, Hurricane Katrina in 2005, the SARS outbreak in 2003, the H5N1 bird flu in 2003, the onset of the global financial crisis in 2007 and its effects which lasted roughly until 2010, or the MERS-CoV scare of 2012. More recently, we can mention the omnipresent climate change, the war and refugee crisis, or the COVID-19 pandemic and its aftermath. Moreover, the current landscape is characterized by uncertainty, and the effects of the war in Ukraine pose a different kind of threat to international tourism.

As far as the effects of the COVID-19 pandemic are concerned, according to a WHO report, they have affected all countries worldwide, with consequences ranging widely from economic to social losses (WHO, 2020).

There are multiple connections between tourism and health, while tourist activity has physical and psychological benefits, a major motivating factor for tourism being the improvement of the health of tourist services consumers (Henderson 2007, 104).

Consumer behaviour in tourism is a crucial issue, and its understanding is essential for the conceptualization and development of tourism products and for forecasting the decision-making process (Fratu, 2011).

In this context, this paper aims at highlighting the impact of major crises on tourism, offering a perspective on the impact of the Covid-19 crisis on the behaviour of tourism services consumers.

## 2. Literature review

The topic referring to major crises and their effect on consumption behaviour has been discussed over time in numerous studies, but it became of interest once again with the highlighting of the effects of the covid-19 pandemic at an economic and social level.

According to Lang (2010), the term "crisis" is used frequently, it denotes a rather large array of states from "petty difficulties" to "meltdown and reconfiguration", and is perceived differently by each individual (Lang, 2010).

Others view crisis as causing the disruption of everyday life and determining change (Koos et al., 2017).

UNWTO (2011) highlighted different types of crises affecting tourism: environmental events (geological or extreme weather); societal-political events; health-related events; technological events; economic events; and environmental human induced events (UNWTO, 2011).

Perriman et al. identified two categories of elements related to the effects of the crisis on consumers: internal factors - specific to the individual, dependent on their personality traits and psychological structure, and external factors - belonging to the environment independent of the consumer, located outside the sphere of individual control (Perriman et al., 2010).

It is obvious that the type of crisis and its particular form of manifestation affects consumer behaviour in different ways. There is a vast literature on how different crisis events affect human behaviour from different perspectives, ranging from the psychological to the economic perspective, given that crises, depending on their particular manifestations, affect and modify human behaviour. In turn, individuals deal with the effects of the crisis, responding and altering their behaviour in order to adapt to the new circumstances and essentially trying to minimize the negative impacts.

For instance, in the case of income reduction, Zurawicki & Braidot (2005) pointed out two types of consumer responses, i.e., reactive or proactive, respectively. The reactive approach generally includes methods aimed at adapting consumption to the new conditions, including re-examining and cutting/postponing expenses, while the proactive approach may include turning to savings or credit, taking second jobs, or, in extreme cases, even resorting to illegal activities (Zurawicki & Braidot, 2005).

One important issue debated in the literature analyses whether the transformations in consumer behaviour and the adaptations to the new conditions are temporary or permanent. According to Koss et al. (2017), consumers may either return to their old habits or maintain the newly adopted behaviour once the crisis has passed. The authors state that considering the habitual character of consumption, once routines have changed, an immediate reversal is unlikely (Koos et al., 2017).

Following the financial crisis of 2007, it was assessed that the crisis saw the emergence of a new type of consumer, more rational and less prone to impulse behaviour (Moraru, 2012). A HAVAS Worldwide (2010) study revealed that almost half of the participants in their research claimed they would not return to their previous consumption patterns following the economic recovery; they were considering the crisis as an opportunity to change their consumption patterns and look for purposes that were more meaningful.

Given the typology of the COVID-19 crisis, its magnitude and duration, one may state that it had an important impact on human life and behaviour. If the previous major crisis, the financial crisis of 2007, was perceived mainly as a pressure on personal income and professional activity, the COVID-19 crisis was less about income pressures and more about personal health and safety. Therefore, the transformations in consumer behaviour triggered different types of responses. Moreover, the importance of these types of responses from the perspective of tourist consumption resides precisely in the aspect that tourism is not perceived as indispensable in situations of crisis.

A study by Ernst & Young Global Limited (2022) on consumer trends showed that although when their finances are under pressure people look to cut costs, experiencing a pandemic has changed how many consumers respond to crisis. The study results revealed a change in the purchase criteria, with quality coming first, followed by price (Ernst & Young Global Limited, 2022).

Summarizing the elements identified in the literature, we may conclude that a mix of factors affects the buying behaviour in crisis situations, and the type of response is modelled by the particular development and impact of the respective crisis. Given the nature of the tourism activity and its perception as a leisure expense, it is even more interesting to approach the impact of the COVID-19 pandemic crisis on the tourist behaviour and the evolution of the industry.

### 3. Research methodology

The study methodology was based on the analysis of data published by international organizations and authorities in the global tourism industry. These statistics highlighted critical indicators, revealing the impact of the Covid-19 crisis on the tourism industry and the industry's path to recovery. The research also used secondary sources, including published articles and electronic resources, to further highlight the analysis.

### 4. Findings

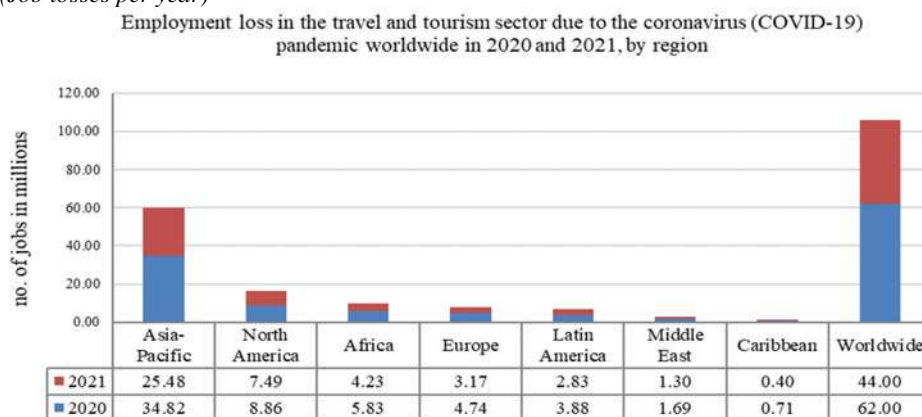
According to the Japan Tourism Agency (2021), a "tourism crisis" is defined as any "situation or phenomenon" posing a threat to the safety of tourists and requiring a response in conditions of uncertainty and under the pressure of time (Japan Tourism Agency, 2021).

Naturally, the unprecedented development of the tourism industry during the past decades has also raised the problem of associated health issues, and there is an important body of literature that approaches the matter from a variety of perspectives ranging from social sciences to medicine. It is accepted that there is an interface between health and tourism, part of the "tourism experience", which affects the overall level of tourist satisfaction and can ultimately affect their quality of life (Lawton and Page, 1997).

As tourism quality and visitor satisfaction are intrinsically linked to the tourism experience the adverse effects on tourists' health can, in turn, significantly affect the tourism travel experience (Meditinos and Vassiliadis, 2008).

Due to the COVID-19 pandemic, tourism was one of the most affected industries in the world (UNWTO, 2020). The travel restrictions and containment measures enforced worldwide triggered an unprecedented decrease in international travel. In other words, people travelled only, if necessary, very little or not at all, especially during the first stages of the pandemic. Such a situation had a large-scale economic and social impact, the pressure felt by the industry jeopardizing more than 100 million jobs in tourism and related fields (Figure 1).

Figure no. 1. COVID-19: job loss in travel and tourism worldwide 2020-2021, by region  
(Job losses per year)



Source: (Statista Research Department, 2023a)

According to UNWTO (2023b), the pandemic effects on world tourism were all the more disastrous as more than 80% of the tourism sector comprises micro-enterprises and small and medium-sized enterprises, which offer jobs especially to women and young people.

Retrospectively, 2020 was the most challenging year for the tourism industry, according to the UNWTO statistics. Thus, considering the indicators recorded at industry level, the situation highlighted a decrease in international tourism by over 1.1 billion tourists, their number reaching the value recorded three decades ago (Eurostat, 2023).

According to a report by the OECD (2022, 20), international tourism has been "decimated by the crisis". This dramatic decline in international tourist flows followed six decades of steady growth (OECD 2022, 20). The closure of international borders and the introduction of travel restrictions were the main reasons international tourist arrivals declined worldwide.

However, the timid recovery began in 2021 with a 5% increase in international tourism, an increase of 22 million international tourist arrivals (overnight stays) compared to 2020 (an increase from 405 million in the year 2020 to 427 million in 2021). Despite this advance, in 2021 the volume of international arrivals was 71% below the level recorded in the pre-pandemic year 2019 (UNWTO, 2023a).

The statistics related to Table 1 reveal the moderate return of international tourism - relevant in this sense is the second half of 2021. This rebound can be attributed to the increase in demand, driven by the increase in confidence of individuals, amid the rapid progress of vaccinations and the ease of entry restrictions in many tourist destinations.

*Table no. 1. Impact of Covid-19 on tourism*

	2019*	2020	2021	2022
International tourist arrivals (overnight visitors)	1.5 billion	405 million	427 million	960 million
Export revenues from international tourism (receipts + passenger transport) USD	1.7 trillion	651 billion	728 billion	1 trillion
Tourism Direct Gross Domestic Product (TDGDP) USD	3.5 trillion	1.7 trillion	2.2 trillion	3.5 trillion

*Source:* UNWTO (2022a, 2023), \* Pre-pandemic year

Despite these developments, the pace of recovery remained slow and uneven across world regions amid varying degrees of enforcement of citizen mobility restrictions, differences in vaccination rates, and traveller confidence. Thus, on the European and American continents, notable positive evolutions were registered in terms of the results related to 2021 compared to 2020 (increases of 19% and 17%, respectively), both positive developments being, however, 63% below the levels the pre-pandemic period (UNWTO, 2023b).

In 2022, receipts from international tourism reached the \$1 trillion milestone, registering a 50% increase in real terms from 2021 and reaching 64% of 2019 levels (UNWTO, 2023a, 4).

It should be noted that the 2022 recovery in tourism consumption was determined by the suspension of demand (postponement of travel) in previous years and by lifting travel restrictions in most countries.

According to the UNWTO World Tourism Barometer (UNWTO, 2023a, 1), in the first quarter of 2023, statistics show an increase up to 80% of pre-pandemic levels in the number of international tourist arrivals.

Compared to the same period of the previous year, the increase in international tourism by 86% in the first quarter of 2023 highlights a sustained evolution driven by notable variations in tourism indicators for Europe and the Middle East.

Estimates for the first quarter of 2023 highlighted 235 million tourists who made international trips, double that of a similar period in 2022 (UNWTO, 2023a, 3).

The Middle East recorded the most substantial performance (a 15% increase, which led to the recovery of pre-pandemic figures).

On the European continent, robust intra-regional demand led in the first quarter of 2023 to an increase of up to 90% of pre-pandemic levels, while in the Americas and Africa, the level of international arrivals came close to around 85% of the level recorded in the pre-pandemic period.

Arrivals recorded in the Pacific and Asia areas rose to 54% of the levels reached in the year preceding the pandemic.

As one may easily notice, the impact of the Covid-19 crisis on tourist consumption behaviours has been disastrous. After a difficult period, however, world tourism has recovered most of the gap. The results reported by the UNWTO for the first quarter of the current year align with forward-looking scenarios that predict the recovery of international arrivals between 80% and 95% of pre-pandemic levels (UNWTO, 2023a).

Nevertheless, this evolution towards the recovery of tourism is challenging.

The first challenge is, as UNWTO experts point out, that the economic situation worldwide is the main influencing factor on the effective recovery of international tourism in 2023 and the period following it. Important in this context are the inflation rate and the increase in the price of oil, which determined higher costs for transport and accommodation. Such a conjuncture creates the right environment for tourism consumers to seek an optimal ratio between quality and price, directing them, especially towards the initiation of vacations and trips closer to home (UNWTO, 2023a, 4).

A second notable challenge lies in the uncertainty of Russia's attack on Ukraine and other rising global geopolitical tensions (UNWTO, 2023a, 4).

Despite these challenges, the experts' expectations are encouraging. A survey carried out by the UNWTO Group of Experts revealed that 72% of them have expectations of improved performance for the period between May and August 2023 (UNWTO, 2023b). These views are in line with the relaunch of travel amid solid demand after a period of refraining from tourism activities, given the sustained recovery of air connectivity and the reopening of Asian markets, but mainly China (UNWTO, 2023b).

Given the changing circumstances and the very high level of uncertainty, tourists' consumption behaviours and habits have also changed.

In reviewing conceptual and empirical studies on the COVID-19 pandemic, Viana-Lora et al. (2023) highlighted that the pandemic acted as a catalyst for the tourism transition towards a sustainable approach.

Aschauer and Egger (2023) revealed that nature experiences, heritage tourism, and beach offers became more relevant within the vacation preferences. Regarding the future travel expectations, environmental concerns ranked higher than economic profits. At the same time, the advocates of self-direction, stimulation, and city tourism were reportedly less willing to restrict their travel behaviour in the future (Aschauer and Egger, 2023).

In our opinion, tourist behaviour is shaped at present by two rather conflicting tendencies – on the one hand, following the years of restrictions during the pandemic, people are ready and eager to resume their travels; on the other hand, the present context is characterized by increasing uncertainty – the perspective of an economic crisis which may affect their income and job security, safety concerns raised by the conflict in Ukraine and geopolitical tensions. Under these circumstances, we are expecting behavioural changes ranging from the preference for domestic or close to home destinations to the option for shorter stays or the predilection for package travel.

## 5. Conclusions

In the description of the perspective of the impact of the Covid-19 crisis on the behaviour of consumers of tourist services, we started by highlighting the characteristics of consumption behaviours in the situation of major crises, supplemented by information on the impact of the Covid-19 crisis on the decisions of consumers of tourist services.

As countries implemented severe travel restrictions to reduce the spread of the disease, domestic and international tourism came to a grinding halt. It has been estimated that global tourism and travel industry revenues fell by 42% in 2020 (Statista Research Department, 2023b). While the long-term economic damage caused by the COVID-19 pandemic cannot yet be fully assessed, the shutdown of public life has affected tourism and tourism-related industries.

Although tourism has proven to be a remarkably resilient activity, recovering relatively quickly from the negative impacts of crisis-type events, the effects of these events should not be underestimated. We consider it necessary to approach the uniqueness of the crisis, in the impossibility of separating it from the context in which it occurs, highlighting the contextual elements that offer the opportunity to find the best solutions to reduce the negative impact at socioeconomic level.

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# **Corporate Social Responsibility as a Strategic Tool: Impact on Stakeholder Perceptions and Organizational Performance. Case Study: The Pharma Industry**

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## **Abstract**

*This article examines the role of Corporate Social Responsibility (CSR) as a strategic tool and its impact on stakeholder perceptions and organizational performance within the pharmaceutical (pharma) industry. As societal expectations for ethical business practices intensify, pharma companies increasingly leverage CSR to enhance reputation and cultivate positive stakeholder relationships. Drawing on a compelling case study of a prominent pharma firm, this research investigates the implementation of CSR initiatives and their tangible effects on public perception, employee engagement, and investor confidence. The study reveals how well-integrated CSR strategies can augment organizational performance, providing valuable insights for industry players aiming to fortify sustainable practices and foster competitive advantage.*

**Key words:** corporate social responsibility, stakeholders; pharmaceutical sector

**J.E.L classification:** I15, I19, P46

## **1. Introduction**

Corporate Social Responsibility (CSR) refers to a company's commitment to conducting business in an ethical, sustainable, and socially responsible manner. In recent years, CSR has become increasingly important for businesses across various industries, including the pharmaceutical (pharma) industry. Many pharmaceutical companies have recognized the value of integrating CSR into their business strategies to enhance stakeholder perceptions and improve organizational performance.

The pharmaceutical industry plays a critical role in healthcare, and its operations significantly impact society and the environment. CSR initiatives in the pharma industry can address a wide range of issues, including access to medicines, environmental sustainability, ethical clinical trials, patient safety, and community engagement. By adopting CSR as a strategic tool, pharmaceutical companies can enhance their reputation, build trust with stakeholders, and create a positive impact on the communities they serve.

## **2. Literature review**

Stakeholders, including customers, employees, investors, regulators, and the general public, increasingly expect businesses to demonstrate responsible practices and contribute positively to society. CSR initiatives can influence stakeholder perceptions by showcasing a company's commitment to social and environmental concerns, fostering brand loyalty, and attracting socially conscious investors. (Korschun et al, 2014)

Research has shown that companies that actively engage in CSR activities often experience improved organizational performance. CSR can lead to cost savings through efficiency gains, improved risk management, and better relations with regulatory authorities. Moreover, a strong CSR strategy can attract and retain talent, improve employee morale and productivity, and contribute to overall business resilience and long-term success. (Carrol, 2008)

Highlighting the CSR initiatives undertaken by the company, their rationale behind those initiatives, and the measurable impact on stakeholder perceptions and organizational performance, are some important features that the specialized literature often discuss. Discussing how the company's CSR efforts have affected public perception, employee engagement, investor confidence, and its competitive advantage within the industry are some important ideas that most of the literature focuses on. (Du & Bhattacharya, 2010)

### 3. Research methodology

The current research has some main objectives:

a) To investigate the current state of corporate social responsibility as a strategic tool and its impact on stakeholder perceptions and organizational performance

b) To explore concepts such as: corporate social responsibility and stakeholder involvement in the pharmaceutical sector

c) To explore the problems of the CSR as a strategic tool

Thus, the main research question of the current article is:

*How does the strategic integration of Corporate Social Responsibility (CSR) initiatives impact stakeholder perceptions and organizational performance in the pharmaceutical industry?*

To answer this question, we must use qualitative research hypothesis such as:

*H1. Stakeholders' perceptions of pharmaceutical companies are positively influenced by the extent and effectiveness of their CSR initiatives.*

*H2. Stakeholders who perceive pharmaceutical companies as socially responsible are more likely to exhibit higher levels of trust, loyalty, and positive brand associations.*

*H3. Pharmaceutical companies that emphasize CSR as a strategic tool attract and retain top talent due to the appeal of working for socially responsible organizations.*

*H4. The cumulative effects of CSR initiatives over time contribute to the company's reputation and enduring stakeholder relationships.*

In order to answer these questions will be used two main research methods used in strategic management: SWOT Analysis and input-output analysis.

### 4. Findings

#### 4.1. Corporate social responsibility as a strategic tool and its impact on stakeholder perceptions and organizational performance

CSR is the concept through which businesses voluntarily integrate ethical, social, and environmental considerations into their operations and decision-making processes. When viewed as a strategic tool, CSR goes beyond philanthropy and becomes an integral part of a company's overall business strategy. It involves proactively identifying and addressing the social and environmental impacts of the company's activities while also considering the interests of various stakeholders, such as customers, employees, investors, communities, and regulatory authorities. (Grewatsch, 2018)

By adopting CSR as a strategic tool, companies align their business objectives with broader societal goals and sustainability principles. CSR becomes an essential component of their long-term vision and mission, guiding how they create value for society while also ensuring their own growth and success. It involves embedding responsible practices throughout the organization, from supply chain management and product development to marketing and corporate governance. (Moon, 2014)

CSR initiatives can significantly influence how stakeholders perceive a company. When a company demonstrates a genuine commitment to social and environmental concerns, it can enhance its reputation, build trust, and foster positive relationships with stakeholders. Customers are more likely to support socially responsible companies, employees are more engaged and proud to work for them, and investors may view them as more attractive and sustainable investment opportunities. Positive stakeholder perceptions can lead to increased brand loyalty, higher employee retention rates, and stronger investor confidence.

CSR can have a profound impact on an organization's performance and overall success. By integrating CSR into their strategies, companies can experience several benefits:

- Cost Savings and Efficiency Gains: CSR initiatives often lead to more efficient resource usage, waste reduction, and improved operational processes, which can result in cost savings.
- Risk Management: Responsible practices can help mitigate reputational risks, legal risks, and supply chain disruptions, thus enhancing the company's resilience. (Mohr et al, 2001)
- Employee Engagement and Productivity: Companies with strong CSR commitments tend to attract and retain talent more effectively, as employees feel a sense of purpose and alignment with the company's values, leading to increased productivity and job satisfaction.
- Innovation and Competitive Advantage: CSR can drive innovation, open new market opportunities, and differentiate a company from its competitors. It can also be a source of competitive advantage, particularly in markets where social and environmental concerns are increasingly important to customers and investors.

In summary, when CSR is treated as a strategic tool, it becomes a powerful driver of positive change and growth for organizations. It not only benefits society and the environment but also enhances stakeholder perceptions, strengthens organizational performance, and contributes to sustainable business success in the long run. As the expectations for corporate responsibility continue to rise, embracing CSR as a strategic imperative is becoming a vital aspect of modern business practices. (Margolis et al, 2003)

#### **4.2. The pharma industry and CSR**

From a CSR perspective, the pharmaceutical sector encompasses the ethical and socially responsible practices undertaken by pharmaceutical companies to contribute positively to society, the environment, and various stakeholders. CSR in the pharmaceutical sector goes beyond mere compliance with regulations and legal obligations. It involves voluntarily taking initiatives and actions that prioritize the well-being of individuals, communities, and the environment in which these companies operate. The main links between the pharma industry and CSR are:

- patient safety and ethical practices: pharmaceutical companies have a responsibility to prioritize patient safety and adhere to ethical practices in their drug development, testing, and marketing. This includes conducting transparent clinical trials, ensuring accurate and fair information dissemination about medications, and promoting ethical sales and marketing practices.
- access to medicines: ensuring access to affordable and essential medicines for all, including underserved and marginalized populations, is a significant CSR concern in the pharmaceutical sector. Companies may adopt differential pricing strategies, engage in licensing agreements, and collaborate with non-governmental organizations to improve access to medications globally.
- research and development for unmet medical needs: CSR initiatives in the pharmaceutical sector involve investing in research and development to address unmet medical needs and global health challenges. This includes dedicating resources to rare diseases, neglected tropical diseases, and other health conditions that may not be financially lucrative but have a substantial social impact.
- responsible supply chain management: CSR requires pharmaceutical companies to ensure responsible supply chain management. This includes sourcing raw materials ethically, monitoring suppliers for compliance with labor and environmental standards, and fostering fair labor practices throughout the supply chain. [Choudhury & Jaisingh, 2017]
- environmental sustainability: given the environmental impact of pharmaceutical manufacturing processes, CSR efforts in this sector focus on reducing energy consumption, minimizing waste generation, adopting sustainable packaging practices, and implementing environmentally friendly production methods. [Porter & Kramer. 2006]
- philanthropy and community engagement: pharmaceutical companies engage in philanthropic initiatives and community engagement to support healthcare programs, educational initiatives, disease awareness campaigns, and other social causes. Such efforts are aimed at making a positive impact on the communities in which they operate.

- transparency and accountability: CSR in the pharmaceutical sector involves maintaining transparency in financial reporting, corporate governance, and interactions with stakeholders. Ethical behavior, responsible decision-making, and openness are essential components of CSR practices. [Sen et al, 2006]
- compliance and ethical marketing: CSR encompasses adherence to legal and regulatory requirements, as well as ethical marketing practices. Pharmaceutical companies should ensure that their promotional efforts prioritize patient health and safety, and they should avoid any misleading advertising.

Overall, CSR in the pharmaceutical sector plays a crucial role in building trust with stakeholders, improving corporate reputation, and contributing to sustainable and responsible healthcare practices. It reflects the commitment of pharmaceutical companies to go beyond profit-making and actively participate in the betterment of society and the environment.

#### **4.3. CSR as a strategic tool**

CSR as a strategic tool refers to the deliberate and proactive integration of ethical, social, and environmental considerations into a company's overall business strategy and decision-making processes. Rather than viewing CSR as an isolated initiative or mere philanthropy, companies treat it as an essential aspect of their long-term vision and mission. CSR becomes a guiding principle that shapes how the company creates value for society while also ensuring its own growth and sustainability.

CSR initiatives are aligned with the company's core business objectives and values. Companies identify ways in which their social and environmental commitments can complement and enhance their business operations. Companies engage with various stakeholders, including customers, employees, investors, communities, and regulators, to understand their expectations, concerns, and preferences related to social and environmental issues. Stakeholder feedback and collaboration are integral to shaping the company's CSR strategy. CSR considerations are integrated into the company's day-to-day decision-making processes. From supply chain management and product design to marketing and financial practices, CSR principles guide how the company operates. CSR is viewed as a long-term commitment rather than a short-term tactic. Companies focus on sustainable and lasting solutions to societal and environmental challenges, seeking to create positive impacts over time.

Companies establish metrics and performance indicators to measure the effectiveness of their CSR initiatives. Regular reporting of CSR progress and outcomes ensures transparency and accountability to stakeholders. CSR as a strategic tool encourages companies to innovate and adapt their practices to address emerging social and environmental issues. This approach fosters a culture of continuous improvement and responsiveness to changing circumstances.

CSR can become a source of competitive advantage for companies. A strong commitment to social responsibility can differentiate a company from its competitors, attract socially conscious customers and investors, and improve the company's overall reputation. Using CSR as a strategic tool allows companies to be more resilient, adaptive, and responsive to the evolving expectations of stakeholders and the broader society. It goes beyond compliance with regulations and demonstrates a proactive commitment to addressing global challenges while promoting positive social and environmental impacts.

By integrating CSR into their core business strategies, companies can enhance their brand value, build trust with stakeholders, attract and retain top talent, and contribute to a more sustainable and inclusive world. As a result, CSR has become an integral aspect of modern corporate management, and companies are increasingly recognizing its strategic importance in shaping a successful and responsible business model.

#### 4.4. SWOT analysis

Table no. 1. SWOT Analysis regarding CSR as a strategic tool: impact on stakeholder perceptions and organizational performance (source: self-processing)

Strengths	Weaknesses
<p><b>Enhanced Reputation:</b> By adopting CSR as a strategic tool, the pharmaceutical industry can improve its reputation and be perceived as a socially responsible and ethical player in the market.</p> <p><b>Positive Stakeholder Perceptions:</b> CSR initiatives can lead to improved stakeholder perceptions, including customers' trust in the industry's commitment to social and environmental causes.</p> <p><b>Competitive Advantage:</b> Embracing CSR can provide a competitive edge for pharmaceutical companies, attracting socially conscious customers and investors who value responsible business practices.</p> <p><b>Increased Employee Engagement:</b> CSR can boost employee morale and engagement as employees feel proud to be associated with a company making a positive impact on society.</p>	<p><b>Costs and Investments:</b> Implementing comprehensive CSR initiatives may require significant investments and additional costs, which could affect short-term profitability.</p> <p><b>Potential Greenwashing Concerns:</b> Companies must ensure their CSR efforts are genuine and not perceived as mere marketing tactics to avoid potential accusations of greenwashing.</p> <p><b>Measuring Impact:</b> It can be challenging to accurately measure the direct impact of CSR initiatives on stakeholder perceptions and organizational performance.</p>
Opportunities	Threats
<p><b>Innovation and Research:</b> The pharma industry can leverage CSR initiatives to focus on research and development for unmet medical needs and diseases that may not be financially viable but are of great social significance.</p> <p><b>Global Health Impact:</b> By prioritizing CSR, the pharma industry can address global health challenges, contribute to improving healthcare access, and positively impact millions of lives.</p> <p><b>Collaboration and Partnerships:</b> Companies can form strategic partnerships with NGOs, governments, and other stakeholders to extend the reach and effectiveness of their CSR initiatives.</p>	<p><b>Regulatory and Legal Compliance:</b> Non-compliance with CSR-related regulations and laws could lead to legal risks and reputational damage.</p> <p><b>Public Scrutiny and Criticism:</b> The pharma industry is often under public scrutiny, and any negative impact or perceived lack of commitment to CSR could attract criticism and damage the industry's reputation.</p> <p><b>Changing Stakeholder Expectations:</b> As societal expectations evolve, the industry may face challenges in adapting its CSR strategies to meet the changing demands and preferences of stakeholders.</p>

Source: Author's contribution

Table no. 2. Input-Output analysis regarding CSR as a strategic tool: impact on stakeholder perceptions and organizational performance

INPUT	OUTPUT
<p><b>Financial Investments:</b> The financial resources allocated by the pharma companies to implement CSR initiatives, such as funding social projects, community development, and environmental sustainability programs.</p> <p><b>Human Capital:</b> The skills, expertise, and dedication of employees involved in planning, executing, and managing CSR initiatives within the pharma industry.</p> <p><b>Time and Effort:</b> The time and effort invested by the pharma companies in designing, monitoring, and evaluating CSR programs and activities.</p>	<p><b>CSR Initiatives:</b> The tangible outputs of CSR initiatives undertaken by the pharma industry, such as community health programs, access to medicines campaigns, environmental conservation efforts, and philanthropic activities.</p> <p><b>Stakeholder Perceptions:</b> The changes in stakeholder perceptions, attitudes, and beliefs towards the pharma industry as a result of the CSR initiatives.</p> <p><b>Organizational Performance:</b> The overall impact of CSR initiatives on the financial performance, employee satisfaction, innovation, and competitiveness of the pharma companies.</p>

Source: Author's contribution

It is essential for the pharmaceutical industry to leverage its strengths, address weaknesses, seize opportunities, and manage threats effectively to maximize the benefits of CSR as a strategic tool. Conducting a SWOT analysis can aid in identifying areas of improvement, crafting a robust CSR strategy, and ultimately enhancing stakeholder perceptions and organizational performance in the industry.

## 5. Conclusions

The case study on the pharma industry demonstrates a clear positive relationship between the adoption of CSR as a strategic tool and favorable stakeholder perceptions. Stakeholders view companies that prioritize social and environmental responsibility more positively, leading to increased trust and support. The research highlights how CSR initiatives positively impact organizational performance in the pharma industry. By investing in CSR practices, companies experience improved employee engagement, enhanced brand reputation, and increased customer loyalty, which contributes to overall business success.

The findings reveal that integrating CSR into the overall business strategy aligns the pharma industry with long-term sustainability goals. Companies that incorporate CSR as a core element of their vision and mission exhibit a greater sense of purpose, which fosters business resilience and competitive advantage. The study identifies that CSR plays a pivotal role in attracting and retaining top talent in the pharma industry. Ethical and socially responsible practices create a positive work culture that appeals to mission-driven employees seeking meaningful work experiences. CSR serves as a catalyst for enhancing the reputation and brand value of pharmaceutical companies. Positive CSR initiatives generate goodwill, fostering stronger relationships with stakeholders and mitigating reputational risks.

Implementing CSR as a strategic tool nurtures long-term relationships with stakeholders, benefiting the pharma industry in times of crisis and uncertainty. Stakeholders are more likely to offer support and loyalty during challenging periods due to the established trust.

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## Exploring the Role of Leadership in Shaping Successful Strategic Management Practices

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### Abstract

*Effective strategic management is critical for the success and sustainability of organizations in today's dynamic and competitive business landscape. However, strategic management practices are not solely dependent on methodologies and tools; they are heavily influenced by leadership. This research aims to delve into the crucial role of leadership in shaping successful strategic management practices. By examining the interplay between leadership styles, decision-making processes, and organizational culture, this study seeks to provide valuable insights into how effective leaders can drive strategic success.*

**Key words:** leadership, strategic management, management practices

**J.E.L classification:** M10, M16, M54, O15

### 1. Introduction

In the ever-evolving landscape of business, the symbiotic relationship between leadership and strategic management practices has emerged as a focal point for researchers and practitioners alike. The dynamics of the global market, characterized by rapid technological advancements, shifting consumer preferences, and dynamic competitive forces, have necessitated a profound reevaluation of how organizations formulate and execute their strategies. In this context, the role of leadership as a pivotal determinant in shaping successful strategic management practices has garnered increased attention and scrutiny.

Leadership, often regarded as the guiding force steering an organization towards its objectives, possesses the potential to catalyze or impede the execution of strategic initiatives. While strategic management entails the systematic alignment of an organization's resources and actions with its long-term goals, it is the astute leadership that orchestrates these efforts, ensuring a harmonious interplay between vision, execution, and adaptation. This interdependence gives rise to a complex interplay of leadership styles, competencies, and approaches that can either propel an organization to the zenith of success or relegate it to the sidelines of obscurity.

As organizations navigate the intricacies of contemporary business landscapes, characterized by uncertainty and turbulence, the importance of effective leadership becomes ever more pronounced. A visionary leader possesses the acumen to identify emerging trends, interpret market signals, and envision transformative strategies that not only secure short-term gains but also fortify the organization's long-term sustainability. Moreover, the execution of these strategies necessitates a leadership approach that resonates throughout the organizational hierarchy, inspiring teams, departments, and individuals to align their efforts with the overarching strategic objectives.

This article embarks on a journey to explore the multifaceted role of leadership in shaping successful strategic management practices. By delving into theoretical frameworks, empirical studies, and practical insights, we aim to unravel the intricate mechanisms through which leadership nuances influence strategic decision-making, organizational culture, and adaptive responses to dynamic external forces. Through this exploration, we seek to not only enrich the existing body of knowledge but also provide pragmatic insights that practitioners can harness to enhance their leadership capabilities and optimize their strategic endeavors.

In the subsequent sections, we will traverse the landscape of leadership theories, dissect the symbiotic relationship between leadership and strategic formulation, delve into case studies exemplifying the intersection of effective leadership and successful strategy execution, and culminate in a comprehensive understanding of how leadership prowess can be cultivated and harnessed to steer organizations towards triumph in an ever-evolving business ecosystem.

## 2. Literature review

The intricate interplay between leadership and successful strategic management practices has been a topic of sustained interest within the realm of management scholarship. Scholars and practitioners alike have recognized that effective leadership serves as a linchpin in shaping and executing strategic initiatives that not only respond to evolving market dynamics but also drive organizational performance and long-term growth.

Numerous leadership styles have been proposed in the literature, each with distinct attributes that influence strategic management outcomes. Transformational leadership, characterized by visionary thinking, inspirational motivation, intellectual stimulation, and individualized consideration, has emerged as a particularly influential style. Studies by Bass and Avolio (1994) demonstrated that transformational leaders can stimulate creativity, foster innovation, and enhance employees' commitment to strategic objectives. Furthermore, the literature has also highlighted the significance of transactional leadership, particularly in ensuring efficient execution of established strategies through performance monitoring and incentives (Bass, 1985).

Leadership competencies tailored for strategic contexts have garnered attention as well. Mintzberg (1973) emphasized the criticality of a leader's conceptual skills, which involve the ability to synthesize complex information and perceive long-term trends. Strategic leaders must also exhibit emotional intelligence to navigate the challenges of change management, stakeholder engagement, and strategic alignment (Goleman, 1995). The capability to balance strategic vision with operational execution is highlighted as central to leadership effectiveness within a strategic context (Kotter, 2001).

The interrelation between leadership and organizational culture is a pivotal determinant of successful strategic management. Schein (1992) posited that leaders play a central role in shaping and transmitting organizational values, norms, and beliefs, which, in turn, influence how strategies are formulated and executed. A congruence between leadership styles and the prevailing organizational culture can foster an environment conducive to strategic alignment and adaptation (Denison, 1990).

In the face of rapid environmental changes, dynamic leadership becomes a paramount factor in strategic success. The concept of ambidextrous leadership, introduced by Tushman and O'Reilly (1996), underscores the necessity for leaders to simultaneously manage exploitative and exploratory initiatives, ensuring the organization's current operations are optimized while fostering innovation for future competitiveness. Adaptive leadership models, such as Heifetz's (1994) concept of "adaptive challenges," highlight the role of leaders in guiding organizations through complex and uncertain scenarios.

The evolution of leadership in the strategic context has prompted the development of tailored leadership development programs. The Strategic Leadership Development Framework proposed by Conger and Benjamin (1999) integrates leadership competencies with strategic thinking, cultivating leaders who possess the cognitive, emotional, and behavioral attributes necessary for steering organizations towards strategic success.

## 3. Research methodology

The current research has some main objectives:

- a) To investigate the current state of the role of leadership in shaping successful strategic management practices
- b) To explore concepts such as: *leadership; strategic management; management practices*
- c) To explore the importance of leadership influence and shape the development, execution, and outcomes of successful strategic management practices



Thus, the main research question of the current article is:  
*How does leadership influence and shape the development, execution, and outcomes of successful strategic management practices within organizations?*

To answer this question, we must use qualitative research hypothesis such as:

*H1. The alignment between leadership competencies, particularly in strategic thinking and decision-making, and the strategic management process positively correlates with the successful execution of strategic initiatives.*

*H2. The extent to which leaders communicate the strategic vision and engage employees in the strategy execution process is directly related to the level of employee commitment and contribution to strategic success.*

*H3. Ethical leadership practices significantly contribute to the ethical formulation and execution of strategic management practices, enhancing stakeholder trust and long-term success.*

*H4. The ability of leaders to navigate external environmental changes and uncertainties is a key factor in shaping the adaptive capacity of strategic management practices.*

In order to answer these questions will be used two main research methods used in strategic management: SWOT Analysis and input-output analysis.

## **4. Findings**

### **4.1. Strategic management practices**

Strategic management practices refer to the set of deliberate and coordinated activities that organizations undertake to formulate, implement, and monitor strategies aimed at achieving their long-term goals and objectives. Strategic management is a fundamental process that helps organizations navigate their external and internal environments, make informed decisions, allocate resources effectively, and respond to changing market conditions. It involves a systematic approach to aligning an organization's activities, resources, and capabilities with its mission, vision, and strategic goals. Key components of strategic management practices include:

a) Strategic Planning: This involves the process of setting organizational objectives, assessing the internal and external environment, and formulating strategies to achieve those objectives. It typically includes defining the organization's mission and vision, analyzing strengths and weaknesses, identifying opportunities and threats, and outlining strategies to capitalize on strengths and opportunities while mitigating weaknesses and threats.

b) Strategy Formulation: This step involves identifying and selecting the most appropriate courses of action to achieve the organization's objectives. It includes decisions about which markets to enter, which products or services to offer, how to position the organization, and how to allocate resources to different initiatives.

c) Strategy Implementation: Once strategies are formulated, they need to be put into action. This involves translating strategic plans into specific actions, allocating resources, setting timelines, and ensuring that the necessary processes and systems are in place to execute the strategies effectively.

d) Organizational Alignment: Strategic management practices involve ensuring that all levels of the organization understand and are aligned with the strategic objectives. This includes communication, training, and creating a culture that supports the strategy.

e) Performance Monitoring and Evaluation: Regularly assessing the progress toward achieving strategic goals is crucial. This involves tracking key performance indicators, analyzing data, and making adjustments if necessary. Performance evaluation allows organizations to identify areas where strategies are working well and areas that require modifications.

f) Adaptation and Flexibility: The business environment is dynamic and can change rapidly. Effective strategic management practices include the ability to adapt and adjust strategies in response to shifts in market conditions, emerging trends, technological advancements, and competitive pressures.

g) Risk Management: Strategic management practices involve identifying potential risks and uncertainties that could impact the success of strategic initiatives. Organizations need to develop strategies to mitigate these risks and develop contingency plans.

h) Innovation and Creativity: Strategic management practices should encourage innovation and creative thinking to develop new products, services, and approaches that can give the organization a competitive edge.

i) Resource Allocation: Efficiently allocating resources, such as finances, personnel, and time, is a critical aspect of strategic management. Organizations must ensure that resources are directed toward initiatives that align with the overall strategy.

j) Long-term Focus: Strategic management practices emphasize the long-term perspective rather than short-term gains. The goal is to create sustainable competitive advantages and value for stakeholders over time.

Overall, strategic management practices provide organizations with a structured framework to navigate the complexities of the business environment, make informed decisions, and achieve their long-term aspirations.

#### **4.2. The role of leadership in shaping successful strategic management practices**

Effective leadership is not only essential for formulating strategic plans but also for driving their implementation, adaptation, and overall success. In this article, we delve into the intricate relationship between leadership and strategic management practices, exploring how leadership styles, competencies, and behaviors influence the formulation, execution, and outcomes of strategic initiatives.

- **Leadership as a Catalyst for Strategic Vision:** Leadership serves as the driving force behind the articulation of a clear and inspiring strategic vision. Visionary leaders possess the ability to anticipate future trends, identify emerging opportunities, and guide the organization towards long-term goals. Their capacity to communicate this vision cohesively and motivate teams to align with it is a pivotal factor in initiating successful strategic management practices.

- **Innovative Leadership for Adaptive Strategies:** In a rapidly changing business landscape, innovative leadership becomes paramount. Forward-thinking leaders promote a culture of innovation, encouraging the exploration of novel strategies and solutions. Such leaders foster an environment where strategic initiatives are flexible and adaptive, enabling the organization to pivot in response to market shifts and disruptions.

- **Transformational Leadership and Strategy Execution:** Transformational leadership, characterized by charismatic influence, intellectual stimulation, individualized consideration, and inspirational motivation, plays a pivotal role in strategy execution. Transformational leaders inspire commitment, empower employees, and cultivate a shared sense of purpose, essential for aligning individual efforts with strategic objectives.

- **Leadership Competencies and Strategic Decision-Making:** Leadership competencies are instrumental in driving effective strategic decision-making. Conceptual skills allow leaders to synthesize complex information, while emotional intelligence enables them to navigate the human aspects of change management and stakeholder engagement. A leader's ability to balance strategic thinking with operational execution is essential for translating strategic plans into actionable steps.

- **Creating a Culture of Strategic Alignment:** Leadership's influence extends to shaping organizational culture, a critical component of successful strategic management. Effective leaders model behaviors consistent with the desired strategic direction, influencing how employees perceive and approach their roles. A culture that aligns with strategic goals encourages collective commitment and minimizes resistance to change.

- **Challenges and Ethical Leadership:** Leaders face challenges in guiding organizations through strategic changes while upholding ethical standards. Ethical leadership ensures that strategic management practices are transparent, fair, and consider the interests of stakeholders. Leaders who prioritize ethical considerations build trust, which is vital for successful strategy implementation.

### 4.3. SWOT analysis

Table no. 1. SWOT Analysis regarding the role of leadership in shaping successful strategic management practices

Strengths	Weaknesses
<p><b>Influence on Vision and Direction:</b> Leadership has the strength to set a clear and inspiring strategic vision, guiding the organization's direction and aligning efforts toward common goals.</p> <p><b>Transformational Impact:</b> Effective leadership fosters a transformational culture that encourages innovation, adaptability, and continuous improvement in strategic management practices.</p> <p><b>Alignment and Motivation:</b> Leaders have the ability to align teams and individuals with strategic objectives, motivating them to contribute their best efforts towards successful strategy execution.</p> <p><b>Decision-Making Expertise:</b> Leadership competencies, including conceptual skills and emotional intelligence, enhance strategic decision-making by synthesizing information and considering both rational and emotional factors.</p>	<p><b>Leadership Deficits:</b> In organizations where leadership lacks strategic acumen or visionary capabilities, there may be a disconnect between the intended strategy and its execution.</p> <p><b>Resistance to Change:</b> Some leaders might face resistance from employees who are apprehensive about changes associated with new strategic initiatives, which can hinder successful implementation.</p> <p><b>Inconsistent Leadership Styles:</b> A lack of consistency in leadership styles across different levels or departments could lead to confusion or conflicting approaches to strategic management.</p>
Opportunities	Threats
<p><b>Leadership Development:</b> Organizations have the opportunity to invest in leadership development programs to cultivate the necessary competencies and styles for effective strategic management.</p> <p><b>Strategic Innovation:</b> Leaders can leverage their influence to foster a culture of strategic innovation, encouraging employees to propose new ideas and approaches to enhance strategic practices.</p> <p><b>Adaptive Leadership:</b> The evolving business landscape offers opportunities for leaders to embrace adaptive leadership approaches, allowing organizations to respond proactively to changes and uncertainties.</p> <p><b>Ethical Leadership:</b> Emphasizing ethical leadership practices can create a competitive advantage by building trust with stakeholders and ensuring transparent and responsible strategic management.</p>	<p><b>Leadership Turnover:</b> Frequent changes in leadership positions can disrupt the continuity of strategic management efforts, leading to inconsistencies and gaps in implementation.</p> <p><b>External Disruptions:</b> External factors like economic shifts, technological advancements, or global crises can challenge even the most effective leadership's ability to shape strategic management practices.</p> <p><b>Resistance to Change:</b> Leadership efforts to reshape strategic management practices may encounter resistance from employees who are comfortable with existing routines and practices.</p> <p><b>Leadership Misalignment:</b> Disagreements or lack of alignment among leadership team members can hinder cohesive strategic planning and execution.</p>

Source: Author's contribution

Table no. 2. Input-Output analysis regarding the role of leadership in shaping successful strategic management practices

INPUT	OUTPUT
<p><b>Leadership Expertise and Skills:</b> The knowledge, skills, and competencies that leaders possess, such as strategic thinking, communication, decision-making, and emotional intelligence, contribute to the effective shaping of strategic management practices.</p> <p><b>Organizational Culture:</b> The existing culture and values within an organization play a crucial role in how leadership influences and shapes strategic management practices.</p> <p><b>Resources Allocation:</b> The allocation of financial, human, and technological resources by leaders is essential for implementing strategic initiatives.</p>	<p><b>Strategic Plans:</b> The result of leadership efforts to formulate strategies that guide the organization's actions toward achieving its long-term objectives.</p> <p><b>Employee Engagement:</b> Leadership's influence on culture and communication leads to higher employee engagement and commitment to strategic goals.</p> <p><b>Resource Allocation Framework:</b> Leadership's decisions on resource allocation ensure that the necessary assets are available to support strategic initiatives.</p>

<b>External Environment:</b> Leaders need to consider the broader market trends, competitive landscape, regulatory factors, and technological advancements when shaping strategic management practices.	<b>Adaptive Capacity:</b> Effective leadership prepares the organization to adapt to changes in the external environment, ensuring the sustainability of strategic practices.
<p style="text-align: center;"><b>PROCESSES</b></p> <p><b>Strategic Formulation:</b> Leadership drives the process of identifying long-term goals, competitive positioning, and crafting strategies that align with the organization's mission and vision.</p> <p><b>Communication:</b> Effective leadership communication ensures that strategic goals, plans, and expectations are clearly understood by all stakeholders, fostering alignment and commitment.</p> <p><b>Decision-Making:</b> Leaders make strategic decisions based on analysis, intuition, and experience, which influence the course of action the organization will take.</p> <p><b>Culture Building:</b> Leadership shapes the organizational culture to encourage innovation, adaptability, and alignment with strategic goals.</p>	<p style="text-align: center;"><b>OUTCOMES</b></p> <p><b>Successful Strategy Execution:</b> Leadership's influence on processes and resource allocation contributes to the successful execution of strategic plans.</p> <p><b>Competitive Advantage:</b> Effective strategic management practices, shaped by leadership, can lead to a competitive advantage in the market.</p> <p><b>Organizational Resilience:</b> Strong leadership can help the organization navigate challenges and disruptions, enhancing its overall resilience.</p> <p><b>Stakeholder Satisfaction:</b> Well-executed strategies resulting from effective leadership can lead to higher stakeholder satisfaction, including customers, employees, and investors.</p>

Source: Author's contribution

## 5. Conclusions

The role of leadership in shaping successful strategic management practices is undeniable. Effective leadership provides the foundation for formulating, executing, and adapting strategic initiatives. Through visionary guidance, innovative thinking, and transformational influence, leaders steer organizations toward sustainable competitive advantage and long-term success. As organizations continue to navigate dynamic markets, understanding and harnessing the profound impact of leadership on strategic management practices is a key determinant of achieving and maintaining excellence.

In conclusion, the role of leadership in shaping successful strategic management practices is undeniable. Effective leadership provides the foundation for formulating, executing, and adapting strategic initiatives. Through visionary guidance, innovative thinking, and transformational influence, leaders steer organizations toward sustainable competitive advantage and long-term success. As organizations continue to navigate dynamic markets, understanding and harnessing the profound impact of leadership on strategic management practices is a key determinant of achieving and maintaining excellence.

The input-output analysis of the role of leadership in shaping successful strategic management practices demonstrates how leadership expertise, organizational culture, resource allocation, and decision-making processes collectively contribute to the formulation, execution, and outcomes of strategic initiatives. By understanding these interconnected components, organizations can optimize their leadership strategies to drive sustainable success and adapt to changing business environments.

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## A New Perspective to Talent Management in Romanian Public Institutions

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### Abstract

*Talent management has developed as a field of research especially in recent years to meet the challenges of the labor market, caused by global economic crises, the lack of qualified personnel in many fields of activity, as well as excessive migration to better-paid jobs.*

*Initially, talent management was geared towards large organizations in the private sector, but in recent years research has also spread to the public environment.*

*At this moment in Romania, the field is in the early stage of development, empirical research is reduced in number and there is no real concern for identifying, developing and motivating staff with special skills within public institutions.*

*This paper contributes to the development of scientific literature in Romania by clarifying the concept of Talent Management and how it is implemented in Romanian public institutions, based on the analysis of specialized literature and qualitative analysis based on the Interview Guide applied in sixteen public institutions.*

**Key words:** human resources management, talent management, public institutions

**J.E.L. clasification:** O15, M12

### 1. Introduction

Talent management has developed as a field of research at a time when human resource management has no longer met the challenges of global labor market. The difficulties faced by organizations in identifying values that contribute to future success and performance have led to the need to develop new methods of attracting, recruiting, selecting and developing high-potential staff.

Initially viewed as a fad (Claus, 2019) or trendy concept, then a branch of human resource management, talent management (Lewis and Heckman, 2006) became an increasingly discussed and disputed topic in the academic world with the publication of "The War for Talent" by McKinsey consulting company in 1997. Silzer and Dowell (2010) consider the field of talent management to be the greatest challenge faced by 21st century managers.

The research field of talent management has developed especially in the last ten years, with an increase in the number of publications including this topic after 2010, which demonstrates that the field is not worthless (Sparrow, 2019). Even so, the concept of talent management is not clearly defined and evolves according to the needs of each organization.

The fact that more than a quarter of a century after the development of the concept there is no consensus between the academic world and practitioners indicates that the field of talent management is in the phase of growth and development.

Current approaches emphasize conceptual confusions in defining talent management, and demographic changes, globalization, economic crises, and increased technological development have led to the need to redefine current talent concepts, talent management, and to develop new application manuals (Liu, 2019).

## 2. Literature review

In order to clarify the concept of talent management and how it is perceived by managers and employees of organizations in the private sector and in public institutions, we analyzed a number of 36 scientific papers published in the period between 2016 and 2022 published in international databases.

According to Cappelli (2014) and Ansar and Baloch (2018) the term of talent management was first used by the American Management Association in 1957 in the book "Selection of management personnel" by authors Dooher and Marting. Starting from the premise that people cannot be considered just human capital or company assets, Casse (1994) states that talent management gives a competitive advantage to organizations that know how to recognize and appreciate the surplus value brought by their most valuable asset, human resources. The term was coined by McKinsey consultants who developed it in *The War for Talent* (1998), paving the way for a new field of research.

The beginnings of the field of talent management attest that it was considered a component part of human resource management. The current challenges regarding the management of human resources have attracted the development of the field and thus 4 currents of opinion have been profiled (Krishnan and Scullion, 2016; Baglieri, et al., 2019; Mousa and Ayoubi, 2019; Kwon and Jang, 2021; Tlaiss, 2020) that analyze the management of talents from the perspective of four models: entrepreneurial, humanist, elitist and competitive (Pagano-Castano et al., 2021, Meyers et al., 2019, McDonnell, et al., 2017) and four philosophies: inclusive/stable, inclusive/developable, exclusively stable/exclusive or developable (Lawless, et al., 2019, Meyers, et M. al., 2019; Das Mohapatra et al., 2020)

According to the analysis of the specialized literature, there is no unanimously accepted definition for the concept of talent management. Although we have identified a multitude of approaches to the concept, which refer to identifying, attracting, developing, retaining and promoting staff with outstanding skills and abilities, the vast majority of the works focus on the definition of the concept of talent management proposed by Collings and Mellahi, (2009): "Talent management is those activities and processes that involve the systematic identification of key positions, which differentially contribute to the sustainable competitive advantage of the organization, the development of a pool of high-potential and high-performing employees to fill these roles and the development of a differentiated human resource architecture to facilitate the occupation of these positions with competent holders and to ensure their continuous commitment to the organization".

Definitions that are mostly used in the analyzed works are taken from the literature or offered by the study participants (Faizyaz et al., 2016; Gallardo-Gallardo, Thunnissen 2016; Thunnissen, Buttiens, 2017, Tafti et al. 2017; Makram et. al, 2017; Irtaimah, 2017; De Boeck et al., 2017, Savanevičienė A., et al. 2017; Saha et. al, 2017; Crowley-Henry et al., 2018; Dahshan, M., et al. 2018; Jayaraman et al., 2018; Mahjoub et al., 2018; Masri et al., 2019; Filippus, et al., 2019; Musakuro et al., 2021 ; Tyskbo, 2021; Bartrop-Sackey,et al.,2022)) and other authors propose own definitions containing both objective and subjective approaches (Mahfoozi et al., 2018, Ruchira, et al., 2020).

Although globally published studies have grown in recent years, no remarkable progress has been made in clarifying the concept of talent management due to the fact that current research has not taken into account the ethical dimension of the phenomenon, there are no comparative studies at the level of organizations in the same field of activity located in different countries (Gallardo-Gallardo et al., 2013), more empirical research is needed in small, medium-sized organizations and public institutions (Gallardo-Gallardo, Thunnissen, 2016; Kwon and Jang, 2021, McDonnell et al., 2017) and the effects on employees and organizations have not been sufficiently studied (Kwon and Jang, 2021). The dominant research population was represented by managers from large organizations, especially from the United States, and the research questions and the purpose of the articles based on empirical research are related to the issues encountered and the culture of each country, therefore the results of the studies cannot be generalized in order to establish theoretical benchmarks (Pagheh, 2019; Faizyaz, 2016).

Despite these limitations, the studies and analyses undertaken to date support the fact that talent management plays a significant role in improving organizational performance.

### 3. Research methodology

From a literature perspective, talent management can be characterized as a continuous process of attracting, evaluating, developing and retaining talented employees within the organization (Collings and Mellahi, 2009).

In order to identify the stage of talent management in Romanian public institutions, we applied an Interview Guide in three counties of Romania: Bacau, Iasi and Suceava. The interview guide included 24 questions, of which 18 were open-ended and 6 were closed-ended (socio-demographic characteristics). Out of the total respondents, seven people hold management positions, two people are specialists in human resources, and seven people are specialists in various fields of activity in the public sector. The collected data was analyzed and processed with the help of the Nvivo qualitative analysis program and Microsoft Excel computer files.

Participants in the study were asked to provide a definition of talent management and how it is implemented in the institution where they operate.

Although the concept of talent management is relatively new and in Romania there are few specialized papers published in the field, the study participants provided definitions of the concept according to those used globally, which shows an increased interest in the new field of research.

Most respondents say that the talent management process is primarily about identifying talents and then developing, motivating and keeping them in line with the needs of the organization.

We summarize the definitions of the talent management concept offered by the study participants:

Table no. 1 The concept of talent management from the perspective of respondents

Respondent's Field of Activity	Talent Management Concept
Public administration	<i>"Management is leadership. Therefore, TM is the ability of the hierarchically superior boss to identify the abilities of the subordinates in order to establish the tasks so that his activity is carried out with maximum efficiency. At the same time, it is worth mentioning the boss' ability to communicate clearly and comprehensibly with all the employees he manages"</i>
Public administration	<i>"Talent management at the level of the organization in which I work is not promoted but can only be selected to be part of a close management team, identified at the organizational management level and will be exploited and used to the maximum without periodic recognition as personal motivation of the respective employee for the activities they perform daily"</i>
Public administration	<i>"It is about identifying and selecting employees, except for developing and maintaining them"</i>
Respondent's Field of Activity	Talent Management Concept
Culture	<i>"Talent management is first and foremost about discovering talent. In the artistic field, the evaluation of the potential is procedural, the graduation of the profile faculty representing only one stage. Other conditionalities are the imagination of challenging projects that stimulate creation and artists; collaboration with diverse directors, varied working methods and original stage stylists, putting actors in creative stimulating situations from the point of view of creativity"</i>
Health field	<i>"Retaining people with key actions in the company"</i>
Post secondary education	<i>"Talent management is a process of selecting future employees with different skills, suitable and necessary for the field of activity, skills that can lead to the successful achievement of the objectives and purpose of the organization, in an ever-changing environment"</i>
Post secondary education	<i>"Talent management is a process of identifying the performance of individuals in a particular field of activity"</i>
Pre-university education	<i>"Talent management is defined and gains value over time, being in a permanent adaptation"</i>



Pre-university education	<i>"Discovering and using the talents of the employees in order to develop or successfully crown the company's/institution's approaches"</i>
Pre-university education	<i>"Talent management involves all managerial actions to develop, motivate and retain high-performing teachers."</i>
Pre-university education	<i>"Talent management is a tool for organizational development, which is based on the individual development of employees and their loyalty to the values of the organization."</i>
Higher education	<i>"Engaging people with the right skills and competencies and integrating their professional goals into the organization's development strategy"</i>
Higher education	<i>"Acquisition/ development/ training (motivation)/ maintenance of the human resource that has high competencies in a specific field of activity and interest for the organization - in order to achieve the planned objectives (organizational)"</i>
Higher education	<i>"Ability to identify these talents"</i>
Higher education	<i>"Attracting valuable employees who have valuable results in the professional path, creating the right conditions in the organizational environment to make performance on the targeted job. Our institution implements such practices and implements various tools, from recruitment to rewarding performance"</i>
Mass-Media	<i>"Talent management is initiated by building teams that recognize, nurture, and encourage employee talent or skills"</i>

Source: Responses of survey participants after structured interviews

#### 4. Findings

Based on the answers obtained, we note that talent management is implemented at the level of organizations in public institutions, even if it is often equated with human resource management.

The process is all about identifying and attracting people with special skills that fit the needs of the organization. In areas such as culture and the media, talent is a sine-qua-non condition of occupying a position within the organization, and talent management focuses on identifying, recruiting, developing and retaining competent employees who are committed and want to develop professionally. The implementation of talent management in public institutions will increase staff efficiency by improving education and training programs, by developing new practices for identification, attraction, development and promotion, as well as increasing organizational performance.

Similar to the concept of *Talent*, the works that address the concept of *Talent Management* relate to the needs of the organization and less to the needs of employees, but we conclude that:

Talent management is not only the process of identifying, attracting, selecting and developing people with high potential, but also the process of forecasting through which organizations develop a pool of talent to ensure the flow of personnel and its positioning in the right place according to their skills and competences.

#### 5. Discussion and Conclusions

The objectives of public sector organizations are less tangible and harder to measure compared to private sector objectives where they are clear and well-defined, and therefore talent management in public institutions is a huge challenge for managers and Human Resources Departments (Collings et al., 2017).

The analysis carried out in the Romanian public institutions and the review of the specialized literature have demonstrated that the efficient management of talents will lead to increased organizational performance, regardless of the geographical region, culture or field of activity.

The current limitations in implementing talent management in public institutions derive from the fact that at this time there are no clear methods and tools for measuring talent that allow the identification of people with skills and competences suitable for key positions, rigid and impermissive legislation, limited resources and lack of interest of managers in attracting, developing and promoting talent.

Expanding empirical research globally will allow the development of new theoretical and practical benchmarks with which we will be able to demonstrate the usefulness and necessity of implementing talent management in public institutions.

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## Marketing Strategies Applied on the Romanian Pharmaceutical Market

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### Abstract

*The Romanian pharmaceutical market has undergone significant transformation over the past three decades. Pharmaceutical marketing, a harmonization process between the production and consumption of medicines, is key to growth and profitability. The research highlights the importance of doctors and pharmacists as main sources of information for patients. A balance of emotional and rational factors, such as the attentiveness of pharmacists, pricing, product availability and proximity, drive consumers to certain pharmacies. Product categories also influence preference, with different pharmacies favored for allopathic medicines, natural remedies, or cosmetic products. Proximity remains the principal decision-making factor, although compassionate staff offering cost-effective solutions play a crucial role in customer retention. Reputed pharmacy chains are preferred due to their promotional activities, diverse product range and knowledgeable in-store advisors. In a shifting landscape, online purchasing is gaining traction, with nearly a third of survey respondents expressing interest in purchasing pharmaceutical products online.*

**Key words:** pharmaceutical marketing, marketing strategies, pharmacies.

**J.E.L. classification:** M31

### 1. Introduction

In Romania, the pharmaceutical market has significantly contributed to the national economy and is in a permanent transition. The dynamics with which technology has advanced in the last 30 years have necessarily involved reconfiguring the multitude of companies, redefining even the spirit of business in this field.

Today, the pharmaceutical industry has an entirely different structure in terms of regional presence, business structure and portfolios. The portfolio has been segmented into three major types of drugs: traditional patented or pharmacochemical, generic and biotechnological.

Both independent pharmacies and pharmaceutical chains operate in the Romanian retail and pharmaceutical market, focusing on the patient and the desire to give him access to treatment through safe, innovative drugs that can maintain or improve their health. The trend of recent years has been to purchase small pharmacies, independent of large pharmaceutical chains, and move them to profitable commercial fords.

The pharmaceutical industry is one of the most competitive and dynamic sectors of activity on the market, which is why competition is very close.

This paper aims to identify the most relevant marketing strategies applied to the Romanian pharmaceutical market and their role in attracting and retaining consumers.

This paper contains: a presentation of the literature on strategic marketing, a description of the research methodology and a presentation of the most relevant results. The conclusions, implications of the study and directions for further research are presented in the conclusion.

## 2. Literature review

Pharmaceutical marketing is a branch of social marketing that has emerged from a need for harmonization between the production and consumption of medicines. It is described as a procedure used to update the market for pharmaceutical goods and services, broadening the definition of "marketing of pharmaceuticals" to include pharmaceutical services focusing on patient care (Vâlceanu, 2016, p.64).

The pharmaceutical company aims to achieve growth, stability and profitability through its activity oriented toward meeting the requirements of patients with the necessary drugs, which are promoted through marketing actions. Continuous quality growth in health services is a strategic goal that is difficult to achieve, which means attracting and retaining both patients, as well as health professionals involved in the provision of health services. This mission involves meeting patients' expectations and providing essential services at a high level (Coculescu *et al*, 2016, p.49).

Marketing has as a dual purpose the attraction of new customers promising, on the one hand, a higher value, and on the other, the maintenance and the cultivation of existing customers while offering satisfaction (Vreme *et al*, 2013, p.518).

According to the American Marketing Association (AMA), the marketing mix is a set of marketing variables controlled and used by the company to monitor sales on the targeted markets (Wichmann *et al*, 2020, p.1). Designing a marketing strategy involves outlining the path and corresponding marketing endeavors (Dogaru, 2012, p.368) as follows:

- Market segmentation: partitioning the prospective market into clusters of customers who exhibit similar buying patterns or behaviors;
- Target market selection: focusing on one or more market clusters as the focal point of the company's marketing efforts;
- Product positioning: it seeks to establish a consistent and enduring product feature that aligns with the selected market slice and distinguishes the product from competitors;
- Four P's strategy: includes strategies around product assortment/lines/models, pricing, distribution channels and promotional tactics.

The product, price, distribution, and promotion are the four fundamental marketing activity components. Together, these four make up the marketing mix. Neil Borden suggested it one of his theories in 1953, and E. Jerome McCarthy described it in the form of the four components (or the 4P) in 1960 (Beke, 2018, p.1).

Pharmaceutical marketing is an essential component in the healthcare ecosystem, intricately linking the manufacturing, distribution, and consumption of medicinal products and services. It is more than simply promoting products; it is about understanding and meeting patients' needs, contributing to public health, and fostering relationships with healthcare professionals (Kejariwal *et al*, 2022, p.3).

Strategic application of the marketing mix, involving market segmentation, target market selection, product positioning, and the four basic elements of product, price, distribution, and promotion, provides a holistic approach to achieving a sustainable market presence. Just as important, these strategies help ensure that patients receive the right medicines at the right time, thereby improving healthcare outcomes and quality of life. Therefore, the pharmaceutical industry's growth, stability, and profitability hinge on these dynamic marketing strategies that continually adapt to the evolving needs and expectations of its diverse patient base (Al Trabbah *et al*, 2022, p.3).

## 3. Research methodology

The paper's main objective is to determine the most relevant marketing strategies applied to the Romanian pharmaceutical market and their role in attracting and retaining consumers.

The methodology used combined an exploratory analysis with quantitative marketing research.

The exploratory analysis aimed to identify the marketing strategies used in the Romanian pharmaceutical sector in recent years. For this purpose, internal publications and pharmacy chain sites, annual reports, industry analyses and reference materials were studied.

The quantitative research aimed at determining Romanian consumers' opinions, perceptions, and attitudes regarding the marketing strategies applied in the pharmaceutical sector.

The specific objectives were:

- Identifying the main marketing strategies adopted in the pharmaceutical sector in Romania;
- Determining the preferences and behaviors of consumers in the Romanian pharmaceutical market;
- Identifying the criteria by which respondents are guided when purchasing pharmaceutical products;
- Identifying the respondents' opinions on marketing strategies used in the Romanian pharmaceutical sector.

The sampling method used was non probabilistic random type one and the questionnaire respondents came from different backgrounds and age groups, with different professional and educational training (table 1). Regarding gender distribution, the sample had the following structure: 41% women and 59% men.

Table no. 1 Sample structure

Age	18-24 years	25- 34 years	35-44 years	45-65 years	Over 65 years
	20,5%	25,6%	20,5%	12,8%	20,5%
Gender	Female			Male	
	41%			59%	
Studies	Gymnasium	Highschool	Post secondary school	University studies	Post University Studies
	10,3%	41%	23,1%	17,9%	7,7%
Occupation	Student	Unemployed	Employee	Entrepreneur	Retired
	12,8%	2,6%	56,4%	7,7%	20,5%

Source: Authors' own research

CAWI (Computer Assisted Web Interviewing) technique was used for data collection. This technique displays the questionnaire on a web page and respondents fill in the answers directly in the browser. The research took place between March 7-29, 2023. The data were collected based on a questionnaire containing 26 questions, to which 522 people answered. The questionnaire had two parts, the first one contained questions regarding the pharmaceutical sector and marketing strategies used in this field, and the second part included questions for identifying the respondents (age, gender, income category and residence).

#### 4. Findings

For a better understanding of the study's results, the main findings are structured around each objective.

##### ***Objective 1 – Identifying the main marketing strategies adopted in the Romanian pharmaceutical sector***

According to a report by the National Institute of Statistics, the number of pharmacies in Romania has varied slightly in recent years, reaching 9,828 units in 2020, after a decrease of 76 pharmacies compared to 2019 (Melenciuc, 2018). However, the Romanian pharmaceutical market has recently consolidated. The largest pharmacy chains have expanded considerably through acquisitions by small players, while independent pharmacies are struggling to stay in the competitive market for pharmacies. The most famous pharmacy chains dominating the Romanian retail market are Sensiblu, Dona, HelpNet Richter, Catena and Farmacia Tei. By the end of 2020, Catena had the largest number of pharmacies in the country, 854 units, followed by Sensiblu, with over 700 pharmacies (Deacu, 2023).

Intense competition leads pharmacy chains to constantly develop new strategies to improve their market position, increase their profit and retain consumers. Following these strategies, there is an increasing trend among pharmacy chains in the number of private brands in the Romanian pharmaceutical market. This type of strategy was adopted by the most significant players in the Romanian pharmaceutical market: Catena, Sensiblu, HelpNet, and Dona.

In general, private brands have their own marketing identity, which can help increase consumer recognition and loyalty. Private brands also offer higher profit margins due to lower costs incurred for marketing and promoting private brand products. At the same time, private brands can stimulate competition and innovation between retailers because they add an element to the level at which retailers compete with each other. Thus, by developing an attractive range of products under a private brand, the trader can differentiate himself from other rival competitors.

The Catena Pharmacies Group has owned the Naturalis brand since 2005, under which quality food and cosmetic supplements are sold, and the Catena range of parapharmaceuticals and medical devices (Catena, 2023). Until the second half of 2019, food supplements under the Dr. Hart brand were marketed through Sensiblu pharmacy chains, comprising a range of numerous dietary supplements for various diseases (Sensiblu, 2023). The third chain of pharmacies that offer food supplements sold under its brand is HelpNet, the Aboca brand established in the Romanian pharmaceutical product market (HelpNet, 2023). Dona pharmacies sell parapharmaceuticals and food supplements under the name: "Dona Pharmacy" (Dona, 2023).

Catena, Sensiblu, HelpNet and Dona use patient attraction strategies by measuring blood pressure, monitoring weight and providing counseling on beauty products and medications.

Another strategy pharmacy chains use is expanding the range of products through their collaboration with local and foreign manufacturers and distributors of medicines, cosmetics and food supplements.

The patient is at the center of all the activities a pharmacy undertakes, that is why the established chains in Romania have chosen to offer their services online, thus attracting young people and adults with busy schedules.

In the face of intense competition and the aim of increasing sales, strengthening their brand, and building a long-term positive relationship with customers, pharmacy chains use different differentiation strategies, such as loyalty programs. Through a loyalty program, customers are rewarded for shopping, with loyalty cards also giving them a reason to buy again from the same merchant. As a result of using this card, information is obtained on purchasing habits, products purchased, frequency of purchases, prices paid, places and the way people buy products resulting in a buyer profile. Pharmacy chains use this information to create and implement special promotions, discounts and offers, send personalized advertisements or offers according to the preferences based on the purchase history and give informative materials regarding the products or the services provided.

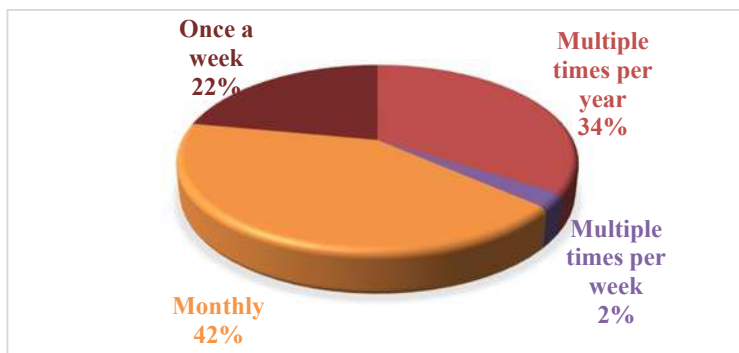
### ***Objective 2 – Determining the preferences and behaviors of consumers in the Romanian pharmaceutical market***

In order to achieve this goal, the authors tried to identify the respondents' preferences regarding purchasing pharmaceuticals. The results showed that a significant proportion of 81% of those surveyed prefer food supplements. Almost as many respondents in the proportion of 74% buy medicines frequently and 57% choose cosmetics. At the opposite pole are 9% which buy technical-sanitary products, with the lowest search among those surveyed.

Regarding the frequency of purchase, it is found that almost half of the respondents, 41.5%, are used to purchasing pharmaceutical products monthly. The lowest percentage of 2.4% was registered by those who attend the pharmacy several times a week to obtain the desired products.

*Figure no. 1 Buying frequency of respondents*



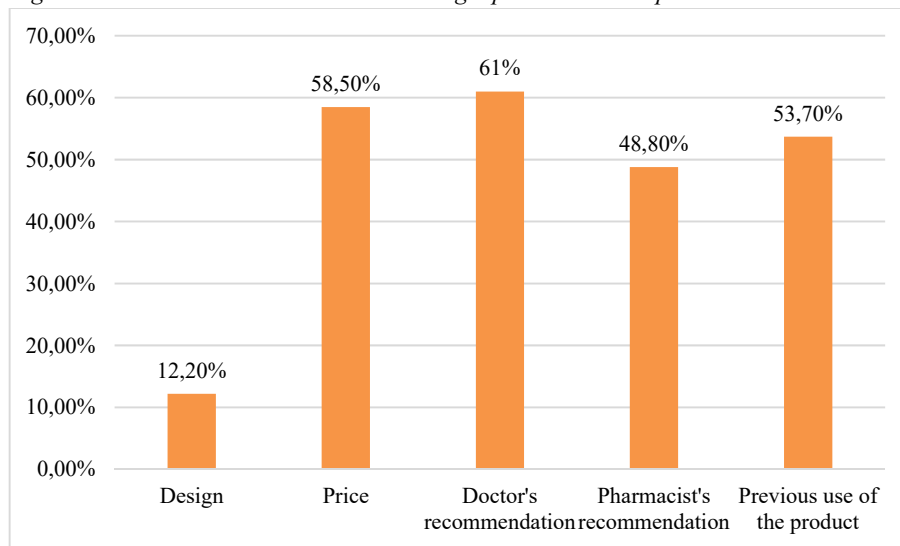


Source: Authors' own research

### ***Objective 3 – Identify the criteria by which respondents are guided when purchasing pharmaceuticals***

Respondents were asked what criteria guides them when choosing a pharmaceutical product (figure 2). 61% consider that the most important aspect in choosing a pharmaceutical product is the doctor's recommendation, followed by the price 58.5%, the previous use of the product 53.7%, and the pharmacist's recommendation 48.8%. The least important aspect in choosing the pharmaceutical product is the design, preferred by only 12.2% of those surveyed.

Figure no. 2 The criteria used when choosing a pharmaceutical product



Source: Authors' own research

Subjects were asked to designate the degree of importance of different criteria in purchasing a pharmaceutical product (table 2). Thus, in the first place came the purchase of a pharmaceutical product that they have used in the past and has proven effective. Other important criteria in determining the purchase of a pharmaceutical product were: the manufacturing company, whether the product is original or generic and the promotions.

Table no. 2 The importance of the different criteria in the decision to buy pharmaceutical products

	N	Minimum	Maximum	Mean	Std. Deviation
Price	176	1.00	5.00	3.7740	1.16033
Brand	176	1.00	5.00	3.7797	1.08818
Original/generic product	176	1.00	5.00	3.8814	1.06202
Promotion	176	1.00	5.00	3.5706	1.20926
Advertising	176	1.00	5.00	2.4972	1.05056
Effectiveness in the past	176	1.00	5.00	4.6158	.79012
Valid N (listwise)	176				

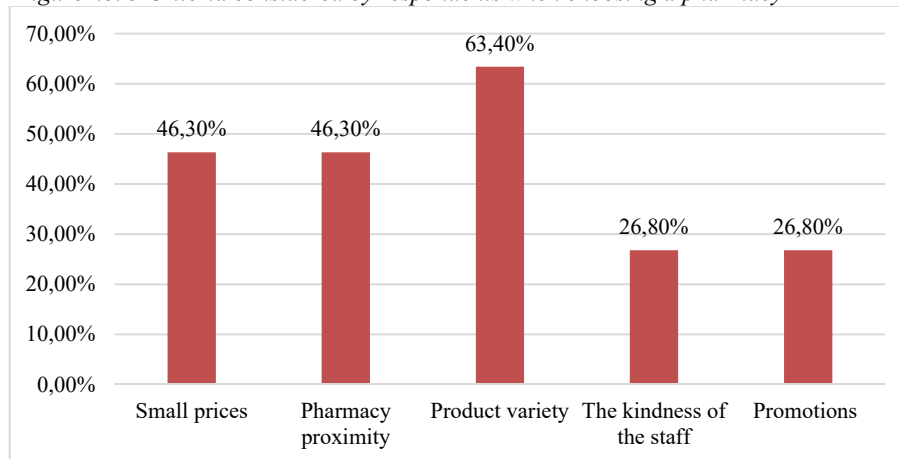
Source: Authors' own research

#### **Objective 4 – Identifying respondents' opinions on marketing strategies used in the Romanian pharmaceutical sector**

Most of those surveyed, 97.2%, said they do not only attend a specific pharmacy, but they also prefer to shop in several pharmacies. Only 2.8% of respondents are loyal customers of a particular pharmacy.

The authors tried to identify why respondents generally prefer a particular pharmacy. Thus, the majority of 63.4% of subjects choose a pharmacy according to the wide range of products it holds, depending on the proximity of the pharmacy (46.3%) and the prices charged (46.3%). Only 26.8% of subjects prefer a certain pharmacy for its attractive promotions and offers.

Figure no. 3 Criteria considered by respondents when choosing a pharmacy



Source: Authors' own research

Preferences for certain pharmacies are generated by how they meet customer needs and requirements. We are talking, on the one hand, about emotional factors (the behavior of pharmacists and the increased attention to the needs of the client) and, on the other hand, rational factors (low prices, supply, proximity).

Customer preferences may also differ depending on the category of products they wish to purchase. Some pharmacies are preferred for allopathic medicines, others for naturalists, and others for care products (cosmetics). However, there are certain cases where preferences have been suggested by specific contexts – customers have become loyal to certain pharmacies because they are the only distributors of certain medicines.

The most important decision-maker is proximity. Staff also manage to retain customers if they treat their problems carefully, find solutions and are on the customer side, as they make cheaper recommendations.

The notoriety of pharmacies is also mentioned, in the case of renowned chains on the market being appreciated for their promotions, the diversified range of products, and the existence of the councilors.

The price is also important, especially for drugs with very high prices, in the case of prescriptions containing many drugs or when the customer comes with a long list of necessary products.

Currently, most pharmaceutical chains are trying to allow consumers to purchase products online. Following the research, it was observed that 29.30% of respondents surveyed are interested in purchasing pharmaceutical products from sites rather than physically.

## 5. Conclusions

The Romanian retail and pharmaceutical market has had a spectacular evolution since 1990, becoming one of the most dynamic sectors of activity in the market due to effective marketing strategies.

The construction of a name on the pharmaceutical market depends on the quality of the products or services offered, the unitary image that the patient forms about the unit, and embodies the sum of all the experiences and perceptions that the client has about the services offered, about the products released or about pharmacists.

Promoting pharmacies, attracting, retaining, and maintaining patients requires a lot of patience, perseverance, and involvement from all pharmacy staff.

The primary objective of pharmaceutical companies is to achieve growth, stability, and profitability by meeting the needs of patients and promoting their drugs through effective marketing strategies. The challenge lies in continuously improving the quality of health services, attracting and retaining patients and healthcare professionals alike.

By segmenting the market, selecting target markets, positioning products, and devising a comprehensive marketing mix strategy, pharmaceutical companies can effectively navigate the dynamic healthcare landscape and meet the demands of patients and stakeholders in the industry. With the integration of these principles, pharmaceutical marketing can contribute to improved patient outcomes and the overall advancement of healthcare.

The research showed that for respondents, the main source of information regarding medicines intended to treat serious conditions is the doctor. However, in the case of mild diseases (colds, migraines), previous experience with the product is the one that takes precedence. The pharmacist is another source of information, his advice being counted in mild and slightly more serious conditions requiring antibiotics. He is often asked to give his opinion, even when patients have a prescription, to find cheaper alternatives.

Although the research has certain limits, determined by the small size of the sample used and it is unrepresentative (non-random sampling method), therefore the sample could not be statistically validated, and the results could not be extrapolated to the entire population investigated, the authors consider that the paper has academic contributions in the field of the topic analyzed and it should be the starting point for future research on this subject.

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## Perceptions on the Managerial Competencies Needed in the Organization of Festivals: Case Study

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### Abstract

*Art festivals have a significant importance in the development of a local community, being a factor of cultural and social cohesion, a platform for interaction between those who share the same cultural values. The purpose of this research is to identify the managerial competencies needed by festival organizers, being known that performance in the organization is given by the existence of cognitive skills, emotional and social intelligence. The study conducted on several festivals organized in Cluj, Romania involved carrying out an exploratory and descriptive research, through a pre-existing questionnaire, on the competencies and roles that organizers must have from a professional standpoint. The results showed an approximately identical perception of the two groups in assessing the skills of emotional intelligence and empathy, managers and artists, a different one in terms of cognitive skills and the dimensions ordered by the number of mentions highlighted the need to professionalize the competencies.*

**Key words:** competencies; managers; artists; festival; quantitative analysis

**J.E.L. classification:** Z1

### 1. Introduction

In the artistic field (film, theatre, music, or visual arts) cultural events are frequently organized in a combined form of artistic productions, by the means of festivals. One of the significant features of these events is that they have the potential to generate substantial profits for small financial investments, can be seen as a way to generate local income and create short-term jobs, or to increase the number of visits of those outside the area. Festivals allow local communities to display their unique cultural traditions, attracting a number of tourists along with the locals (Gets, 2008, p.403-4), for which reason researchers correlate the achievement of the objectives of a festival to the opinion of the hosts and guests, whom the festival organizers or public sectors depend on (Chang, 2017, p.2240). Festival organizers can significantly influence the success or failure resulting from their festivals (Gets, 2010, p.23), as the managerial skills of an event coordinator can influence the sustainability of an event.

This study aims to contribute to a more comprehensive understanding of the competencies required of festival organizers, by conducting an investigation to determine an effective approach of the manager, according to criteria established by participating artists and various managers of festivals held in Transylvania, Romania. It is worth mentioning the significant economic, socio-cultural and environmental impact of festivals organized in this area (Negrușă *et.al*, 2016, p.156) the local brand related to the geographical perspective being debated in many theoretical approaches (Li *et al*, 2020, p.2399), being evident an increasing research of festivals from the perspective of their venue (Chen *et al*, 2017, p.1767; Davis, 2016, p.49). The study aims to use a quantitative approach

to study the opinions of festival managers in Cluj, Romania to achieve the following objectives: identifying the organizational needs expected by artists; development of career strategies for managers; providing practical bases for festival management.

The structure of the research was conceived in relation to the existing researches in the field of managerial competencies, systematizing in a first section the categories of competencies cited in the literature. Based on an electronic survey conducted over two years, managers and artists participating in festival events indicated some sets of competencies needed by an artistic manager, while the statistical analysis presents and prioritizes their preferences.

## 2. Literature review: Competencies management

There is a considerable number of researches in the literature dedicated to managerial competencies but the concept itself is treated differently, as there is no consistent approach to this important tool of organizational development. In research dedicated to managerial competencies, delimitations have been made between general competencies, which seek to form organizational skills, of implementing the mission, vision and strategy of a structure and competencies specific to a managerial position (Velu *et al*, 2017, p.59).

Following the systematization of Tyrańska Małgorzata, competencies can be divided into three categories: General, strategic (professional maturity, responsibility for decision making, ethical principles, computer skills, knowledge of foreign languages); Leadership (teamwork, coaching, negotiation, motivation of subordinates, communication); Business (strategic and analytical thinking, implementing change, innovation, project management, partial results) (Shang *et al*, 2013, p.1469).

The specialized competencies include the competencies specific to a field of activity, being adequate to the professional field which the managerial function is part of. Significant contributions in the research of the field of managerial competencies were brought by Daniel Goleman (Lakshminarayanan *et al*, 2016, p.423; Tyrańska, 2017, p.16; Bohlouli *et al*, p.83), an author who related leadership to emotional and social intelligence, outlined models of emotional intelligence that he systematized into four categories: self-awareness, self-management, social awareness and relationship management. There are three groups of competencies: cognitive skills (belong to the recognition of systems and models); emotional intelligence skills (self-awareness and self-management) with an emphasis on adaptability and flexibility in managing change; social intelligence skills (empathy and teamwork). Each category includes a set of skills that generate twelve competencies that allow the performance of the manager (Orciuoli *et al*, 2017, p.51).

The term social intelligence is associated with the concept of multiple abilities (Gopalkrishnan, 2019, p.28). Competences were also classified according to the field of interference into: professional development competencies (skills and abilities specific to a career field), according to the requirements of the job (tasks, roles, functions), in relationship with the organizational environment (structure and systems, strategic position of the organization). To achieve performance, the competencies that are required to be optimized are divided into three groups: (1) Expertise and experience; (2) Procedural, functional and metacognitive knowledge; (3) Basic competencies: cognitive (eg memory) and deductive (reasoning)), necessary to achieve performance.

There are authors who consider it necessary to relate organizational competencies to predetermined patterns and have proposed distinct models for composing leadership skills. They point to the need to adapt managerial skills to organizational needs as well as to performance in the workplace (Bartel-Radic *et al*, 2017, p 632). This indicator is an approached criterion in the field of management, there being a considerable number of theoretical forays dedicated to employee performance at work (by the The National Institute for Cultural Research and Training).

An important strategic objective of an organizational structure is the coordination of competencies for all levels of staff. The creation and application of tools for the systematic management of competencies is particularly useful due to the growing demands for planning and coordination of activities, quality control and management of IT systems (Maeng *et al*, 2016, p.16) The existence of specialized platforms can help the manager to implement staff development tasks. Thus emerged the idea of the "Portfolio of competencies and capacities" available, based on the recognition of the requirements of human resource development. These entities bring together competencies common

to a group, which can be seen as the capacity portfolio of that entity of experts for certain services. The purpose of using this tool is the desire to determine the needs of a field, as by disintegrating the general competencies new ones are created, outlined as subsets (Gursoy, 2014, p. 809).

Regarding the necessary competencies of a cultural manager responsible for the management of public cultural institutions (performance or concert institutions and companies, museums, public collections, libraries, cultural establishments and other public institutions that carry out cultural activities and services), the requirements for occupying such a position are regulated by GEO no. 189/2008, with the subsequent amendments and completions. In Romania, the Ministry of Culture through the National Institute for Cultural Research and Training is responsible for the continuous education of cultural managers as well as for the training of those interested in developing a cultural project or activating in cultural organizations. According to the job description in the cultural-artistic sector, a manager must have competencies in cultural leadership, financial management, digital and linguistic knowledge, competence categories developed through the Cultural Manager training program organized by INCFC of the Ministry of Research (Lee *et al*, 2011, p.685) in training courses organized at national level aiming at the development of general, leadership and professional competencies (specifically the duties of the position).

### 3. Research methodology

The present research refers to the survey conducted between September 2017 and September 2021, based on a questionnaire applied online to a number of 173 respondents, of which 91 artistic performers and 82 managers. To conduct this study, an existing questionnaire was used: Training Gaps Analysis- Music Artist Managers developed by the Cultural Human Resources Council, Canada (version 1.0, 2006) (del Bario *et al*, 2012, p.235) applied to a number of 8 local artistic events: *Caolin International Contemporary Ceramics Festival*, *Cluj Modern Contemporary Music Festival*, *Trio Transilvan Festival*, *Elektro Arts Electronic Art Festival*, *Clujotronic Festival*, *Transylvania International Film Festival*, *Imago Days National Student Theatre Festival*, *Untold Festival*.

Without pursuing a statistically established representation in relation to the proportions of the two categories of respondents, artists and managers, in the eight events, the study aimed to cover all artistic genres participating in festival events in Cluj County, using a sample of convenience, balanced in relation to the number of subjects, an aspect which gives the possibility of suggestive analyses at the level of interest categories. The sample was obtained by the voluntary participation in the study of the contacted persons, the participation rate being 83% (173 respondents out of a total of 208 contacted answered).

Being a questionnaire applied to a convenience sample, assigning theoretical limits (maximum margin of error, confidence interval) is more difficult, but we consider that, if in the case of artists, the subsample has a theoretical limit of  $\pm 11\%$ , for a confidence level  $p = .05$ , in the case of artistic managers this limit is slightly lower, because the population of managers is a smaller one, being  $\pm 10\%$ , for the same confidence level.

The applied questionnaire included a number of 87 competencies grouped in 11 dimensions: identification of artists; development of career strategies; creating marketing tools; obtaining funding; supervision of the production and launch of artistic products; ensuring the opportunity and coordination of live artistic performances; activities related to the editing of artistic products; monitoring income on behalf of the artist; establishing and maintaining a trusting relationship with the artist; demonstration of communication competencies; demonstration of personal skills.

Each of the 87 items was assessed in terms of necessity ("In your opinion, is this competence necessary for an artistic manager?"), and, at the level of each of the 11 dimensions, the most important competencies were identified. Thus, we were able to analyse both the insertion of each competence in the portfolio of managerial attributes of artistic managers, and the relative reporting, in the spectrum defined by the 11 dimensions of the importance of these competencies.

The data analysis was performed by calculating the main descriptive statistical indicators (frequency, average, standard deviation) and ranking the values. Being a descriptive study, we opted for a dichotomous scale (of the "yes / no" type) for the ease of evaluating the 87 items, to the detriment of a Likert type scale in order to outline more clearly and simply the maximum extension associated with the competencies in the field of artistic management.

The comparative study, artistic managers – artists, carried out on a varied range of artistic expression, aimed to compare certain trends, perceptions specific to both the two categories of professionals, as well as to the artistic fields from which they originate. As such;

**H1. The differences of opinion regarding the competencies of the artistic manager at the level of the two categories, managers and artists are lesser regarding the main cognitive competencies.**

**H2. There are differences in perception regarding the competencies of the artistic manager in relation to the professional seniority they have.**

Subsequently, by analysing the data collected, we will test these hypotheses and, beyond their validation or invalidation, we will identify the professional profile of those who lead, organize and guide the artistic space.

#### 4. Findings

Data analysis will involve, for each dimension, the assessment of the sets of competencies, as well as testing the differences between the relevant categories. We further present to what extent the competencies sets that comprise the 11 dimensions are considered necessary.

##### *A. Identification of artists*

Regarding the identification of artists, the roles assigned in the largest proportion are those aimed at: the manager's ability to trade the artistic perspective proposed by the performer; assessment of compatibility with it; assessment of market potential. The opinions of managers and artists are relatively similar, except for the role of "scouting" to discover potential talent. Regarding this role, artists consider it to a greater extent (57%) associated with the profession of artistic manager than managers themselves do (49%).

*Table no. 1. Competencies required in identifying artists*

Competency	Artistic manager	Artist	Difference
The manager's ability: To "sell" his vision and services	99%	97%	2%
To evaluate compatibility	99%	96%	3%
To establish the market potential of the artist	83%	85%	-2%
To assess the creative talent, abilities and reputation of an artist	78%	78%	0%
<b>To find potential talent</b>	<b>49%</b>	<b>57%</b>	<b>-8%</b>
To negotiate contractual relations	46%	44%	2%

*Source:* made by authors based on data from questionnaires

##### *B. Development of career strategies*

The development of the artists' career strategies implies, both in the opinion of managers and in that of the artists, the ability to: develop a business plan for an artist; recommend artistic collaborations; set career goals. The major differences in thought between the two categories occur in the case of secondary aspects (the support provided to the artist to identify their potential or to implement a business structure, pursuing a distribution agreement or a licensing agreement).

*Table no. 2. Competencies required in developing career strategies*

Competency	Artistic manager	Artist	Difference
<b>Develops business plans for artists</b>	99%	99%	0%
<b>Recommends artistic collaborations</b>	100%	97%	3%
<b>Sets career goals</b>	84%	87%	-3%
<b>Instructs an artist on artistic practices</b>	77%	81%	-4%
Helps artists identify their potential and develop their talent	<b>80%</b>	<b>68%</b>	<b>12%</b>
Seeks the conclusion of a distribution agreement	<b>50%</b>	<b>67%</b>	<b>-17%</b>



<b>Pursues the realization of a digital distribution transaction</b>	37%	35%	2%
Helps an artist in implementing a business structure	<b>23%</b>	<b>35%</b>	<b>-12%</b>
Pursues the conclusion of a licensing agreement	<b>10%</b>	<b>16%</b>	<b>-6%</b>

Source: made by authors based on data from questionnaires

### C. Creating marketing tools

The marketing activities that artistic managers should carry out are those of supervising the production of specialized promotional articles and advertisements, posters or the design and updating of websites. We notice that, in this case, the difference appears in the differentiated privilege of promotion channels: managers opt more for classic channels (advertisements, posters), while artists give more importance to the management of online promotion.

Table no. 3. Competencies needed in creating marketing tools

Competency	Artistic manager	Artist	Difference
<b>Supervises the production of specialized promotional items</b>	95%	93%	2%
Supervises the production of advertisements and posters	<b>85%</b>	<b>74%</b>	<b>11%</b>
Supervises the design and maintenance of websites	<b>55%</b>	<b>67%</b>	<b>-12%</b>
<b>Elaborates promotional materials printed/in electronic format</b>	30%	25%	5%
<b>Monitors the production of biographies</b>	20%	22%	-2%
<b>Supervises the production of photographs</b>	5%	10%	-5%

Source: made by authors based on data from questionnaires

### D. Obtaining funding

The ability to ensure the financial solvency of the represented artists is a key competence both in the possibility of ensuring long-term artistic performance and in the relationship between manager and artist. As such, out of the 4 items tested, 3 are assigned to managers in proportions of over 90%, both by them and by the artists. The differences are not remarkable, as in the case of the ability to apply for grants or loans, but artists prefer to a greater extent in the "job description" of the manager.

Table no. 4. Competencies required in obtaining funding

Competency	Artistic manager	Artist	Difference
<b>Researches about finding sources of funding</b>	99%	95%	4%
<b>Seeks private investment, sponsorship and / or support</b>	94%	96%	-2%
<b>Negotiates agreements and advance payments</b>	95%	92%	3%
<b>Takes the necessary steps to further achieve the funding objectives</b>	95%	90%	5%
Applies for grants / loans	<b>65%</b>	<b>74%</b>	<b>-9%</b>

Source: made by authors based on data from questionnaires

### E. Supervision of the production and launch of artistic products

For the component of supervising the production and launch of artistic products, the main competencies prescribed for the role of artistic manager are: *to organise the production team; to set goals; to monitor the production* in order to meet the launch strategy.

Table no. 5. Competencies required in supervising the production and launch of artistic products

Competency	Artistic manager	Artist	Difference
<b>Forms the production team and determine the location</b>	93%	93%	0%
<b>Sets production objectives</b>	94%	90%	4%
<b>Ensures compliance with the launch strategy</b>	80%	74%	6%
Delivers the final product and the work of art	<b>74%</b>	<b>64%</b>	<b>10%</b>

<b>Establishes a launch strategy</b>	63%	59%	4%
<b>Sets the release date</b>	52%	54%	-2%
Cultivates and maintain the relationship with the fans of the artists	<b>45%</b>	<b>35%</b>	<b>10%</b>
<b>Coordinates the production program</b>	23%	29%	-6%

Source: made by authors based on data from questionnaires

There are two competencies in relation to which the opinion of managers differs significantly from that of artists: delivering the final product and cultivating the relationship with the artists' fans, aspects that managers attribute to their own role to a greater extent than artists do.

#### *F. Ensuring the opportunity and coordination of live artistic performances*

Regarding the organization and development of live artistic performances, we can see that we have the most divergent perceptions as to the role of the artistic manager. The two main competencies assigned to them are the initiation of the event and the analysis / negotiation of the offers for the artistic performances. Artists are a little more reserved in assigning managers the latter role, just as they consider to a lesser extent that they need to get involved in coordinating promotional advertising and performance production. Instead, they believe that managers should be more involved in event marketing and event / touring logistics coordination. Also, the involvement in the budgeting part is attributed to a greater extent to the artistic managers.

*Table no. 6. Competencies required in coordinating live artistic performances*

Competency	<b>Artistic manager</b>	<b>Artist</b>	<b>Difference</b>
<b>Initiates the event</b>	94%	91%	3%
Analyses / negotiates the offers of artistic services	<b>91%</b>	<b>79%</b>	<b>12%</b>
<b>Designs the touring strategy</b>	79%	76%	3%
<b>Sets the touring budget</b>	54%	62%	-8%
Coordinates the marketing of the event	<b>48%</b>	<b>58%</b>	<b>-10%</b>
Coordinates advertising products for sale at the event	<b>50%</b>	<b>35%</b>	<b>15%</b>
Coordinates the production of the performance	<b>32%</b>	<b>22%</b>	<b>10%</b>
<b>Obtains reservations</b>	16%	19%	-3%
Coordinates the logistics of the event	<b>9%</b>	<b>19%</b>	<b>-10%</b>

Source: made by authors based on data from questionnaires

#### *G. Activities related to the editing of artistic products*

Regarding the editing of artistic production, both artistic managers and artists consider that the main attributes of artistic management are the development of a publishing strategy and the request / negotiation of a possible publication. However, we note differences in the coordination of reports and the responsibility of publishers, which managers attribute to a greater extent to themselves, and in the registration of publishing rights, which artists attribute to managers to a greater extent.

*Table no. 7. Competencies required in editing artistic products*

Competency	<b>Artistic manager</b>	<b>Artist</b>	<b>Difference</b>
<b>Develops a publishing strategy</b>	91%	90%	1%
<b>Requests and negotiates publication possibilities</b>	73%	79%	-6%
Registers publishing rights	<b>51%</b>	<b>62%</b>	<b>-11%</b>
Coordinates reports and editor responsibility	<b>49%</b>	<b>34%</b>	<b>15%</b>

Source: made by authors based on data from questionnaires

#### *H. Monitoring income on behalf of the artist*

The activity of artistic managers in order to monitor revenues on behalf of artists is generally similarly perceived by the two categories of respondents. Supervision of publication declarations, copyright declarations of copyright collection agencies and author declarations are aspects of the artistic management activity for at least 90% of respondents. In contrast, in terms of online distribution / commerce, this activity is not considered part of the set of managerial competencies, especially by artists.

*Table no. 8. Competencies required for revenue monitoring*

Competency	Artistic manager	Artist	Difference
<b>Supervises publication statements</b>	96%	91%	5%
<b>Supervises the rights statements of copyright collection agencies</b>	93%	90%	3%
<b>Supervises copyright statements</b>	93%	87%	6%
<b>Examines ways to reconcile the touring</b>	89%	86%	3%
Supervises online distribution / commerce	<b>27%</b>	<b>16%</b>	<b>11%</b>

Source: made by authors based on data from questionnaires

#### *I. Establishing and maintaining a trusting relationship with the artist*

Establishing and maintaining communication mechanisms and protocols is the main managerial competence, recognized by both managers and artists. However, regarding the management of the artist's expectations, we notice a difference of opinion, the artists being less determined to place this responsibility among the competencies of their managers.

*Table no. 9. Competencies required for relationships with the artist*

Competency	Artistic manager	Artist	Difference
<b>Establishes and maintain communication mechanisms and protocols</b>	96%	93%	3%
<b>Informs the artists about their contractual obligations</b>	68%	69%	-1%
Manages the artist's expectations	<b>50%</b>	<b>37%</b>	<b>13%</b>
<b>Researches and respond to requests for artist involvement</b>	35%	43%	-8%

Source: made by authors based on data from questionnaires

#### *J. Demonstration of communication competencies*

Communication competencies, although not so much attributed to artistic managers, are the category of competencies where we identify the most significant differences in perception. If regarding the negotiation and the ability to adapt the language according to the interlocutor, the opinions coincide and place these skills in the spectrum of important competencies, regarding the other attributes associated with this category, we notice major divergences. If managers consider to a greater extent that they should be convincing, artists assign to them more specific communication competencies (interpretation, expression, critical ability).

*Table no. 10. Necessary communication competencies*

Competency	Artistic manager	Artist	Difference
<b>Negotiates</b>	96%	96%	0%
<b>Adapts his / her language according to the recipient</b>	85%	84%	1%
Is convincing	<b>63%</b>	<b>76%</b>	<b>-13%</b>
Uses / interprets non-verbal language	<b>68%</b>	<b>56%</b>	<b>12%</b>
Writes clearly and concisely	<b>68%</b>	<b>55%</b>	<b>13%</b>
Is an active listener	<b>70%</b>	<b>54%</b>	<b>16%</b>
Issues and receives constructive criticism	<b>61%</b>	<b>49%</b>	<b>12%</b>

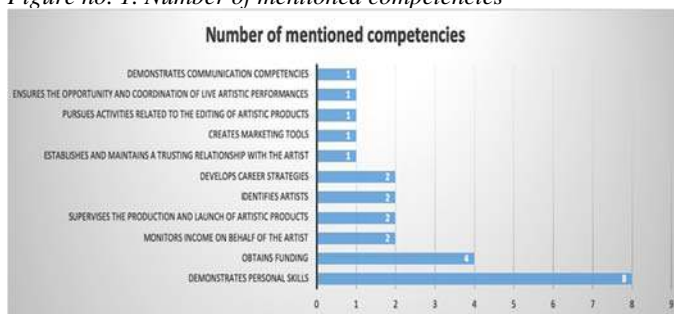
Source: made by authors based on data from questionnaires

### K. Demonstration of personal skills

In terms of personal skills, the data present a clear set of personal attributes that managers should have. They refer to leadership (leadership, decision-making, risk-taking, delegating, empathizing) and work (under pressure, multiple tasks). These are mentioned by over 90% of respondents, with no major differences between categories. Regarding other personal skills, we notice merely that differences of opinion appear in terms of analytical skills, the passion involved and time management skills. In all these cases, artists attribute them to a greater extent to managers.

Selecting the most important competencies, those agreed by over 90% of respondents, provides us with a set of 25 attributes, of which about a third (8) are professional skills:

Figure no. 1. Number of mentioned competencies



Source: own projection using SPSS

We can assert, therefore, that the image of the “job description” of the artistic manager is outlined, in the opinion of the actors involved, managers and artists, of personal and assigned skills associated with securing funding. Artistic managers are people with work ability, intuition and leadership skills, with vision, good negotiators, communicators and strategists. The differences in views between artistic managers and artists regarding these 25 key competencies are not extensive.

By placing professional skills at the forefront, both managers and artists believe that success in the profession of artistic manager is determined rather by personal factors, attributes acquired through experience. With a certain exception, the one regarding the leadership skills, where the managers indicate 100% and the artists 95%, the difference does not exceed 4%, a sign that there is a convergence of opinions in this regard. Divergence occurs in secondary competencies. The testing of the differences between the opinions of managers and artists, beyond the descriptive image offered above, was performed by analysing the averages of the differences at the level of each dimension:

Table no. 11. Differences of competencies

Dimensions	Average difference	Standard deviation of difference
<b>Identifying artists</b>	<b>3%</b>	<b>0.03</b>
Obtains funding	5%	0.03
Monitors income on behalf of the artist	5%	0.03
Supervises the production and launch of artistic products	5%	0.04
Demonstrates personal skills	5%	0.05
Establishes and maintains a trusting relationship with the artist	6%	0.05
Creates marketing tools	6%	0.05
Develops career strategies	7%	0.06
Ensures the opportunity and coordination of live artistic performances	8%	0.04
Pursues activities related to the editing of artistic products	8%	0.06
Demonstrates communication skills	10%	0.06

Source: made by authors based on data from questionnaires

As can be seen, in terms of **identifying artists**, we have the smallest average difference, so the largest convergence of opinions, on average 3%. In the case of obtaining funding, monitoring the artist's revenue, supervising artistic production and personal skills, the average difference is 5%. Larger differences occur in the case of providing and coordinating live performances, artistic product editing activities and communication skills, where the average difference exceeds 8%.

**Hypothesis H1:** we separate the 87 competencies into three categories:

Main competencies - the 25 competencies selected above, chosen by at least 90% of the respondents

Secondary competencies - 32 selected competencies of 50%-90% of the respondents

Tertiary competencies - 30 competencies selected by less than half of the respondents

*Table no. 12. Correlation of competencies*

Competencies	Average absolute difference	Standard deviation of difference
main competencies	3%	0.01
secondary competencies	8%	0.05
tertiary competencies	7%	0.05

*Source:* own projection using SPSS

The analysis of the average differences of opinion between managers and artists indicates that the average differences between managers and artists is only 3%, in the case of main competencies, while in the case of secondary and tertiary ones it exceeds 7%. Therefore, we can state that there is a greater convergence of opinions between managers and artists, regarding the main competencies associated with artistic management, and as such we may consider the **H1 hypothesis as valid**.

**Hypothesis H2:** Is seniority a factor leading to different perceptions of managerial competencies? Taking as a benchmark (cut-off point) the 3-year threshold, both for artistic managers and artists, we segmented the sample into four subgroups relatively balanced in terms of number of representatives. As in the case of analyses between artistic managers and artists, we will group the 87 competencies into three sets and analyse the average difference between groups for each set.

If we compare artistic managers and artists at the level of each seniority category, we notice that, in the case of those with a maximum seniority of 3 years, the differences in perception are, on average, higher for all categories:

*Table no. 12. Comparison of managers / artists with a maximum seniority of 3 years*

Competencies	Average absolute difference between positions, seniority of max. 3 years	Standard deviation of difference
main competencies	12%	0.07
secondary competencies	10%	0.10
tertiary competencies	16%	0.10

*Source:* made by authors based on data from questionnaires

Also, for the seniority category of over 3 years, we have similar differences between managers and artists. Therefore, seniority causes differences between the categories of respondents, managers and artists, rather than within these categories.

We can therefore **consider the H2 hypothesis as valid**, given that seniority induces a greater difference in perception between managers and artists. However, beyond the identified differences, we also have the situation of a relative overlap of perception of the main competencies, in the case of the main competencies, both in the case of artistic managers and in the case of artists.

## 5. Conclusions

This study contributes to the theoretical development of literature for managerial competencies, with application to festival organizers. Based on the study of a double perception on the skills needed in the arts sector, the study empirically examined the relationship between primary cognitive, secondary emotional intelligence and tertiary social intelligence and proposed a hierarchical model

for a manager's specific traits. The study also confirmed the two hypotheses formulated and the results highlight the fact that each of the two covariates tends to influence differently the perception of the importance of certain competencies in artistic management, that personal skills, the ability to attract funding and those of identification and communication with artists are a priority.

Summarizing the results, we noted that the perceptions of managers and artists, either direct or mediated by variables such as seniority or artistic genre, are more convergent when we refer to the main competencies and more divergent, when the importance of competencies is lower. Introducing in the analysis the seniority and the artistic genre, we noticed that the accumulated experience creates differences of perception between managers and artists, while genre creates differences within these categories.

The present study has certain limitations: given that it refers to a number of 8 festivals organized in the Transylvanian region and most participants in the study reside in the same geographical area, consequently the generalization of the results cannot be applied to a large extent. Due to these limitations, future research should be conducted in a broader context, including festivals in different regions and a larger number of respondents. The analysis of managerial competencies should, of course, include the public's expectations, desires and hopes regarding the way in which the artistic act should be organized. Without excluding it from a somewhat more complex model of analysis, for reasons of efficient management of a finite duration of each festival, this study focused exclusively on the artist-manager binomial.

In the current context, managerial competencies must be adapted to the evolution generated by the requirements of technology inclusion, as it is obvious that technical skills will be necessary for managers and employees alike. Along with this, the development of critical thinking is needed. Emotional and "cultural" intelligence are considered basic elements in communication; decision-making, collaboration, innovation is just some of the important milestones in the field of improvement. Adapting to technological innovations and developing skills in the workplace today are training priorities in cultural organizations based on a vision built on the interconnection with progress in the field.

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## Influencer's Authenticity from the Perspective of Generation Z Consumers

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### Abstract

*Throughout economic and technological change, the marketing process has encountered a number of changes in order to meet the demands of 21<sup>st</sup> century consumers. Therefore, this article aims to understand how influencers are introduced into the online brand's marketing strategies. So, the research's purpose is to answer the following question: What qualities must an influencer possess to be considered authentic? Starting from this question, we designed a qualitative analysis, based on an in-depth interview with 10 Generation Z consumers from the Moldova area, Romania. To begin with, the study analyzed the circumstances in which the interviewees chose to follow an influencer, to then identify the elements of authenticity observed in his experience, and finally, to understand the factors that influenced the following of the micro celebrity. Therefore, this article aims to identify the traits of an influencer and the activities they practice to positively impact Generation Z consumers.*

**Key words:** social media influencers, authenticity influencer, digital influencer

**J.E.L. classification:** M31

### 1. Introduction

With the constant evolution of web technologies, market participants tend to look for up-to-date solutions that offer them modern opportunities to continue their business processes. In other words, the introduction of social media platforms is becoming a necessity for modern brands since communication with potential consumers is shaped by the Internet. In particular, new ways of interacting with the end customer are being exploited, since approximately 63.1% of the world's population (reported by July 2022) actively participate as users of these platforms. (information recorded by the Statistics Research Department) Therefore, social media becomes the central pawn of the brand-buyer relationship and thus facilitates the dynamic communication between them, offering the possibility for both parties to react directly to the content displayed and not just observe and consider it as part of the purchase process. (Młodkowska, 2019, p. 5; Moulard, Raggio & Folse, 2021, p. 99)

This paper will explore the activity of a micro-celebrity, starting from the phenomena already identified in the existing literature articles to date and building on the analysis of the responses provided by the participants to design the proposed objectives. In other words, our focus is on the impact of a social media influencer's activity on the consumer's purchase process starting from current market circumstances. More importantly, the collection of this data will be carried out by conducting in-depth interviews with the influencers' followers, so that they can express their opinion with reference to their experience with the respective micro celebrities. Sampling is non-probability sampling, focusing on the snowball sampling method. Respectively, this approach was desired since our target audience represents a small group of individuals, whose probability of reach is relatively low (Etikan, Alkassim & Abubakar, 2015, p. 1).

Next, the in-depth interview with followers has the primary purpose of examining the influences that content offered by a micro celebrity has on a user of digital social media platforms in relation to their willingness to purchase the promoted product. Here, 10 users who follow at least one influencer



online, over 18 years old, both female and male, residing in the area of Moldova, Romania were interviewed. The interview also contains questions that help to understand the relationship between an influencer and his/her follower, which ranks as the age at the start of the representative range for Generation Z (1998 – 2000).

## 2. Theoretical background

As the online environment gradually but surely becomes a 21<sup>st</sup> century way for individuals to communicate, interact and complete various actions, the use of social media platforms embodies an important element of the population. In this case, the majority of consumers, especially young adults – Generation Z, rely primarily on mobile applications to inform themselves and, by default, purchase various products or services. (Balaban & Mustătea, 2019, p. 32) Thus, this Internet-facilitated environment lays the foundations for connectivity on multiple informational levels and, at the same time, transforms the society we find ourselves in in terms of the speed with which individuals interact. (Leparoux, Minier & Anand, 2019, p. 421)

Moreover, with the emergence of these platforms, the possibilities of promoting products and services in the same sphere are also developing in tandem. Therefore, social media has become an effective way to create advertisements and convince consumers to purchase various products or services without overstepping the bounds of insistence compared to traditional promotional techniques. (Balaban, Mucundorfeanu & Naderer, 2022, p. 397; Freberg, Graham, McGaughey & Freberg, 2010, p. 90) In other words, it appeals to people who have a high number of online followers and are considered popular among the users of the respective platform to become the new "relationship" of various brands with their audience, with the primary aim of connecting the target market through the influencer's direct communication with them. (Jimenez-Castillo & Sanchez-Fernandez, 2019, p. 366) Respectively, the micro celebrity is the connecting piece between the two parts of the economic process, later becoming the independent third party that manages to shape the attitudes of buyers by presenting products from their own perspective. (Freberg, Graham, McGaughey & Freberg, 2010, p. 91)

Furthermore, as stated in various studies, influencers occupy an important place in the consumer purchasing decision process, as the content they create inspires trust and is also an easy source of information, especially accepted by Generation Z users. (Młodkowska, 2019 p. 4; Balaban & Mustătea, 2019, p. 35; Freberg, Graham, McGaughey & Freberg, 2010, p. 90) Also, influencer marketing is gradually becoming the way in which individuals' opinions can be shaped and implicitly, their actions regarding the choice of certain products or services. So, the behaviour of an influencer also becomes the behaviour of the consumer, the latter micro imitates the celebrity with the unconscious aim of later becoming like the influencer. (Balaban & Mustătea, 2019, p. 33; Nandagiri & Philip, 2018, p. 62) As these digital content creators are constantly working to maintain their popularity and interaction with followers, brands choose to turn to them to strengthen relationships with potential or current customers and more importantly, to facilitate their promotion through a modern and effective 21<sup>st</sup> century technique. (Marwick, 2017, p. 2)

As mentioned earlier, this approach to influencer marketing is a relevant technique that manages to quantify its impact on new generations of consumers, especially Generation Z. As such, we highlight that brands are choosing to implement this influencer trend into their promotional strategies and moreover, consistently invest in them to generate real-time results. (Klimes, 2021, p. 316) Above all, for influencer activity to be fully fruitful, it must relate to the diversity with which the digital environment is advancing and, correspondingly, shape its activities in line with the dynamism that users have in terms of the choices they make. (Huang, Chen & Cheng, 2013, p. 1)

Therefore, we recall that the influencer occupies the role of an individual who simultaneously represents a celebrity, a trusted person in terms of the information offered and a landmark in terms of the reviews offered, all of which have the power to persuade consumers to adhere to certain types of behaviour, in particular the purchase of the products or services they present. (Jimenez-Castillo & Sanchez-Fernandez, 2019, p. 367; Balaban, Mucundorfeanu & Naderer, 2022, p. 366)

### 3. Research methodology

This study focuses on the decision problem identified; namely What qualities must an influencer possess to be considered authentic? Also, the research question on which this analysis was based is: Identify the traits of an influencer and the activities they practice having a positive impact on Generation Z consumers. In other words, a qualitative research was conducted with the main objectives of:

Objective 1 – (O1). Identifying the traits a consumer wants in an influencer;

Objective 2 – (O2). Finding out the perspective of authenticity from the Generation Z consumer's point of view;

Objective 3 – (O3). Finding out the activities and factors that persuade the end consumer to pursue an influencer.

In terms of the instrument used – the in-depth interview, the research focused on its semi-structured form, as we created a guide of predefined questions, which the interviewees had to answer from the perspective of their knowledge of the influencers. Therefore, we carried out a detailed investigation of the consumers of this type of content in the online environment regarding their experience in terms of interaction, behaviour, but also the traits they observe in an influencer. We also wanted to identify subjects' attitudes towards the actions these micro celebrities take online. In order to do that, we focused our research on a meta-analysis of the answers and used codes to identify the frequency of the answers, dated in *Table 1*.

In terms of sampling, the research included a total of 10 subjects who actively participated in the interview, and the structure of this group of interviewees consists of both women and men, aged between 23 and 25. Thus, they represent people who are part of Generation Z and frequent the digital environment for the purpose of information and possibly purchasing products. In terms of gender, there was an unequal number of participants in our research, with the total consisting of three women (3) and seven men (7). They were of similar ages, with the majority stating that they were aged 24, but there were also people aged 23 and 25 respectively. For such a research, 10 interviews were carried out, because it was desired to cover the phenomenon studied in terms of the new information accumulated and therefore, at this point, the principle of saturation was reached. Moreover, the sample is adequate, and, in the same way, no new themes appear throughout the text analysis. (Rusu-Mocanaşu, 2020, p. 183)

The positions that subjects are held at the time of the interview vary, as some are either not currently working, being students, or are in diversified areas of work. In this way, we can deduce that the subjects' education is an important aspect, and it is also a criterion we recorded in our observation. So, there are four (4) subjects with IT education, two (2) who are students, two (2) individuals practicing law, and the remaining two (2) individuals identify themselves as employed as a bartender or architect.

As the selection of participants supports the identification of a specific profile of the consumer of influencer-created content, namely individuals from Generation Z who follow at least one influencer online, we sampled the target market through a selection questionnaire. In other words, the snowball method was used, using the initial units – close individuals meeting the conditions mentioned above to generate additional units. Also, all subjects achieve the characteristics we look for in the consumer of this type of online content.

The present research we conducted was carried out both online, using various social media and communication platforms, and in the physical environment – where we interacted with people close to us, both of which were supported by audio. Therefore, data was collected on research participants who fall into a specific market segment, that being consumers of content created by an influencer. Moreover, the actual data collection period took place over three weeks, namely 27 November 2022 - 17 December 2022.

### 4. Findings

The analysis of the interviews was carried out in order to deepen the main themes identified, as can be seen in *Table 1*, together with the codes recorded and used for the axial coding of the responses. In particular, the characteristics of an influencer from the perspective of the Generation Z

consumers were concretized so that they could be considered suitable for the actions they perform online. Moreover, we established a frequency per word used by the participants with the main reason to strengthen the importance of the theme identified according to each individual's perspective of the influencers and their presence online.

Table no. 1. Frequency of coded responses in identified themes.

<b>Objective 1 – Theme 1: When consumers choose to follow an influencer</b>		
<b>Code description</b>	<b>Code</b>	<b>Frequency per word</b>
• Product details	PRD	8
Presentation of the product in terms of its details and history	IST	3
Description of the importance of the choice of product	IMP	5
• Influencer interaction	INT_INFL	9
Use of common, easy-to-understand terms	ACCS	3
Physical appearance of the influencer	ASP	5
Acceptance of all individuals	ACCP	3
• Community created	CMNT_ONL	2
Providing and maintaining an online community	CMNT	2
<b>Total theme frequency</b>		<b>21</b>
<b>Objective 2 – Theme 2: Elements of authenticity observed by consumers</b>		
• Quality of information provided	CAL_INF	24
Taking responsibility for the information provided	RESP	6
Detailed information on the subject	DTL	15
Providing raw, unfabricated and detailed information	CART_DSB	3
• Convincing actions	ACT_CNVG	20
The desire to communicate directly with followers	CONECTV	7
The stability of its actions	CNST	13
• The sociable nature of the influencer	SOCIAL	47
Acceptance of self	VERID	21
Attractive personality type	ATRG	26
<b>Total theme frequency</b>		<b>91</b>
<b>Objective 3 – Theme 3: Factors influencing consumer stalking behaviour</b>		
• Product introduction	PRD_INT	33
Presentation of product quality	RAPT_CAL	7
Presentation of the product/service according to what the market demands	IMP_NEV	10
• Product or service customization	PRMV_PRS	8
Price and promotion to be affordable for all categories of individuals	PR_ACS	8
• Quality of the influencer's actions	CAL_ACT	25
Engagement report provided by the influencer	IMPLC	5
The uniqueness of the actions carried out in its work	UNC	20
• Experience with the promoted product	EXP	18
Personal experience with the product	EXP_ADV	18
• Influencer popularity	POPULAR	4
Level of followers the influencer has	NV_URM	4
<b>Total theme frequency</b>		<b>77</b>

Source: Compiled by the author from the interviews

In order to better understand the information extracted from the meta-analysis of the interviews, we will present, for each theme, the importance of the identified codes.

Therefore, for the *presentation of the product in terms of its details and history* (code – IST), we recall that 3 out of 10 respondents state the importance of knowing additional information about the context that an influencer presents and, especially, to create consumers "the story behind" (F, 23 years old) what is displayed online. In terms of the code of *providing and maintaining an online community* (code – CMNT), 2 out of 10 interviewees expressed an interest in micro celebrities who manage to create communities with their followers and subsequently organize various meetings and

events with the aim of socializing and ending relationships between individuals.

For 2 out of 10 respondents, the *use of common, easy-to-understand terms* (code – ACCS) considers an influencer to be behaving appropriately if the information they provide through their activity is "easy to understand" (M, 24 years old) and does not require additional explanations to get the message fully across to the receiver. Similarly, for the code *describing the importance of choosing the product* (code – IMP), we identified 4 out of 10 participants who emphasize the importance of detailing the information so that its usefulness is understood. In other words, these individuals want to receive useful content for their future online experience.

*The influencer's physical appearance* (code – ASP) is considered a criterion for selecting micro celebrities by 3 out of 10 respondents, and, moreover, it marks the feeling these followers want to feel during their interaction with digital content, i.e., to be "visually pleasing" (M, 24 years old). In the same manner, 3 out of 10 subjects state that *the acceptance of all individuals* (code – ACCP) has a considerable impact on their willingness to follow an influencer or not, since their attitude can positively or negatively affect the opinion of consumers.

For the code of *taking responsibility for the information provided* (code – RESP), 4 out of 10 interviewees want the influencer to achieve a certain level of seriousness in carrying out their digital activities, especially not to fool their audience with "click bait ads" (M, 25 years old). Since *self-acceptance* (code – VERID) is mentioned by 7 out of 10 individuals, we can say that characteristics related to an individual's truthfulness in relation to his or her intentions weigh quite heavily in the process of choosing an influencer. In other words, for the majority of interview participants, the traits of "truthfulness" (M, 23 years old; F, 24 years old) and "transparency" (F, 24 years old) define, to some extent, the authenticity of the celebrity micro.

Next, the *provision of raw, unfabricated and detailed information* (code – CART\_DSB) is also a decisive element for 3 out of 10 subjects and creates the credibility of the information provided has in relation to all aspects that can be commented on. Similarly, for 5 out of 10 people, *the desire to communicate directly with followers* (code – CONECTV) defines the importance of relating to the individuals who consume the influencer's content and, also, which creates a "connection" (F, 23 years old) with which they ensure that they will continue to follow him for the duration of his activity. In relation to what this online content creator achieves, the *staunchness of his actions* (code – CNST) can convince about half of the participants, i.e. 6 out of 10 individuals, because "devotion" (M, 23 years old) reinforces the character trait of a person describing him to be a role model.

*Thorough information about the subject* (code – DTL), as stated by 8 out of 10 respondents, is, to a large extent, a decisive factor in determining the authenticity of an influencer. Thus, in order to be able to direct consumers online, these micro celebrities need to be "knowledgeable" (F, 24) and "informed" (M, 25) in order to support their opinions in line with reality. More than the knowledge the content creator possesses, for 8 out of 10 people, the *appealing personality type* (code – ATRG) is also important. In this way, consumers notice the truthfulness of an individual by relating to the way he/she expresses him/herself, which must be "charismatic" to convince them that his/her actions are truthful (response mentioned by 26.92% of the total frequency of this code, i.e., 7/26).

For 7 out of 10 subjects, the *presentation of product quality* (code – RAPT\_CAL) is a criterion in selecting the influencers they follow. In particular, more than half of the interviewees consider that presenting quality products should be a mandatory action to merit influencer status. In addition, *presenting the product/service according to what is in demand in the market* (code – IMP\_NEV) is taken into account by 7 out of 10 interviewees and sets the main objective an influencer should have to fully satisfy the consumer, namely, to provide information on the needs at the time of potential users.

In terms of the *engagement ratio provided by the influencer* (code – IMPLC), we define the engagement that the micro celebrity has from the perspective of 3 out of 10 participants. Thus, in order to be considered credible and implicitly authentic in terms of their online activity, the influencer must provide content that is "thoughtful and hard-worked" (F, 23), but most crucially, resonates with the actions they put into practice. Similarly, 6 out of 10 say that *the uniqueness of the actions they take in their activity* (code – UNC) is a factor influencing the authenticity and also the likelihood of following the influencer. More importantly, "own style" (M, 24 years old) and "originality" (M, 24 years old; M, 25 years old) make one content creator stand out from another, and moreover, ensure a greater number of followers.

Also, from the perspective of *product or service personalization* (code – PRMV\_PRS) it creates an authenticity – "creativity" ratio (F, 24 years old; M, 24 years old) that any micro celebrity should respect in order to provide the highest quality content and therefore attract attention when promoting a certain product or service online, according to 5 out of 10 individuals. In terms of *personal experience with the product* (code – EXP\_ADV), a considerable number of participants, namely 9 out of 10, supports the fact that information such as reviews or highlighting both positive and negative aspects, strengthens a consumer's decision to follow an influencer. In other words, the more transparent the influencer is in terms of the opinions offered on the products being promoted, the more users will trust their content.

In the case of the *level of followers the influencer has* (code – NV\_URM), 4 out of 10 subjects state the importance of the online collective, i.e., the number of followers, that a micro celebrity has created. This is also supported by the credibility that the high degree of followers can give to a content creator. Moreover, we also recall the code *price and promotion to be accessible to all categories of individuals* (code – PR\_ACS) which the last identified theme creates with a number of 6 out of 10 mentions of the interviewees. Respectively, the methods of promotion should be as frequent as possible and cover as wide a range of their accessibility as possible, either online or physically. All together, we discuss "reasonable" (M, 24) and "fair" (M, 24) pricing.

## 5. Conclusions

Therefore, after conducting an in-depth interview with 10 Generation Z online consumers on how they perceive the actions of an influencer, we can conclude that authenticity is the most important element in choosing a micro celebrity. In fact, the definition of authenticity, as found in various studies, i.e., the real character of an individual's behaviour, is also reflected in the responses of the interviewees who took part in our research. (Moulard, Raggio & Folse, 2021, p. 101) Accordingly, we recall the objectives of the research conducted: (1) Identify the traits a consumer wants in an influencer; (2) Find out the perspective of authenticity from the point of view of the Generation Z consumer; and last but not least, (3) Find out the activities and factors that persuade the final consumer to pursue an influencer.

In this way, objective (1) focuses on the positive effect that a consumer's desired characteristics have on the final interaction between the consumer and the influencer. In particular, if the creator succeeds in 'inspiring trust' (F, 24) and also in building a community - a collective in which followers feel "included" (M, 24) and accepted regardless of their story, then the creator's impact increases considerably. Moreover, trust in the creator increases and, in the end, the consumer will accept the micro-celebrity's message much more quickly and easily because there will already be a "connection" (F, 23) between them. (Martinez-Lopez, et al, 2020, p. 2) In other words, if the influencer will be perceived as an individual who can be easily reached, the advice, respectively, the promoted products and services, will seem much more accessible to the consumer and ultimately solidify their decision to purchase them.

For the objective (2) proposed at the beginning of the study, we highlight how an influencer relates to its followers and, moreover, the attitude it has throughout its interactions with them. Therefore, personality traits were most often identified that create an influencer who is "as real as possible with the audience" (F, 23 years old), "transparent" (F, 24 years old) in terms of his/her digital activity and "charismatic" (M, 23 years old; M, 24 years old) throughout the presentation of information or the discussion with users. Furthermore, it reinforces the perspectives identified in various studies, namely the importance of the credibility that the influencer conveys to their audience about the actions they take so that they are seen as authentic as possible. (Balaban & Mustăţea, 2019, p. 37; Młodkowska, 2019, p. 6)

As research in the field has shown, social media facilitates the development of a simple content creator into a true influencer, who subsequently convinces, to a large extent, the users who follow her. (Młodkowska, 2019, p. 5) In the same manner, our research materializes the fact that digital is a favorable medium from the point of view of promoting products and services and, according to objective (3), the majority of respondents prefer to follow an individual who "knows the field well" (F, 24 years old) in which they are situated as an influencer. As interview participants also state that it must have a "consistency of content posted" (M, 24 years old) and "resonate on a personal level

with the product" (F, 25 years old), we highlight the importance of the passion that the micro celebrity must have for the field. More importantly, the more natural and confident the celebrity is in the information they provide, the more authentic they will be seen as by consumers because of their content and subsequently increase their popularity.

Therefore, from the perspective of social media platform users who are part of Generation Z, we can say that an influencer needs to be as open as possible with the messages they want to convey, to be sure about what they say, constantly informing themselves about the details and history of the products or services they present. Since the actual experience with a particular brand and what it markets is important, the content creator must be honest and present both the negative and positive sides identified from constant use of the products being promoted. So, to ensure easy communication with its followers, the micro-celebrity must offer them the opportunity to interact directly with it. Moreover, the quality of the information it presents must be high, since the decision-making impact in the digital environment does not focus on the quantity of the promotion, but on the actual message conveyed to the audience (Młodkowska, 2019, p. 7).

One limitation of this study that should be mentioned is related to the respondents who participated in the research, namely the majority of the participants being male. In other words, the responses recorded are mostly influenced by the male perspective, and as a future direction of other studies in the field it is recommended to include an approximately equal number of individuals of both genders, to ensure a better understanding of the phenomenon interpreted. Also, the sample can be considered unrepresentative, having a small number of interviews, 10 in-depth interviews with individuals aged 23-25 years old, following at least one influencer on social media. Furthermore, a recommendation for future studies may be to include a larger number of Generation Z respondents, thus encompassing a wider range of ages, not just the upper limit reached in this study.

Finally, a similar analysis can be applied starting from a single platform representative of online influencer consumers, namely Instagram, Facebook or TikTok, thus focusing on in-depth research on the specific activities of content creators according to the digital environment in which they operate.

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## Annex

### Interview guide:

1. List three qualities a person must have to be considered authentic.
2. What would a marketer have to do from the perspective of the service or product they are selling to be considered authentic?
3. What would a marketer have to do in terms of pricing to be considered authentic?
4. What should a marketer do from a product distribution perspective to be considered authentic?
5. What should a marketer do from a product promotion perspective to be considered authentic?
6. List three qualities an influencer must have to be considered authentic.
7. An influencer is authentic when they do a certain action: \_\_\_\_\_ (to provide example of action)
8. An influencer is authentic when he/she is in a certain context: \_\_\_\_\_ (to give an example of the typical social, temporal and situational context of the influencer)
9. How do you choose which influencer to follow? Please mention 5 criteria.
10. An influencer promoting a brand is authentic when \_\_\_\_\_.
11. Would you like to become an influencer in the future? (yes/no) What are your reasons for supporting this answer?
12. If yes, how soon do you think this would be feasible?
13. Please provide me with the following identification data: age, gender, occupation and place of origin.

## Digitalization of Medical Services - A New Ally for Malpractice Risk Management

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### Abstract

*This paper examines the concept of digitalization of medical services as well as the role it plays in managing the risk of malpractice. Starting from the applications of technology in the medical field, this paper aims to analyze the possible effects and implications on the professional error committed in the exercise of the medical act that created damages.*

*The article addresses a niche topic, in an area of strict specialty and interest. The authors debate aspects of the activity of providing medical assistance and the associated risk of malpractice in the context generated by new technologies. The research methodology used is mainly based on the review and synthesis of the existing literature. The conclusions are intended to be an invitation to academic dialogue and a starting point for researchers and practitioners.*

**Key words:** digitalization, medical services, medical malpractice, risk management, new technologies

**J.E.L. classification:** O33, I15, K42

### 1. Introduction

The conviction that digitalization will inevitably be present in any practice of providing medical assistance emerges from the policies of international bodies, the reports of specialty bodies, but also from the promising support of the academic environment and workers in the health sector. Globally, there is a consensus that digital solutions in healthcare can considerably improve the services in this field and give people the chance to live longer and free from diseases.

The digitalization of medical services is a process of transforming traditional medical services into technology-based ones, by using digital solutions and electronic devices to manage and improve the provision of the medical act. Lupton, 2017 highlights the benefits of digitizing medical services and concludes that digital data is the foundation of the process of rethinking and reorganizing a medical system. Also, the author shows that the use of technology is a potential factor in changing the behavior patterns of patients in terms of their health. Carboni et al., 2022 conceptualizes the process of digitalization of work in the healthcare field, focusing on the study of the directions of innovation and technological progress, but also on the changes taking place in the working climate. It can be said that the introduction of technology in the medical act generates systemic changes.

As the problem of the occurrence of professional errors in the exercise of the medical act has been constant, there is an interest to see if the use and development of technology in the medical field can generate mutations and evolution.



Concerns about reducing or even eliminating the risk of making a medical error come from the precision and infallibility of clinical decision support tools based, for example, on artificial intelligence.

## **2. Literature review**

The academic literature on the digitalization of medical services has predominantly focused on the presentation of new medical protocols in the case of the use of technology. Thus, we are witnessing a growing enrichment of the literature with case presentations and medical experiments, with the digitalization process as a common denominator (Rakhmatulloev et al., 2022; Estel et al., 2022, Richter et al., 2023). According to Stoumpos et al., 2023, there is an upward trend of academic works in this field, especially in the last 8 years. The study carried out highlights the importance of this field and its accelerated development.

### **2.1. The risk of malpractice and medical errors**

Results of studies in America showed that medical errors were responsible for thousands of deaths annually and ranked third in the list of causes of death. Worryingly is the fact that less than 10% of all medical errors were officially reported. (Aljabari and Kadhim, 2021.). Waeschle et al., 2015 address the individual causes that lead to the making of medical errors and identify "confirmation bias, fixation error and prospective memory failure" (p.689). These may be the result of stress, distorted information, complexity of the system or insufficient professional experience. The occurrence of a medical error is a primary cause of medical malpractice.

In practice, medical malpractice is perceived as the failure of a doctor to follow standard procedures. The digital transformation of health causes the application and compliance of the medical standard to become a challenge for the medical staff. (Rowland et al., 2022)

Allegations regarding the existence of an alleged case of malpractice are a concern for medical personnel. (Institute of Medicine (US) Committee on Quality of Health Care in America, 2000.) They attract litigation that involves stress as well as physical and emotional exhaustion. (Tsai et al., 2023; Ryll, 2015). Despite the negative effects that the appearance of such a case produces, of a personal and professional nature, on medical practitioners, the issue of malpractice is still a taboo and a topic that few debate. (Arimany-Manso et al., 2018). Even so, the risk of a malpractice case must be addressed as an inherent part of the process of performing a medical act.

The analysis and resolution of a case of malpractice is a difficult process from the perspective of the complexity and values that the elements involved can have.

Without pretending to exhaust the subject, we list some of the questions that medical practitioners involved in a malpractice case must ask themselves:

- What is the definition of the medical act involving technology and what are, concretely, the medical procedures assimilated to the medical act?
- What are the professional obligations of the medical practitioners?
- What is the accepted medical standard for a certain medical procedure involving technology and what conduct should doctors approach in the context of the coexistence of different standards?
- Do doctors have professional independence? Who decides when the doctor and medical devices (especially those that use artificial intelligence) have different ways of solving the medical case?

In the context of the rapid growth of medical information, access to electronic medical records, the use of artificial intelligence and medTech mechanisms, the existence of a positive impact on the risk of medical errors is sought.

### **2.2. Electronic medical records (EMRs)**

We are currently witnessing a transition of all entities from the health field to the successful implementation of electronic technology, in all clinical specializations, with the aim of easy access and exchange of health information. (Honavar, 2020).

The main goal of using the EMR is to increase accuracy and systematize information in support of medical decision-making and the accessibility of information regardless of space and time. As Holroyd-Leduc et al., 2011 points out, computerized entry of medical indications reduces prescription errors. A thorough documentation of clinical decisions (correctness of the data entered by the clinician but also access to the metadata) leads to an increase in the ability of doctors to defend themselves against malpractice claims, but only when the medical act complies with the standard of care accepted by the official clinical guidelines.(Paterick et al., 2018)

In fact, the electronic medical records can be perceived by the healthcare workers as a tool that, through the advantages it offers, can considerably reduce the risk of medical errors and implicitly malpractice accusations. (Maliha et al., 2021)

### **2.3. Artificial intelligence (AI) and machine learning (ML)**

Medical technology that uses artificial intelligence or machine learning algorithms is characterized by an incredible accuracy and precision. These characteristics conferred it the status of "*an expert*" in the medical field. The indisputable benefits of artificial intelligence and machine learning algorithms made them be accepted and used on a global scale in a very short period of time. (Basu et al., 2020). Predictions are that "healthcare professionals will use AI to enhance the care they provide, enabling them to provide safer, more standardized and more efficient care at the top of their license." (Bajwa et al., 2021, p 193). As a result of the performances that surpass the human mind, it is expected that in the future artificial intelligence capable of diagnosis and treatment will be successfully adopted in the medical system. (Banja et al., 2022)

The study carried out by Zuccotti et al., 2014 demonstrate that the support for clinical decisions (technological applications) can prevent the occurrence of malpractice cases. The authors show the benefits brought to the medical act by consenting in increasing quality and safety, as well as the role of reducing the occurrence of malpractice payments.

Regarding the liability for medical errors in the case of the use of AI, Geistfeld et al., 2023 identifies three possible scenarios: "AI personhood, common enterprise liability, and a new standard of care" (p. 28). The authors shows that in the first two scenarios, the responsibility for the occurrence of a case of malpractice falls, mainly, on the medical technology developers. In case of the emergence of a new standard of medical care, doctors as users of technology can be responsible for medical errors only in certain situations.

The technological particularities consisting in the unique capabilities and functions of AI and artificial vision, combined with the progress made in the interpretation of medical results are a premise for minimizing the doctor's liability. The improvement of AI and Alg and their global use could cause their use to become the new standard of care, as happened, for example, with MRI or CT.

We emphasize that the obligation of doctors to apply the standard of official care has a mandatory and autonomous character and remains regardless of the result of the AI/MLS algorithm. (Maliha et al., 2021). We notice that in the specialized literature there are authors (Price II 2018, Perakslis, 2021) adepts of the transition towards the emergence of new medical standards that incorporate technology and the use of artificial intelligence.

At the opposite pole, there is academic research that analyze the negative effects of the introduction of digitalization in the process of making a medical decision. In this sense, a reference work is the article written by Rowland et al., 2022 that presents the main risks associated with modern medicine and the vulnerability of medical practitioners to the occurrence of cases of malpractice in the context of the use of technology.

### **3. Research methodology**

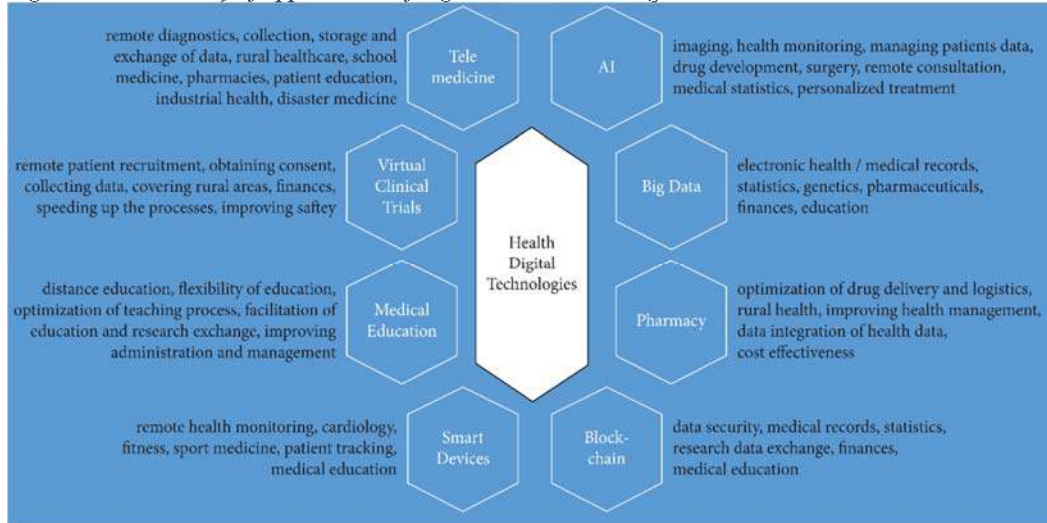
The aim of the present study is to examines the concept of digitalization of medical services as well as the role it plays in managing the risk of malpractice. For this purpose, we performed a systematic bibliographic review, using Science Direct, a database covering interdisciplinary research fields, from 2018 to 2024.

In the following rows, we present the findings of the research in the form of tree eloquent figures. By analysing the figure above, it can be noticed that there are various spheres of interest for researchers regarding the components of the digitalization of medical services. By entering into the database the combination of the first two keywords – digitalization and medical will result any of the topics identified in the Bibliometric map of the digital transformation and healthcare.

Figure no. 1 Bibliometric map of the digital transformation and healthcare



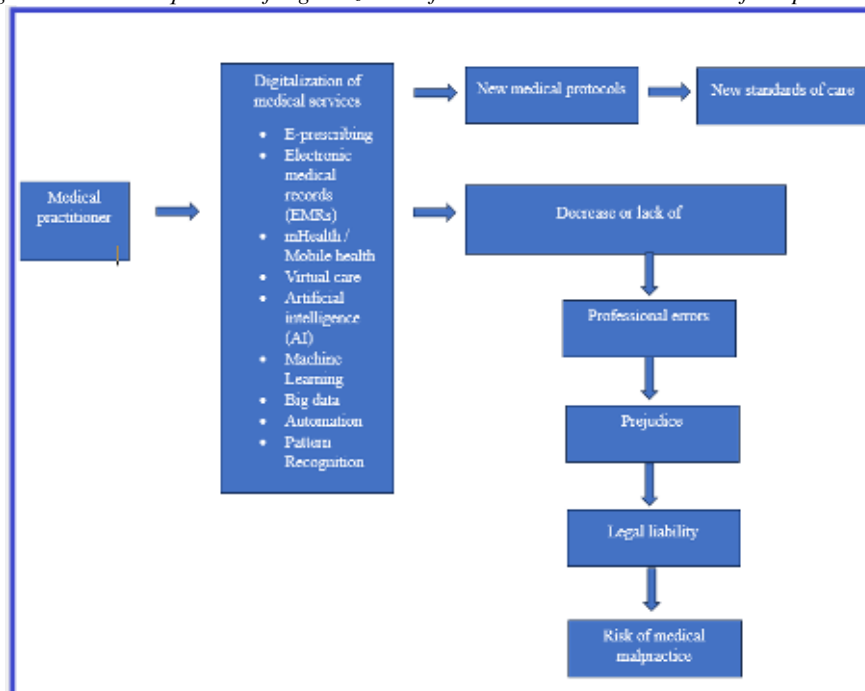
Figure no. 2 Summary of applications of digital health technologies



Source: (Senbekov et al., 2020, p. 12)

Figure no. 2 shows the most important applications of technology in the medical field and the main areas in which they can be used. We note that issues of patient safety and access to medical data are highlighted. However, there are no references to malpractice risk management or limiting medical errors in general.

Figure no. 3 Consequences of digitalization of medical services on the risk of malpractice



Source: designed by the authors

Based on the above, we believe that digitalization of medical services can be a real ally for medical practitioners in limiting or even eliminating medical errors. The transformation of medicine by absorbing technology in the provision of medical care has the characteristics of a safer medicine for both the patients and the medical practitioners. The applications of technology in the medical world have proven characteristics that will lead to new protocols and subsequently new globally accepted standards of care. Also, the accuracy and precision of the technology integrated into the healthcare

system promises to reduce or eliminate medical errors. We emphasise once again, the role of healthcare professionals to critically analyse and evaluate any medical solution contrary to the one they would traditionally apply. Any avoidable prejudice to patients also means avoiding medical malpractice.

## 5. Conclusions

The article indicates that the introduction of technology in the medical world generates changes regarding the occurrence of medical errors but also the liability. The existing specialized literature is limited and the analysis of the main works shows the need for additional research. This article focuses on the issue of the emergence of malpractice cases as a constant concern of health practitioners in the context of the benefits brought by the introduction of technology in medical practice.

In order to understand how medical errors can be limited or even eradicated, the digitalization process must be implemented with caution, after a thorough and updated study by the medical practitioners. The present study added a new contribution to the existing literature on digitalization and medical services and opens the academic appetite for new issues: who is responsible when the medical solutions indicated by technology are incorrect? with the introduction of digitalization, does a new typology of characteristic medical errors appear? is there a need for new skills for the medical practitioners so that technological progress can be implemented in the medical act?

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## Analysis of the Influences of Professional Training and Personal Development Practices Exercised in the Change Process

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### Abstract

*Professional training and personal development are two essential aspects of modern life that have become more relevant with rapid technological and business changes in recent decades. People are forced to adapt quickly to these changes to remain relevant in their fields of activity. In this context, the paper aims to investigate the influences of practices regarding professional training and personal development on the added value of organizational change in the employees' perception of organizations in Romania. The results show that professional training and personal development are essential to developing the skills and abilities needed to cope with changes in the business environment. Change can be difficult for individuals and organizations but can bring significant added value, leading to new opportunities and increased adaptability. Therefore, individuals and organizations must remain open to change and invest in professional training and personal development to cope successfully.*

**Key words:** training, personal development, organizational change, added value

**JEL classification:** O15, O33

### 1. Introduction

Professional training and personal development are essential for everyone wanting to succeed. Moreover, these practices play an essential role in developing the skills and competencies needed to face the challenges and changes in the modern business world (Delaney and Huselid, 1996). In a world where technology is advancing rapidly, and labor market demands are constantly changing, professional training and personal development are becoming increasingly important to remain competitive and succeed in one's career (Giancaspro et al., 2021). The professional training process can be achieved by participating in seminars, training courses, and workshops, which provide the knowledge and skills necessary to understand new market trends and requirements (Bocean, 2007, 2008, 2015). On the other hand, personal development focuses on increasing interpersonal skills, self-confidence, and understanding one's limits (Vărzaru and Vărzaru, 2016). This can be done through meditation, reading, empathy development exercises, or encouraging and getting feedback from peers and mentors.

The paper aims to evaluate the professional training and personal development practices, as well as their influences exerted in the change process, more precisely on the value added by this process in the perception of the employees of organizations in Romania. The five-section structure of the paper begins with a brief introduction of the research theme, followed by a theoretical background. The third presents the research methodology, while the last two present the findings and conclusions.

## 2. Theoretical background

The impact of professional training and personal development is significant (Khoreva and Wechtler, 2018). Through these practices, people can acquire the necessary skills to meet market demands and adapt to constant change. Moreover, these practices help to increase self-confidence, improve communication and leadership skills, and increase personal and professional satisfaction.

The change process can worry many, but it is essential to understand the added value it can bring (Heckmann et al., 2015). For example, change may be necessary to remain competitive in an ever-evolving market, obtain new career opportunities, and meet personal goals.

The change process often involves stepping out of one's comfort zone, but this can lead to increased self-confidence and the development of new skills (Otoo, 2019). Having a well-defined strategy and focusing on your goals is essential to carry out the change process successfully. Finding the appropriate resources, seeking feedback, and collaborating with others are essential to achieve the desired success (Dempsey et al., 2022). Professional training and personal development can benefit individuals, including in the process of organizational change (Mladenova, 2022). They can improve individual skills and abilities, increase engagement and job satisfaction, and contribute to career development. Moreover, professional training and personal development can contribute to developing self-confidence, self-discipline, and self-determination (Vărzaru and Vărzaru, 2013).

Consequently, we propose two research hypotheses:

*H1. Professional training and personal development practices influence the value added in the change process.*

*H2. Personal development opportunities greatly influence added value in the change process.*

## 3. Research methodology

The paper presents the conclusions of an empirical study carried out through a survey based on a questionnaire between September and December 2022. Within the framework of practices regarding professional training and personal development, the following variables were studied in employees' perception: the expansion of training opportunities, the management of the professional training process, investment in the professional training process, and personal development opportunities. Furthermore, regarding the organizational change, we opted for the employees' perception of the added value in the change process. Table no. 1 presents the research variables and the codes used for each variable.

*Table no. 1. The values of the multilayered perceptron established between professional training and personal development and the value added by the change process*

	Variable	Code
Practices regarding training and personal development	Expanding training opportunities	B2_11
	Management of the professional training process	B2_12
	Investment in the professional training process	B2_13
	Personal development opportunities	B2_14
Organizational change	Added value in the change process	C_33

*Source:* Developed by the authors based on the data using SPSS v.27

In order to carry out the analysis of the influences of the practices regarding professional training and personal development exercised in the change process, we used the analysis of artificial neural networks of employees' perceptions of the studied phenomenon, similar to other authors (Vărzaru et al., 2022; Iancu et al., 2022; Puiu et al. al., 2022; Vărzaru, 2022).

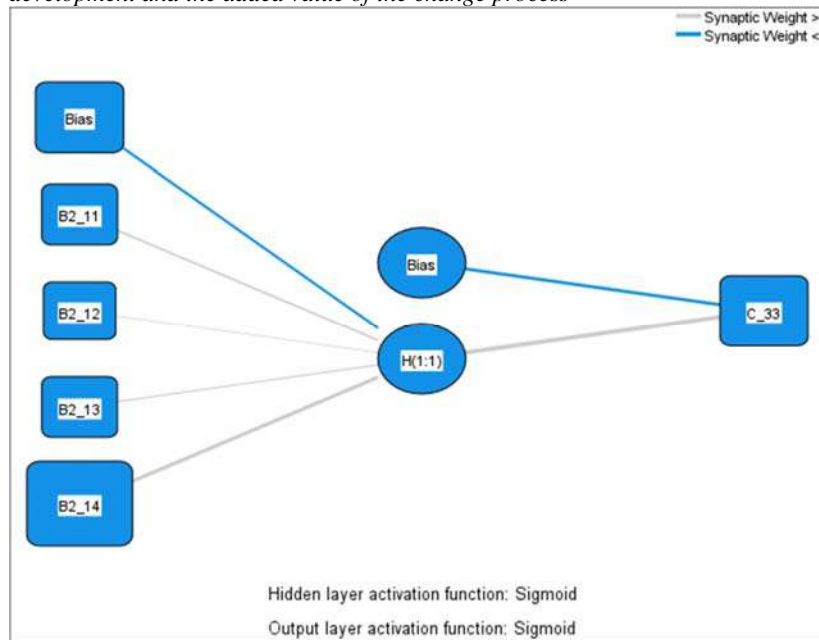


#### 4. Findings

In order to determine the influence of variables from the category of professional training and personal development on the value added by the change process, we used the analysis of artificial neural networks. The model is of the multilayer perceptron type, having an input layer comprising the variables from the professional training and personal development category (B1\_11, B2\_12, B2\_13, and B2\_14) and an output layer represented by the variable C33 (the value added by the change process). Between these is a hidden layer represented by the role of human resources in organizational change. Figure 2.11 illustrates the relationships established between the researched variables.

Table 2.15 presents the values predicted in the analysis of the artificial neural networks established between professional training and personal development, the value added by the change process, and the levels of absolute importance and normalized importance of the variables describing professional training and personal development.

Figure no. 1. Analysis of artificial neural networks established between professional training and personal development and the added value of the change process



Source: Developed by the authors based on the data using SPSS v.27

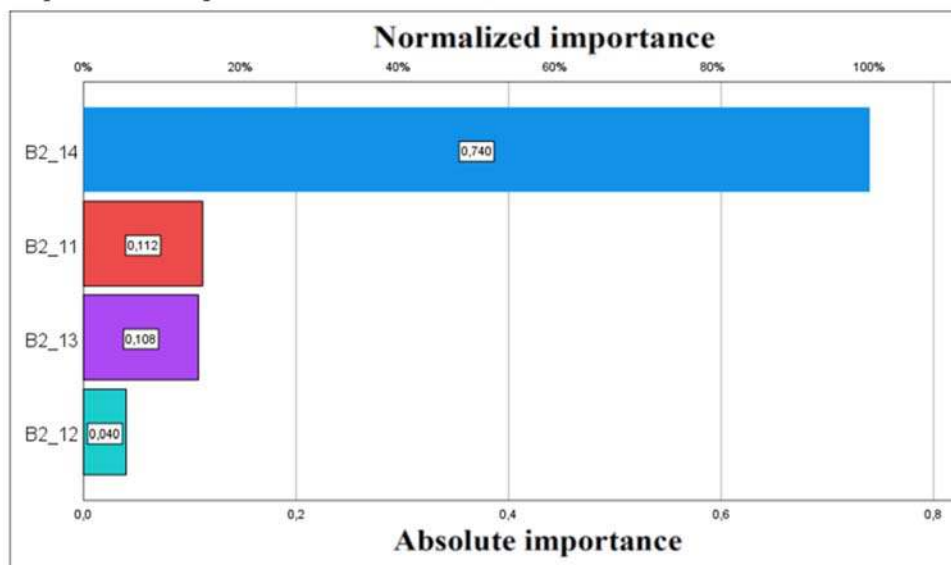
Table no. 2. The values of the multilayered perceptron established between professional training and personal development and the value added by the change process

Predictor		Values		Absolute Importance	Normalized Importance
		Hidden Layer 1	Output Layer		
		H(1:1)	C_33		
Input layer	(Bias)	-0.260			
	B2_11	0.256		0.112	15.1%
	B2_12	0.094		0.040	5.4%
	B2_13	0.250		0.108	14.6%
	B2_14	1.702		0.740	100.0%
Hidden layer 1	(Bias)		-1.584		
	H(1:1)		3.694		

Source: Developed by the authors based on the data using SPSS v.27

The values of the influence coefficients of the variables in the input layer show that the variable B2\_14 has a substantial impact on the variable C\_33, which means that the opportunities for personal development offered by the organization represent the resource management practice that has a decisive contribution to the value added by the change process. As seen from Table no. 2 and figure no. 2, the absolute and normalized importance of B2\_14 are the highest concerning other variables' absolute and normalized importance.

Figure no. 2. The absolute and normalized importance of the variables describing professional training and personal development



Source: Developed by the authors based on the data using SPSS v.27

Following the analysis of artificial neural networks, it can be seen that the two hypotheses of the research are validated.

## 5. Conclusions

Professional training and personal development are essential practices to remain competitive and succeed in an ever-changing world. The change process can be worrying, but a well-defined strategy and the right resources can bring significant added value to personal and professional development. Organizations must be flexible and open to change, constantly looking for new opportunities and encouraging change as an integral part of personal and professional growth. Moreover, investing in employee training and personal development can bring significant benefits in terms of employee productivity, engagement, and satisfaction for companies and organizations. Companies can promote continuous learning and skill improvement by providing training and personal development opportunities, leading to more significant innovation and long-term performance.

In conclusion, professional training and personal development are essential to modern life and crucial to developing the skills and competencies needed to cope with changes in the business world. The change process can be complex but can bring significant added value for personal and professional development. Therefore, organizations must remain open to change, constantly seek new opportunities, and invest in professional training and personal development.

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## Commonalities and Dissimilarities in the Process of Innovation Management. A Comparable Perspective Based on Business Size

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### Abstract

*Innovation is essential in the development of well-established companies, and economies. Companies that place a high priority on innovation are better prepared to overcome obstacles and to identify new growth opportunities. However, developing an effective innovation strategy can be a difficult and complicated task.*

*To study the way innovation is approached in food organizations, in Romania, was carried out exploratory research, structured on 5 important topics: how organizations are defining innovations, what kind of innovations are developed, how innovation is implemented and managed, what measurement methods are used, and which is the strategy for the innovation management.*

*The aim of the paper is to point out the commonalities and dissimilarities in the definition and process of innovation in small and medium organizations in parallel with big organizations. The authors could reveal important aspects to be considered for an innovation management model that could fit all food businesses, regardless of size.*

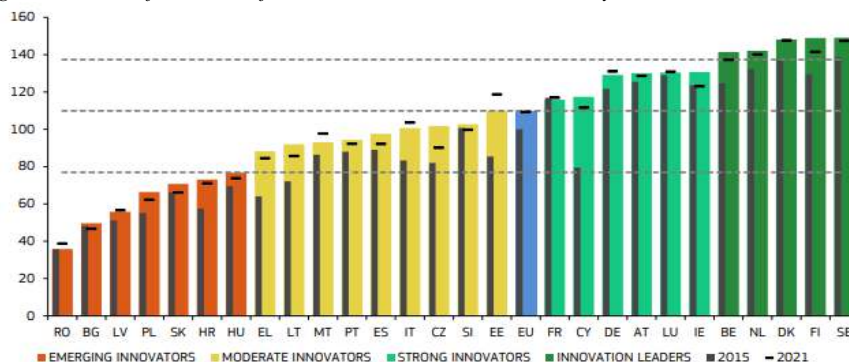
**Key words:** Innovation management, Innovation measurement, product innovation, process innovations, business development

**J.E.L. classification:** O31, O32, O12

### 1. Introduction

The annual European Innovation Scoreboard (EIS) classified the Member States into four performance groups based on their average performance (compared to the EU in 2022): emerging innovators, moderate innovators, strong innovators, and innovation leaders. With results far below the EU average, Romania is classified as an Emerging Innovator.

Figure no. 1. Performance of EU Member States' innovation systems



Source: (European Innovation Scoreboard 2022 – Executive Summary)

Still, "innovation matters everywhere". According to National Innovation data from 2016-2018, we have the confirmation that innovative organizations have the biggest part of the economic growth, 82% and big companies owned 50% (Popescu (Iacobescu), 2021, p.944). Therefore, it would make sense to go forward with our research and find out more about how innovation is defined, implemented, measured, and managed in food organizations from Romania.

Companies which are using new management techniques, with innovation in focus, are the ones with positive development, at the national level and could expect future growth (Mateescu et al., 2015). Most likely, the proportion of businesses in Romania that view innovation as a crucial component of development is increasing. We are optimistic that more businesses will succeed in the future by attempting to "get better every day," increasing the proportion of creative businesses. (Kylläinen, 2018).

We have conducted exploratory research, to find out more about how innovation is approached in Romanian organizations from food industry. After conducting the research, a comparable analysis based on business size was developed, to uncover motivating and beneficial elements of innovation management. The purpose of the study was to uncover important aspects to be taken into consideration for the development of a Model for monitoring and measuring the impact of innovations in business that could be applied to all food companies, regardless of size.

The paper is structured in three parts. We start with the literature review and the details on research methodology followed by the main findings with detailed similarities and discrepancies between small and medium companies versus large companies from food organizations from Romania and we will end with the conclusion where are cumulated the recommendations obtained from the analyze on similarities and differences with important aspects to be considered in the future research activities related to innovation management.

## 2. Literature review

Overall, a literature review on innovation management highlights the importance of creating a culture of innovation, developing effective innovation strategies, and implementing a structured and systematic approach to the innovation process. Collaboration and partnerships and effective measurement metrics are also crucial components of successful innovation management. Organizations can boost the effectiveness of their innovation processes by focusing on using external and internal innovation resources and putting innovation principles into practice (Olaru *et al.*, 2015, p.1129-1141).

The innovation management strategy should be part of the development strategy of the organization, should be part of the top management priorities and is recommended to be correctly implemented (Lafley&Martin, 2013). For the execution of the main tasks from the innovation management, a system for reasons and motivations for continuous improvement should be considered, next to relevant KPIs for measuring each part of the process (Dobbs&Koller, 2015, p.55-65). For the performance in each part of the innovation process execution, companies should consider a system for the Innovation Management. For that, the following aspects could be considered: monitoring, control, improvement, coordination, and motivation. (Lohman *et al.*, 2004, p.267-286).

On a worldwide scale, it is widely acknowledged that entrepreneurship boosts competition and a capacity for innovation creates new, long-lasting jobs, resulting in socioeconomic well-being and dictating the development of society and civilization (Ene *et al.*, 2020, p.493).

In the present paper, the definition used for innovations, is the definition from OSLO Manual, which after 2018, splitted innovation into two categories: 1) Innovation in products; 2) Innovation in processes (OECD, 2018). Process innovations contains organizational, marketing, and process innovation from the previous guidebook.

Another important aspect is the innovation impact measurement. Measuring innovation capacity is one of the innovation metrics used by academics, corporate managers, and innovation policy makers. Innovative performance is used to define innovative capacity. It is the innovation process output which combines efficiency and resources (Vasin and Gamiduelleava, 2015, p.124-139). A suitable metric for quantifying innovation should also include comparing, setting goals, identifying weaknesses, the existing data and current inputs, and innovation measuring across all dimensions (Solomon, 2016),

By tracking the innovation management metrics, companies can track the impact of their innovation initiatives and make informed decisions about future development.

### 3. Research methodology

Starting with December 2022, exploratory research was conducted, in order to examine how innovation is approached in Romanian companies from food industry. The information was gathered during a three-month period, until March 2023, from 54 businesses.

There was a questionnaire with 26 questions, which was sent to 320 food industry businesses. The method used for questionnaire distribution was by sending emails containing a link to the questionnaire to 320 businesses in the food industry. The research's main goals were to gain a better understanding of how innovation is perceived and applied in Romanian businesses and more detailed, to examine how companies are defining innovation, what kind of innovations they develop, how are those implemented and how is measured the impact of innovations in business.

The questionnaire was divided into 5 sections:

- How innovation is defined in businesses: Defining innovations
- Innovation types: what kinds of innovations have been used in enterprises.
- Innovation management: its administration and application
- Measuring innovations: what techniques are employed.
- The innovation management strategy.

The purpose was also to examine the similarities and discrepancies between large and small businesses' approaches to innovation management.

### 4. Findings

For identifying the main similarities and differences in the management of innovations in Romanian companies, depending on the size of the companies we have conducted an exploratory study, based on the responses received from 54 enterprises of which:

- 72% were micro-enterprises, small and medium-sized enterprises.
- 28% large enterprises (over 250 employees).

In terms of turnover, the large companies surveyed have 93% over 10 million euros and 7% under 2 million euros. Small and medium enterprises have 71% under 2 million euros, and 29% for 2 million euros.

The comparative analysis was carried out between small and medium enterprises vs. large enterprises. There were highlighted 14 similarities and 10 differences in terms of the way Romanian food industry companies define, classify and manage innovation-related activities.

#### *Similarities:*

1. Most of the companies surveyed, 86% have implemented a quality management system or another system that supports quality management in its processes

2. Most of the companies surveyed, 89% had strategy changes related to innovation or sustainability

3. Regarding the types of strategies used in the last 3 years, we could say, from the analyzes carried out, that small and medium-sized companies and large companies, to the same extent (more than 50%), prefer strategies focused on the introduction of new products and increasing the quality of the products offered.

4. Most of the surveyed companies, 89% consider themselves innovative (82% of small and medium-sized companies and 100% of large companies).

5. 75% of companies (68% of small and medium-sized companies and 86% of large companies) consider the main type of innovative activity for the company to be the launch of new products (products that were not in the portfolio until the time of launch).

6. Related to the way in which innovations are defined, over 55% of the surveyed companies (32% of small and medium-sized companies and 64% of large companies) consider newly launched products in the last 2 years as innovations, 58% of the surveyed companies (50 % of small and medium-sized companies and 71% of large companies), consider innovations new business divisions.

7. 75% of the surveyed companies (64% of small and medium-sized companies and 93% of large companies) believe that the quality management system or another management system implemented has influenced the organization's vision related to innovation and the way innovation is treated in the company.

8. Related to innovation within the organization from the point of its management, most of the answers, 50% of large companies and 41% of small and medium-sized companies, consider innovation to be an activity they carry out permanently.

9. The types of activities, in the post-launch analysis, of new products classified as the most important for the company, were the sales in value and in volume: for 78% of companies (50% of large companies and 41% of small and medium-sized companies).

10. Most companies, 83% (100% of large companies and 73% of small and medium-sized companies) measure the impact of innovations in business.

11. Most companies, 94% of the surveyed ones (100% of large companies and 91% of small and medium-sized companies), consider important and very important, the measurement of the impact of the value generated by new products in the total turnover.

12. Regarding the concern for the pursuit of sustainability within the surveyed organizations, 100% of them have projects for the pursuit of sustainability.

13. 92% of the surveyed companies (100% of large companies and 86% of small and medium-sized companies) have sustainability integrated in the business strategy or in other programming documents of the company.

14. In the next 5 years, 78% of the surveyed companies (100% of large companies and 64% of small and medium-sized companies), have sustainability-oriented innovations in their plans.

#### *Discrepancies:*

1. Strategy changes related to sustainability and innovation took place recently, in the last 3 years, for many small businesses (59%), while most large companies, 64% had strategy changes related to sustainability and innovation in the last 5-10 years.

2. Regarding the preferred types of strategy when it comes to innovation, we observed that for large companies, 71% is preferred a strategy oriented towards solutions to specific consumer needs, while for small companies a strategy oriented towards the introduction of new products or strategies oriented towards increasing the quality of the products offered.

3. Regarding the organization, there is a preference of small and medium-sized companies, 55% for "Regular brainstorming sessions with the aim of thinking about improvements within the business" while 86% of large companies prefer as type of organization "groups or multifunctional work teams".

4. Related to innovation within the organization from the point of view of its management, 50% of large companies consider it strategic, included in the annual planning activity, while for 32% of small and medium-sized companies it is an activity that they carry out sporadically, without planning.

5. Regarding the types of new products offered, 64% of small and medium-sized companies prefer standardized products, offered in the same way to different consumers (mass customization), while 64% of large companies prefer products created to meet the needs of specific consumers (personalization).

6. In addition to quantitative sales, more than 50% of large companies use other indicators in the post-launch analysis of products: numerical / weighted distribution of new products (important for 86% of large companies and 27% of small and medium-sized companies), shelf rotation of the new products (important for 57% of large companies and 23% of small companies), impact of marketing activities (important for 50% of large companies and 14% of small companies), financial impact (important for 79% of large companies and 36% of small companies).

7. Related to how the impact of innovations in business is measured, most small and medium-sized companies measure quantitative and value sales. Most large companies 86% measure the impact of innovations in business by calculating the percentage of value sales generated by new products in the total turnover.

8. Regarding the frequency with which the measurement of the impact of innovations in business is carried out, for 77% of small and medium-sized companies this happens annually or never (for 41% annually and for 36% never) and for 71% of large companies, the impact of innovations in business it takes place monthly.

9. Regarding the use of a benchmark for measuring innovation within the company, 45% of small and medium-sized companies do not have a benchmark, 55% have a previously calculated value as a benchmark, while all large companies use a benchmark.

10. Regarding the use of standards in the company's activity, 59% of small and medium-sized companies rarely use standards and 14% never, while 71% of large companies use standards very often.

## 5. Conclusions

In order to study the way innovation is approached in food organizations, exploratory research was carried out in Romania, structured around 5 important themes: how organizations define innovations, what kind of innovations are developed, how innovation is implemented and managed, what methods of measuring the impact of innovations in business are used and what is the innovation management strategy.

After conducting the research, a comparative analysis was developed based on the size of the organizations. Small and medium enterprises and large enterprises were analyzed in parallel. The purpose of the analysis was to identify beneficial elements of innovation management.

14 commonalities and 10 differences in the definition and process of innovation in small and medium-sized organizations in parallel with large organizations were highlighted.

According to INS data, large organizations drive the most consistent part of economic growth, therefore analyzing how large organizations manage innovation, we could reveal important aspects that must be considered for the creation of a Model for monitoring and measuring the impact of innovations in business that could be applied to all food companies, regardless of size.

The following recommendations in the management of innovations in food industry organizations could be considered:

- the implementation of a quality management system or another system that supports quality management in its processes because the quality management system or other management system implemented has influenced the organization's vision related to innovation and how innovation is treated in the company.
- implementing strategy changes for innovation and sustainability
- related to the types of organization, we could recommend to companies that in addition to regular brainstorming sessions with the aim of thinking about improvements within the business, they should also organize groups or multifunctional working teams.
- Regarding the types of new products offered, all companies should address also standardized products, offered in the same way to different consumers (mass customization) but also products created to satisfy the needs of certain consumers (customization).
- innovation within the organization, from the point of view of its management, must be considered strategic, included in the annual planning activity.
- the launch of new products must remain the main innovative activity for the company
- definition: innovations are newly launched products in the last 2-3 years.
- innovation is an activity that must be carried out permanently.
- within the post-launch analysis of new products, the following indicators must be analyzed: quantitative sales, numerical / weighted distribution of new products, shelf rotation of new products, impact of marketing activities, financial impact.
- All innovative companies must measure the impact of innovations in business. The easiest way is to use the same KPI, in which is measured the percentage of the value sales generated by the new products in the total turnover of the company.
- Related to the frequency with which the measurement of the impact of innovations in the business is carried out, this must happen quarterly with annual data or even monthly.
- Regarding the use of a benchmark for measuring innovation within the company, it is recommended to use a previously calculated figures, or a category or industry level value provided by market research companies.
- Regarding the use of standards in the company's activity, following the analysis carried out, we recommend the use of standards as often as possible.



We conclude, after examining all outputs of the commonalities and differences in the definition and process of innovation in small and medium organizations in parallel with big organizations, that it makes sense to consider all recommendations identified in the description of an innovation management model, that could fit all food businesses, regardless of size.

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# The Importance of Ethical Communication in the Medical System

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## Abstract

*The purpose of the article is to present the importance of ethical communication in the medical system seen through the eyes of Romanian doctors. The process of communication today is extremely important. It is part of individual or community activity. In the post-pandemic period, marked by an increase in patients' fears about the future of new diseases (pandemics), measures must be taken to increase patients' trust in the medical system. All the advances made in technology, but especially in medical research, allow us to have better health management today. Unquestionable management is based on ethical communication and quality. It is important to determine how this communication is seen by the medical staff.*

**Key words:** ethical communication, communication process, the importance of communication, communication perceived by doctors

**J.E.L. classification:** M14, I14, I18

## 1. Introduction

The problem of communication is still a major problem of our society. Communication affects, for a fixed or indefinite period, directly or indirectly the life of people but also of communities and the whole society. Communication is a bond for individuals in a community (Kee at al., 2018).

Communication is a complex phenomenon of information transmission (Kennedy at al., 2017). The way in which communication is done is essential. Due to the economic and social situation marked by the COVID-19 pandemic, communication has become extremely important in the medical sector. The progress registered in terms of technological development, research and the development of organizations in the medical system has led to a change in the management of organizations in the medical system. Communication being the basis for management, it is necessary to analyze this communication from all points of view.

The article highlights the importance of communication in the medical system as seen by doctors.

## 2. Theoretical background

Recent research has demonstrated that there are strong positive relationships between a healthcare team member's communication skills and a patient's ability to follow medical advice. The patient must be able to self-manage a chronic condition (Bardosono at al., 2018). The patient must adopt preventive health behaviors.

Studies over the past three decades demonstrate that the very ability of the clinician to explain, listen, and empathize can have a profound effect on biological and functional health outcomes (Bhise at al., 2018). The effect also affects the satisfaction of the patients but also the satisfaction of the attending physician in terms of the care experience. Furthermore, communication between members of the healthcare team influences the quality of working relationships. It influences job satisfaction. It influences the avoidance of malpractice situations (Chandra at al., 2018). Communication among healthcare team members has a profound impact on patient safety.

Clinicians as well as other members of the health care team are engaged in a very large number of interactions with patients and their relatives (probably in the order of thousands during a career year), depending on the specialty (Demirtas at al., 2011).

Medical faculties in Romania have not, over time, paid too much attention to the training of doctors in terms of the doctor-patient relationship. Communication training was almost non-existent for a long time.

Similar to other healthcare procedures, communication skills can be learned and improved. Improving communication skills obviously requires commitment and practice.

### **3. Research methodology**

The purpose of the research is to analyze how doctors and hospital managers perceive the importance of medical communication with patients in organizations in the medical sector.

How important is medical communication? How do doctors and hospital managers relate to doctor-patient communication? I spoke with doctors and managers of medical units in Romania on this topic between January and March 2023. The basic question asked during the interviews was "How important is medical communication, doctor-patient communication?"

Interviews provide much more detailed information on a particular subject than information obtained through other methods of data collection.

Compliance with the legal provisions on the protection of personal data was ensured. For anonymization, the persons included in the study sample will be mentioned only by function.

### **4. Findings**

Communication between doctor and patient is essential. If the patient understands what is to be done to him then he will understand the limits of the treatment. The patient will understand that accepting the treatment leads to the acceptance of complications that can happen anywhere in this world (unforeseen). The patient will understand exactly what is happening to him. Thus, it will be much easier to manage the problems that may arise in the case of these complications (primary surgeon).

The communication between the doctor and the patient at the moment suffers a lot. This is due to the fact that the doctor, for several reasons, does not have enough time to give to the patient. Doctor-patient communication also suffers due to the fault of the patient who does not ask for enough details and simply goes on the idea that "the doctor knows better what he has to do" (primary surgeon).

One problem is that no one teaches you how to communicate effectively in the doctor-patient relationship. During the six years of college, especially the more experienced medical personnel did not have a communication course. In hospitals there is often no opportunity to do a communication course, the desire of some doctors is to do such communication courses. This is because often the doctor-patient relationship is cracked due to lack of effective communication, time crunch, high pressure on doctors. Learning how to communicate effectively and especially for times of crisis is effective (primary physician surgeon).

The most important aspect for a doctor is to gain the trust of his patients. This trust is also achieved through the way he communicates with the patient. In order to obtain a very good result of the medical act, the doctor must gain the trust of the patient. They must make him understand that only open communication based on trust will help the patient in his treatment (primary physician pediatric surgeon).

The doctor's goal is to make the patient well. The physical, biological indicators of the patient must be good. The patient must be satisfied, satisfied, be happy. Without effective communication this cannot be achieved. If the patient still believes that he is sick, it is in vain that medical tests show that he is very well. That is why communication is needed (primary physician, pediatric surgeon).

In the complaints concerning cases of malpractice, a very large percentage do not concern aspects that indicate a case of malpractice. Rather, it targets communication errors, lack of empathy, compassion. communication (primary physician and pediatric surgeon).

Communication, collaboration and honesty are essential in medicine. They are also essential in the doctor-patient relationship. Effective communication must be used. Open discussions should be held and adapted to the level of each patient. Only by adapting to the level of understanding of each patient will it be possible to establish a common goal (hospital manager).

The patient evaluates the medical record. He evaluates his state of health through his prism,

depending on his and/or his relatives' satisfaction level (hospital manager).

The doctor-patient relationship is clearly a relationship based on mutual respect. It is based on empathy and communication. The doctor must have some kind of empathy to be able to relate and communicate with the patient. The doctor must have a kind of empathy to be able to make the patient feel as comfortable as possible during the consultation and during the treatments (clinical director).

There are also unpleasant situations in which patients become recalcitrant. The doctor must understand that it is a situation that he must try to overcome. In these crisis situations communication can help a lot. There has to be some kind of chemistry in the doctor-patient relationship as well, and communication techniques can create that chemistry. Relationships are natural, they are natural, doctors just need to use communication techniques (clinic director).

Effective communication is something you don't learn in college. Medical practice teaches you over time. In a clinic, communication between the medical team is essential. The collaboration between the medical team must be very good. This is reflected in the daily work, in the results with patients (head of department).

It is very important to know the issues of nursing case management, care and communication. Problems must be solved promptly and efficiently (head of department).

Communication with family is very important. This is one of the key points in the medical act. Effective communication is unfortunately not taught in school. Experienced doctors did not benefit from such training. They learned from everyday medical practice (head of department).

Communication is the main thing that doctors need to work on and pay attention to. The patient has every right to know what disease he has, to be explained what he must do about his disease, what treatment he must take, what he is allowed to do and what he is not allowed to do because this will increase his trust in the doctor. If the patient trusts the doctor, listens to his advice, it means that the doctor has achieved his goal, namely that the patient follows the prescribed treatment so that his health is safe (specialist cardiologist).

Doctor-patient communication is very important especially for the specialty of genetic diseases, rare diseases where the patient needs to have a genetic counselor. Emphasis should be placed on communication and empathy. In the case of rare diseases for which there is no curative treatment solution, communication and support to patients and their families is vital. They are essential for adherence to treatment and obtaining the best possible quality of life (head of UMF discipline).

Communication, and especially empathy between patient and doctor, is essential. The patient is in distress. He does not know most of the time what the future holds and how serious the disease he has is. The doctor in such situations must feel psychologically and emotionally, the patient in front of aa. He must objectively communicate the data about the disease. He must communicate in a manner that the patient can assimilate with some ease (primary cardiologist).

How to communicate the status of the disease and its evolution, what happened in retrospect is important? In order for the patient to be balanced and compliant in the long term, he must have very good communication with the doctor. He must trust the doctor. If he does not have confidence, the treatment of the disease will not go well (primary cardiologist).

A summary of the research results is presented in Table 1.

*Table no. 1 Communication seen through the lens of doctors*

<i>Communication is essential in the doctor-patient relationship, but also between the medical team, doctors and management.</i>
<i>The most important aspect for a doctor is to gain the trust of his patients</i>
<i>Communication, collaboration and honesty are essential in medicine and in the doctor-patient relationship.</i>
<i>The doctor-patient relationship is clearly a relationship based on mutual respect and empathy, communication.</i>
<i>Effective communication is something you don't learn in college, but medical practice teaches you over time</i>
<i>Communication is the main thing that medical personnel need to work on and pay attention to</i>
<i>Communication, but especially empathy between patient and doctor, are essential</i>
<i>All staff must have communication skills</i>
<i>For pediatricians, communication with the mother is important</i>

<i>Communication can help the medical staff to have a good relationship with the patient, to achieve compliance, collaboration.</i>
<i>The relationship with patients is based on mutual respect and communication.</i>
<i>Medical personnel should not choose a profession in the medical field if they do not love people, if they do not empathize with them, do not understand their sufferings and do not have that dose of compassion that patients expect.</i>
<i>The incidence of adverse events associated with medical assistance determined by communication deficiencies is still quite high, in the total of adverse events.</i>

Source: Own processing after Predilă (2023)

## 5. Conclusions

All doctors included in the research sample stated that communication is essential for the medical system. In the current medical system there are still vulnerabilities that must be removed over time, as much as possible.

Empathy and honest communication are needed in the medical system. In order to have ethical communication, training in communication in the medical system is needed.

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## Risk and Security Management for Accident Prevention

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### Abstract

*The purpose of this scientific article is to examine in detail risk management and safety, focusing on their importance in accident prevention. It provides the opportunity to anticipate, prevent and limit the negative consequences of unwanted events. By analyzing relevant key concepts, methodologies and practices, it aims to provide a comprehensive understanding of the field and the ways in which risks can be assessed, managed and mitigated in various contexts. Through this study, we do not propose to obtain a deep understanding of how managers in public institutions in Romania understand and apply the concepts and practices of risk management and security in order to prevent accidents. We want to assess managers' awareness and knowledge in this area, as well as their level of involvement and commitment in implementing accident prevention measures to protect the institution's staff and assets.*

**Key words:** management, risks, work system, worker, work environment

**J.E.L. classification:** M11

### 1. Introduction

In the modern world, where technology and the complexity of human activities are constantly increasing, risk and safety management play a crucial role in preventing accidents. Whether we are talking about industry, health, transport or other fields, identifying and managing risks are essential elements for ensuring a safe environment and protecting human lives. This article addresses the importance of risk management and safety in accident prevention, looking at the key concepts and methods used in this area. Risk and security management has become a major concern in various fields, having a significant impact on preventing accidents and ensuring a safe environment for individuals and organizations. Accidents can have devastating consequences, affecting health and human life, causing property damage and bringing considerable financial losses. Therefore, it is essential to adopt effective risk management and security strategies and measures to prevent such incidents. In a world characterized by rapid technological advancement, increasing complexity of operations and global interconnection, risks and threats are becoming more diverse and unpredictable.

Whether we are talking about the petrochemical industry, the medical sector, transport or any other field, risk and safety management is a vital approach to preventing accidents and minimizing their effects. Producing major accidents with very serious consequences for employees, the population, material goods and the environment, are the negative effects of natural and technological disasters but also of the existence of risk sources on sites that store or use dangerous substances in the production process, an aspect for which they are to the attention of the specialists from the institutions with responsibilities in this field. Research efforts undertaken by experts at various times

have predominantly concentrated on understanding the effects caused by disasters, identifying their origins, and assessing their impacts. This is done with the aim of formulating specific actions to mitigate and eradicate these effects, as well as to revise the regulations regarding the usage of hazardous substances.

In order to ensure the safety of workers, the general public, and the environment, it is crucial that safety protocols, which are obligatory for businesses that utilize hazardous substances in their production processes, are met. This highlights the need for the development of a unified concept of safety in the chemical industry. This conception must treat in a unified whole the technological problems of the existing installations on the site of the economic operator, the security aspects of the environment and protect it from a physical point of view, from the complementary effects of natural and technological disasters, as well as establish new measures for limiting and removing the consequences of accidents that still occur and the complete restoration of production capacities.

The risks of minor or major accidents with particularly serious consequences resulting in death or injury and pollution of the environment exist in all industrial activities, which occur due to malfunctions in installations and equipment during operation or during the manifestation of natural disasters. The establishment of security systems for facilities and the protection of employees and the public in the affected area hinges upon the potential repercussions of a significant accident. This means that an accurate risk assessment of a major accident can provide a way to ensure enhanced protection for the sites involved, or those that could potentially be impacted.

This article aims to assess managers' awareness and knowledge of risk and security management concepts and practices. It is also desired to investigate the degree of their involvement and commitment in the implementation of accident prevention measures and the protection of the institution's personnel and assets. By obtaining and analyzing the perceptions of managers in public institutions, the article will provide a clear insight into how the risk and security management system is implemented and integrated into work processes.

## 2. Literature review

Risk management is a systematic and rigorous process of risk identification, analysis, planning, control and communication. Each identified risk passes sequentially through the other functions, continuously and concurrently. Risks are usually tracked in parallel with the identification and analysis of new ones, and the mitigation plans for one risk may produce other risks (Bibire and Ghenadi, 2019).

Risk management takes place within any decision-making process and to be effective, it is necessary to reconsider the current analysis and decision-making processes. An effective risk management process also represents a set of continuous and systematic specific activities for the exchange of relevant information, in an open information environment. Risk management ensures a rigorous environment of active decision-making for (Aven, 2018):

- ✓ continuously assessing what may have undesirable consequences;
- ✓ determination of important risks, to be studied;
- ✓ implementation of strategies for dealing with these risks;
- ✓ ensuring the effectiveness of the implemented strategies.

The implementation of the processes of identification, analysis, planning, control and communication of risks of any nature ensures, at any level, a series of advantages, among which (Aven, 2018):

- ✓ avoiding surprise: continuous assessment of what can end badly can anticipate events and their consequences;
- ✓ increasing the probability that events will occur according to expectations: the results of decisions can be influenced by weighing possible effects and associated probabilities; understanding the risks allows better decisions to be made;
- ✓ changing the focus from treating a crisis to preventing it: risk management can identify and then prevent potential problems when this is easier and cheaper to do, before they turn into real problems and then into crises (the function is much more pronounced preventive);
- ✓ focusing on the main objectives and detecting events that may affect the achievement of these objectives;

- ✓ early identification of potential problems (proactive approach) as possible support in making resource allocation decisions.

In a broad sense, RISK can be defined as a potential event that, if it occurs, causes loss, damage, destruction, suffering (Bartram et al., 2001). Depending on the field in which the events can occur or their nature, we can speak of a great diversity of risks. The existence of exposure to negative consequences of the population, material assets, heritage values, and the environment can be stated as a feature of the risk. Another criterion used in the identification and ordering of specific risks is the vulnerability of the elements exposed to the risk. This highlights how much man and his goods are exposed to various hazards, indicating the probable level of damage that a certain phenomenon can produce (Bedford and Cooke, 2017).

The negative effect taken into account when defining specific risks is, as a rule, the probable level of loss of human life, number of injured, damage to property and economic activities by a certain phenomenon or group of phenomena, in a certain place and in a certain period of time (Bibire and Ghenadi, 2018). It follows that the risk exists depending on the size of the hazard, the totality of the groups of people and material values at risk and their vulnerability, and can be defined as a mathematical prediction of the loss of human life, injuries, destruction of property and damage to economic activity, during a period of reference and in a given region, for a specific hazard. Risk is defined as the possibility of affecting human life and material assets when a certain type of disaster occurs and represents the possible loss of human life, the number of injured, the damage that can be caused to properties and economic activities by a natural phenomenon or the complementary effects of him, in a certain place and in a certain period. Risk identification aims to anticipate risks and include information about risks in decision-making processes. The data and uncertainties related to one's own interests, specific to a decision-making level, are transformed into distinct risks that are then described and measured (Covello and Merkhofer, 2003).

The risks are described in a unitary format, with two basic components: the condition and the consequence, this format achieving a complete picture of the risk, very important in the subsequent stage of mitigation planning. The condition component refers to what causes concern and starts from what generates fear, uncertainty, doubt in relation to interests and objectives, and the consequence to the immediate and medium or long-term impact of the risk (Mannan, 2015). Correctly understanding the dimensions of the impact is important for determining the time, resources and effort allocated to the risk mitigation action. A risk statement is effective when, both in the description of its condition and in that of the consequences, information is included in terms such as what?, why?, when?, where?, how?, describing the generating factors, the circumstances, the consequences if necessary with the necessary additional details (Bibire and Ghenadi, 2019).

Risk analysis aims to convert data into information for decision making. It represents a process of examining the risks in detail to determine their extent, how to relate one risk to the others, selecting and highlighting the most important risks. This stage involves three basic activities: evaluation, classification, prioritization. Assessing risk attributes – impact, probability, time frame – provides a better understanding of the risk. This means setting values for impact (losses or negative effects), probability of the event occurring, time frame in which mitigation measures must be taken. Risk assessment includes the systematic use of available information to determine the probability of certain events occurring and the magnitude of their possible consequences. Monitoring is the process of obtaining, compiling and reporting status data about risks (Lewis, 2017). The purpose of the stage is to collect accurate, relevant and timely information about the risk and to present it in a clear and easy-to-understand manner. The information from this stage influences the way the control stage is carried out. The mitigation plan and risk attributes are continuously monitored to verify that the plan reduces the impact or probability associated with the risk. Monitoring is a continuous process, even if most information is obtained periodically. Communication allows all participants in the risk management process to understand the risks and mitigation alternatives. It is essential in all stages of risk management. It aims, obligatorily, to inform and prepare the vulnerable elements, respectively the management of public institutions and economic operators, of the elements of the action system to mitigate risk and increase industrial security (Mannan, 2015).

To sum up, the management of risk and security plays an essential role in averting accidents and safeguarding human lives and physical property. Through the effective identification, evaluation, and control of risks, we can guarantee a secure environment and reduce the negative effects of unforeseen



incidents. The execution of a solid risk and security management system calls for a methodical strategy, the participation of all concerned parties, and an ongoing process of surveillance and enhancement. By applying appropriate strategies and adapting to changes in the business environment, organizations can achieve significant results in preventing accidents and creating a safe and secure environment.

### **3. Research methodology**

This scientific article aims to examine the viewpoints of managers from diverse public institutions in Romania about the risk and safety management system, particularly in relation to accident prevention and its effect on the functioning of the work system.

The operational framework is composed of four primary elements: the executor, or the employee, the means of production, the working environment, and the workload. These components are interrelated and directly affect the effectiveness and outcomes of tasks performed within the working system.

The executor, or the employee, represents one of the key elements of the work system. This is the person responsible for carrying out activities and performing specific tasks within the system. The qualifications, competencies, experience, and motivation of the employee significantly influence the quality and effectiveness of the tasks executed.

The term 'means of production' pertains to the resources, equipment, tools, and technologies utilized in the work system. These are essential for executing work tasks and attaining the set objectives. The quality and appropriateness of the means of production can have an impact on productivity, safety, and the comfort level of the employee.

The work environment represents the physical, social and organizational context in which work activities take place. It includes factors such as working conditions, organizational climate, labor relations and organizational culture. A healthy and safe work environment is essential for employee well-being and performance.

Workload refers to the specific objectives, requirements, and responsibilities associated with a particular job or position. This includes the activities and actions that the employee must perform to achieve the desired results. Clarity, consistency and balance of work tasks are important to ensure efficiency and employee satisfaction.

In alignment with the aim of the scientific research, the subsequent objectives were established:

1. To analyze the complete work system;
2. To scrutinize the elements that make up the work system;
3. To identify the connections between the components of the work system.

In the course of scientific investigation, drawing upon scholarly articles, theories in the field, and personal observations, the following hypotheses were formed that serve as the foundation for the research:

Hypothesis 1: There is a strong correlation between the executor (employee) and workload;

Hypothesis 2: There is a highly significant positive relationship between work environment and workload.

These hypotheses constitute the basic premises of scientific research and will be tested and analyzed in later stages of the study. The results obtained from the research will contribute to a deeper understanding of the relationship between risk and security management and accident prevention in public institutions in Romania and will provide a solid basis for the development of recommendations and strategies in this field.

Data collection was carried out between January 2023 and March 2023 by means of a questionnaire. A total of 512 valid questionnaires were obtained in this process. For the processing and analysis of the collected data, the software specialized in statistical research, S.P.S.S., was used. (Statistical Package for the Social Sciences). This program facilitated the calculation of the Spearman rho correlation coefficient, an indicator used to evaluate the relationship between the studied variables.

Using the S.P.S.S. software offers significant advantages in data analysis due to its ability to process and interpret the collected information efficiently and accurately. It allows complex statistical analyses, such as the calculation of the Spearman rho correlation coefficient, which measures the relationship between two ordered variables.

The Spearman rho correlation coefficient is used to assess the relationship between two variables that are not normally distributed and can be ordered. This coefficient provides a measure of the degree of correlation and its direction between the studied variables. The analysis of this coefficient allows the identification of relationships and associations between variables and can reveal relevant aspects regarding the managers' perception of the risk and security management system for the prevention of accidents in public institutions in Romania. By using S.P.S.S., the data collected through the questionnaires were processed and analyzed in a rigorous and objective way, thus providing valid and interpretable results. The statistical analysis of the obtained data allows the identification of trends, relationships and significant differences, providing relevant information for understanding the managers' perception of the risk management and safety system for accident prevention.

The results of the data analysis collected and processed through S.P.S.S. they can provide valuable information and relevant conclusions regarding managers' perception and provide a solid basis for developing recommendations and strategies for improving the risk and security management system in public institutions in Romania.

#### 4. Findings

To verify and validate the hypotheses formulated in the research, we used a recognized and widely used statistical analysis tool, namely the Spearman rho correlation coefficient (Table no. 1). This value, often referred to as the rank correlation coefficient, is apt for assessing the relationship between ordered variables or their respective rankings.

*Table no 1. Values recorded by the Spearman rho correlation coefficient*

Correlations					
Spearman's rho		Executor (employee)	The means of production	Work environment	Workload
Executor (employee)	the correlation coefficient	1.000	.718**	.737**	.923**
	Sig. (2-tailed)		.000	.000	.000
	N	512	512	512	512
The means of production	the correlation coefficient	.921**	1.000	.700**	.784**
	Sig. (2-tailed)	.000		.000	.000
	N	512	512	512	512
Work environment	the correlation coefficient	.837**	.800**	1.000	.947**
	Sig. (2-tailed)	.000	.000		.000
	N	512	512	512	512
Workload	the correlation coefficient	.823**	.784**	.895**	1.000
	Sig. (2-tailed)	.000	.000	.000	
	N	512	512	512	512

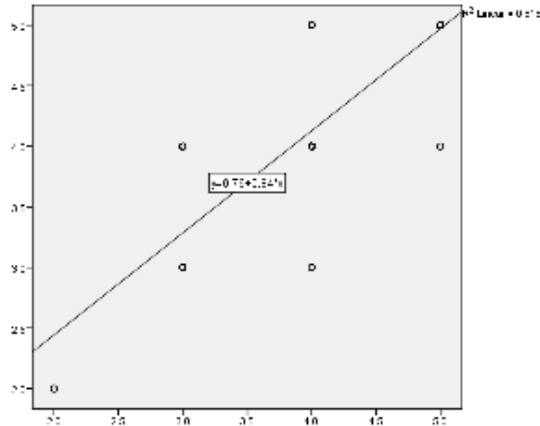
\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: processing data obtained through SPSS program

After analyzing the Spearman rho correlation coefficient, the following correlations can be identified between the various components that make up the work system:

1. There is a significant positive correlation between the Executor (employee) and the Means of Production ( $\rho=0.72$ ,  $df=512$ ,  $p<0.001$ ). Looking at the scatter diagram (Figure no.1), it can be seen that the points are distributed in a relatively narrow range, which indicates a strong correlation ( $R^2=0.81$ ). It can also be seen in the plot that the spread of points forms an almost straight line, suggesting a linear relationship rather than a curvilinear one.

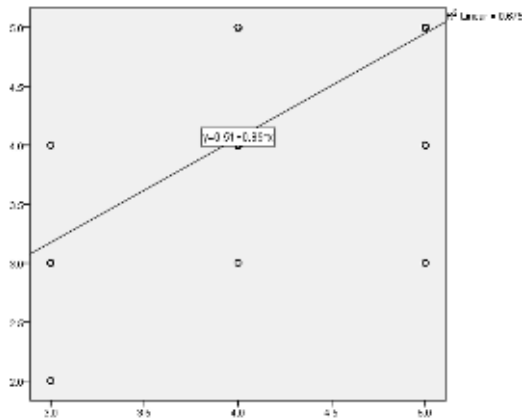
Figure no. 1. Scatter diagram – correlation between Executor (employee) and Means of production



Source: processing data obtained through SPSS program

2. From Table 1, it can be seen that there is a significant positive correlation between the Executor (employee) and the Work Environment ( $\rho=0.74$ ,  $df=512$ ,  $p<0.001$ ). Analyzing the scatter diagram (Figure no. 2), we can see that the points are distributed in a relatively narrow range, which indicates a strong correlation ( $R^2=0.67$ ). It can also be seen in the plot that the spread of points forms an almost straight line, suggesting a linear relationship rather than a curvilinear one.

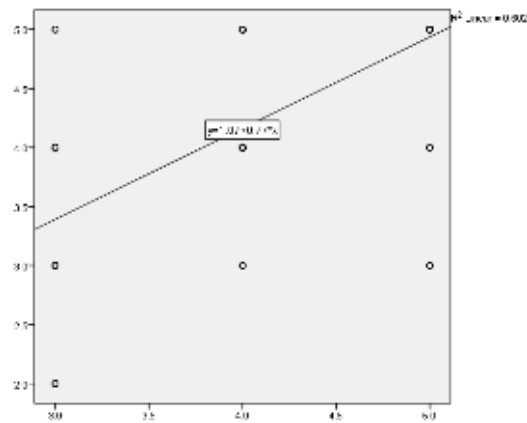
Figure no. 2. Scatter diagram – correlation between Performer (employee) and Work environment



Source: processing data obtained through SPSS program

3. There is a very high significant positive correlation between Executor (employee) and Workload ( $\rho=0.92$ ,  $df=512$ ,  $p<0.001$ ). Analyzing the scatter plot (Figure no.3), we can see that the points are distributed in a relatively narrow range, which indicates a strong correlation between the two variables. We could say that Hypothesis 1 was fully validated.

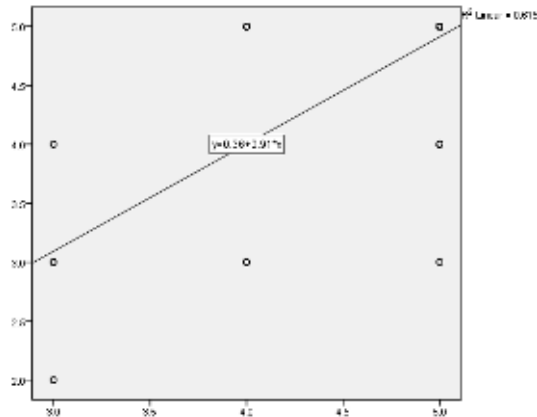
Figure no. 3. Scatter diagram – between Executor (employee) and Workload



Source: processing data obtained through SPSS program

4. After analyzing the Means of Production and the Work Environment, a significant positive correlation results ( $\rho=0.70$ ,  $df=512$ ,  $p<0.001$ ). Examining the scatter diagram (Figure no.4), we notice that the points are distributed in a relatively narrow range, suggesting a strong correlation between the two variables ( $R^2=0.61$ ). Also, the shape of the scatterplot shows an almost straight line, indicating a linear rather than curvilinear relationship.

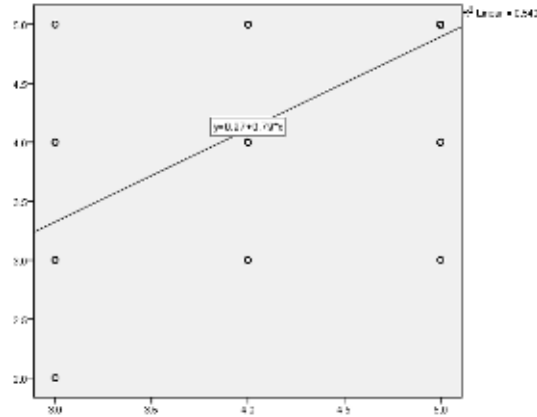
Figure no.4. Scatter diagram – the correlation between the means of production and the work environment



Source: processing data obtained through SPSS program

5. Between the means of production and the workload there is a significant positive relationship ( $\rho=0.70$ ,  $df=310$ ,  $p<0.001$ ). The scatterplot reveals that the spread of points is relatively limited, indicating a moderate to strong correlation ( $R^2=0.54$ ) - Figure no. 5 The slope of the scatterplot of the results is relatively a straight line, indicating a linear relationship rather than a curvilinear one.

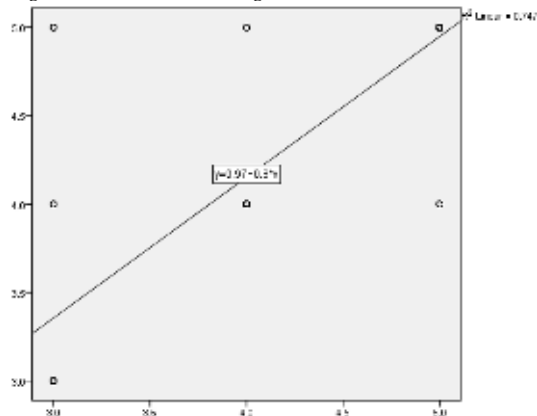
Figure no. 5. Scatter diagram – correlation between Production Means and Workload



Source: processing data obtained through SPSS program

6. There is a very high significant positive relationship ( $\rho=0.95$ ,  $df=512$ ,  $p<0.001$ ) and between the Work Environment and Workload (Table no. 1). The scatterplot (Figure no. 6) reveals that the spread of points is relatively limited, which indicates a moderate to strong correlation ( $R^2=0.74$ ). The slope of the scatter of the results is relatively a straight line, indicating a linear relationship rather than a curvilinear one - Thus Hypothesis 2 was validated.

Figure no. 6. Scatter diagram – correlation between Work Environment and Workload



Source: processing data obtained through SPSS program

We can say that the components of the work system - the performer, the means of production, the work environment and the work load - are interdependent and mutually influence the performance and results within a work system. Understanding and properly managing these components is critical to ensuring a safe, healthy and productive work environment where employees can achieve their goals and gain satisfaction in their work.

The analyzed work system directly influences the performance and efficiency of the organization. By optimizing the components of the work system, such as the appropriate assignment of tasks, the efficient use of the means of production, and the creation of a healthy work environment, productivity and the quality of the work performed can be improved. A well-structured and supported work system promotes employee satisfaction. This can be achieved by ensuring a safe and stimulating work environment, by clarity and consistency of work tasks, and by recognizing and involving employees in making decisions relevant to their activities.

A crucial aspect of the work system is ensuring the health and safety of employees. The implementation of appropriate protection and accident prevention measures, as well as the creation of a healthy and ergonomic work environment, contribute to reducing risks and protecting employees

from harm and injury. An effective work system provides opportunities for developing and increasing the skills and capabilities of employees. By ensuring access to appropriate training and coaching, through constant feedback and guidance, the personal and professional development of employees can be supported, contributing to increasing their performance and commitment. Proper evaluation and control of risks associated with the work system are critical for preventing accidents and safeguarding employees. With the implementation of a risk and security management system, possible risks can be identified and analyzed, and preventive measures can be instituted to lessen the exposure of employees to hazards and accidents.

## 5. Conclusions

After examining the elements of the work system - the performer, the means of production, the work environment, and the workload - several key insights can be deduced. The components of the work system are intertwined and they mutually impact the performance and the outcomes achieved. A well-trained performer, adequate means of production, a healthy work environment and a clear and balanced workload contribute to employee efficiency and satisfaction.

a) The importance of resources and equipment: means of production are essential elements in the work system. Proper use of modern and well-maintained resources and equipment can improve employee performance and productivity, helping to accomplish tasks in an efficient and quality manner.

b) The influence of the work environment on employees: The work environment is a crucial factor in employee well-being and satisfaction. A secure, healthy, and stimulating work environment can bolster employee engagement, productivity, and satisfaction. Conversely, an unsuitable work environment characterized by poor conditions or a negative organizational culture can adversely impact employee performance and well-being.

c) The need for a well-defined workload: a clear, appropriate and balanced workload is essential for an efficient performance of activities. Ambiguous or overloaded work tasks can lead to stress and dissatisfaction, affecting employee performance and motivation.

d) The importance of the integrated approach: to ensure an efficient and productive work system, an integrated approach of all components is necessary. By taking into account all aspects - the performer, the means of production, the work environment and the workload - an optimal work environment can be created that promotes employee performance, satisfaction and safety.

Understanding and properly managing the components of the work system is essential to ensure efficient and safe work. Promoting a healthy work environment, appropriate equipment, clarity of tasks and respect for the needs and skills of employees are key factors for the success and well-being of the organization. By integrating and optimizing these components, organizations can achieve better results in terms of performance, work quality and employee satisfaction.

To maximize the efficiency of the work system, it is important to pay attention to both the individual components and the interactions and mutual influences between them. Managers and leaders of organizations must consider the needs and capabilities of employees in assigning tasks and provide the necessary resources and support to successfully carry out the planned activities.

Also, identifying and assessing the risks associated with each component of the work system is essential to prevent accidents and ensure the safety of employees. Risk and security management systems must be integrated into all aspects of the work system so that potential risks can be identified and managed proactively.

Finally, work system optimization is not a static process, but requires a continuous improvement and adaptation approach. Organizations must be open to employee feedback and be willing to implement changes based on needs and requirements. By maintaining a proactive and growth-oriented attitude, organizations can create a work environment that promotes employee performance, satisfaction and safety, thereby contributing to their long-term success and sustainability.

In the future, it is necessary to carry out studies and research in order to identify and develop new risk assessment methods in Romania, especially in the case of locations where there is a possibility of a major accident involving dangerous substances. As there is still no single methodology accepted by risk assessors in these situations, it is important to continue research efforts to address this issue.

In further development, a multidisciplinary and collaborative approach to developing a standardized risk assessment methodology at such sites may be considered. It requires the involvement of experts from various fields, such as chemical engineering, risk management, security and environmental protection, to develop a comprehensive and effective approach.

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# **The Relevance of the Correlation of Some Economic Variables For the Achievement of Sustainable Development Objectives At the Level of the European Union**

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## **Abstract**

*The present work aims to carry out an analysis regarding the influence of some variables included as defining factors in the implementation of the SDG strategy for the year 2030, which have a direct effect on the GDP at the level of the EU countries. Thus, the size of GDP reflects both the material well-being of a country and its social well-being, including topics such as education, health, human safety, pollution, equal opportunities, etc. All these desired are included in the 2030 Agenda for Sustainable Development, the EU countries being in the process of implementing some strategies aimed at achieving these objectives. As such, GDP will be analyzed in correlation with a number of economic variables, likely to have an effect on economic growth and sustainable development.*

**Key words:** SDG, education, GDP, growth, sustainable development

**J.E.L. classification:** M14

## **1. Introduction**

Although a controversial indicator and suppressed by many researchers, the GDP still remains the basic indicator in the evaluation of the well-being of a society, being assimilated with development, success, economic growth, power. But most of the time, only the economic activities that could have an impact on its development are analyzed, ignoring other types of activities that, although they do not generate income directly, have a strong impact on the social health of a country, health that later reflects in work productivity, work effectiveness, work fairness, without which GDP could not evolve.

## **2. Literature review**

The specialized literature proposes a series of models for encouraging economic growth, but the current literature focuses on sustainable economic development. Thus, economic growth must be analyzed from the perspective of sustainable development and sustainable actions. Ever since 1967, authors such as Denison have stated that education has a particularly important role in economic growth and the development of a society. At the same time, Berthelemy and Varoudakis (1996), underline the fact that investment in education can potentiate economic growth by developing activities that can keep pace with technological progress.

In September 2015, at the UN Summit, the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals were adopted. The agenda offers a broad program of measures that promote the basic pillars of sustainable development - economic, social and environmental.

The 17 Sustainable Development Goals (SDGs) represent an ambitious plan of action by all countries for prosperity, for people and the planet, now and in the future. (United Nations <https://sdgs.un.org/goals>)



In December 2019, the European Commission adopted The European Green Deal, that aims to transform the Union into a modern, resource-efficient and competitive economy where climate and environmental challenges are addressed and turned into opportunities.

Currently, in any debate regarding economic growth, the notion of sustainability must be included, this being a topic of global interest, aimed at solving global problems, such as climate change or biodiversity. (Bastianoni et al., 2019). Since the main element that generates problems regarding sustainability is the human resource and its actions, a new approach is necessary to change the current model regarding production and rethink the market economy in an intelligent way (Olcese et al, 2014). Education enhances competences, increases skills, increases productivity and generates new knowledge (Aslam, 2011).

Lucas (1990) believes that developing countries must give greater importance to education, through important investments to train better employees who will help economic growth.

In his study, Why and how education affects economic growth, Review of International Economics, Zeira states that an increased cost for education inhibits development and growth as a whole slows down. As such, governments will prioritize education, as a strategic sector with a positive impact on economic growth, based on the social responsibility imposed by the new sustainability objectives.

### **3. Research methodology**

The research focuses on the analysis of the objectives that place the human factor in the center of attention, which through access to health, quality education, can support economic growth in an unpolluted and sustainable environment.

In the research, we highlighted the correlation between SDG 3, SDG 4, SDG 8 and SDG 13, as defining elements of economic growth in the context of the sustainable development of society.

Thus, we analyzed the evolution of GDP, as an indicator of economic growth, with the other economic variables that reflect the mentioned SDGs.

For this we used a statistical processing with the help of SPSS, to show the degree of correlation between the four SDGs with the help of some economic variables, such as:

SDG 3 - Health and well-being - Ensuring a healthy life and promoting well-being for all at all ages. Physical and mental health is the basis of the development of any society, as such, economic activity cannot be perceived, in the absence of adequate health that potentiates economic efficiency and effectiveness.

SDG 4 - Quality education - Guaranteeing quality education and promoting lifelong learning opportunities for all. Education, through its components, the dropout rate, respectively the integration rate in an education system influences the sustainable development of some societies. Also within the framework of quality education, the Digitization Process is included through the variable Share of individuals having at least basic digital skills. This process of digitalization is considered to be a field of real importance in the development of any economy through the transition from homo sapiens to homo technium - thus no activity can be perceived outside of digitalization, the phenomenon covering all aspects of social and economic life.

SDG 8 - Decent work and economic growth - Promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. Access to health, human safety and education directly generates an increase in employment, which in turn generates a high economic level.

SDG 13 - Climate action - Taking urgent measures to combat climate change and its impact. The management of natural resources, the management of climate change, the reduction of the level of pollution represent factors that enhance the health of the population and economic growth.

Practically these SDGs place people in the center of attention. Ensuring a healthy life, a quality education, with lifelong learning opportunities contributes to people's well-being, economic growth in a sustainable society. The correlation between these objectives is difficult to determine or estimate at the EU level, as each member state has issued measures and directives to achieve these targets by 2030.

Starting from the importance of these topics in the sustainable development of a society - they being components of the SDG for 2030, as they also appear in Eurostat, we will use the analyze - correlate function to validate or invalidate the following premises:

Hypothesis 1 - there is an inverse and strong relationship between the early leavers from education variable and GDP

HYPOTHESIS 2 – there is a strong and inverse relationship between the variable Average CO2 emissions per km from new passenger cars and GDP

Hypothesis 3 – there is a direct and strong relationship between the variable adult participation in learning, share of individuals having at least basic digital skills and GDP

Hypothesis 4 - there is a direct relationship between the performance of the health system (Share of people with good or very good perceived health) and GDP.

In this sense, the EU countries were analyzed starting from the data available in Eurostat in 2021 for the previously mentioned indicators, each indicator being in fact an integral part of the SDG.

Following the validation/invalidation of the hypotheses, we built a model for approaching the GDP indicator by highlighting the branches that proved to have an impact on GDP development.

#### 4. Findings

*Table no. 1 Correlation analysis*

Variables		GDP/capita
Early leavers from education and training by sex	Pearson Correlation	-0,038
	Sig. (2-tailed)	0,843
	N	27
Adult participation in learning by sex	Pearson Correlation	,578**
	Sig. (2-tailed)	0,001
	N	27
Share of individuals having at least basic digital skills	Pearson Correlation	,666**
	Sig. (2-tailed)	0,000
	N	27
Share of people with good or very good perceived health	Pearson Correlation	,544**
	Sig. (2-tailed)	0,003
	N	27
Average CO2 emissions per km from new passenger cars (source: EEA, DG CLIMA)	Pearson Correlation	-,620**
	Sig. (2-tailed)	0,000
	N	27
GDP	Pearson Correlation	1
	Sig. (2-tailed)	
	N	30
**. Correlation is significant at the 0.01 level (2-tailed).		

*Source:* own design based on gathered data using SPSS v22

HYPOTHESIS 1 - there is an inverse and strong relationship between the early leavers from education variable and GDP

Hypothesis with no. 1 is partially validated, in the sense that an inverse relationship is identified between the two variables, education and training system having an inverse impact on GDP. Thus, the higher the number of people who leave school early, the more the GDP is influenced in the opposite direction (it is lower). However, the influence is not a strong one. This can be explained by the fact that although the employees are not specialized, the workforce is no longer qualified, advanced technology can supplement these deficiencies. Most of the time, the activities in different companies are repetitive, standardized, only a part of them requiring qualified labor force. Technology tends to replace the human resource, thus canceling the negative effects generated by the lack of qualified labor.

HYPOTHESIS 2 – there is a strong and indirect relationship between Average CO2 emissions per km from new passenger cars and GDP.

Hypothesis number 2 is fully validated. A strong but inverse relationship is evident between the two variables. Thus, the higher the number of CO 2 emissions, the lower the GDP will be and vice versa. As such, pollution affects health, productivity and implicitly the economy.

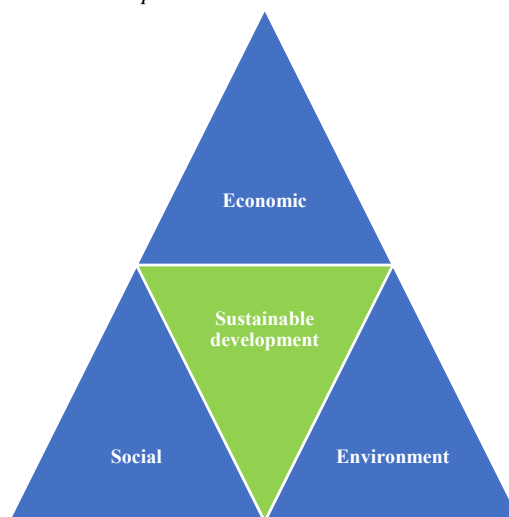
HYPOTHESIS 3 – there is a direct and strong relationship between the variable adult participation in learning, share of individuals having at least basic digital skills and GDP.

Hypothesis 3 is fully validated. Education is still the catalyst of economic growth and the well-being of a society. Economic growth is shaped and led by trained individuals, who can coordinate activities, even if routine, simple activities are managed by unskilled people, technology cannot alone coordinate a production process and cannot function without personnel from the top of the organizational structure which will obviously be educated. Also in this context of education, the aspect of digitization is highlighted, which has gained momentum in recent years, especially with the spread of COVID 19 and the imposition of a predominantly virtual lifestyle.

HYPOTHESIS 4 - there is a direct relationship between the performance of the health system and GDP.

The variable share of people with health perceived as good or very good correlates directly and strongly with the GDP. In this context, we can say that a healthy society, with healthy people, can be considered a strong, able-bodied, productive society that will generate consistent income, even by using health services. A healthy society is a society that constantly calls on health services, both for maintenance and for treatments, thus contributing to the increase of the GDP. Thus, good or very good health influences the GDP through two directions, respectively - the investments of individuals in the health system for maintenance and remediation as well as through a large number of healthy, productive people who can carry out different activities in an effective manner.

Figure no. 1. Sustainable development matrix



Source: own design

Following the analysis, we can see that sustainable economic development is based on 3 pillars, namely education, health and the digitization process. The 3 domains, through its variables stated in the research hypotheses, show strong correlations with the GDP. As such, the governments of emerging countries and not only, will treat the welfare indicators referring to the variables that describe the SDG, a responsible economic growth representing a desire of the current societies.

However, the analysis includes a limited number of variables (only 4 SDGs were analyzed), as such a future research will include a more complete analysis, which will include other indicators likely to influence economic growth. Taking these limitations into account, the research results could be the starting point for new research topics. These research directions could have positive effects on sustainable development and the achievement of the SDGs as envisaged in the 2030 Agenda.

## 5. Conclusions

In conclusion, it can be seen that, of the 4 hypotheses under consideration, 3 were fully validated and one of the hypotheses was partially validated, thus creating an easy model for approaching the theme of economic growth by referring to 3 basic pillars. Two of the stated hypotheses followed the impact of education on economic growth, one hypothesis concerned the importance of a clean environment, and the last hypothesis reiterated the importance of health and therefore the importance of a strong health system in GDP estimation.

The results of this analysis could generate new research directions, expanding the set of correlations for the other SDGs that define economic growth at the level of the EU member states. Thus, a complex approach to all the SDGs can influence the economic, social and environmental objectives that underlie the sustainable development of society.

As such, in order to achieve sustainable economic growth, the EU must increase investments in health, education and professional skills, to transform it into a modern economy, in which environmental challenges are transformed into opportunities.

In conclusion, it is necessary to ensure the coherence of policies and actions at the level of all EU member states, so that all citizens can benefit from quality health and education services, which generate healthy and professionally trained people.

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## Improving the Management of Local Public Administration

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### Abstract

*A continuous and essential effort is being made to improve local public administration management in order to achieve effective governance that meets community requirements. Adopting solutions and putting them into practice to promote operational effectiveness, accountability, and citizen engagement are required. The main objective is to determine practical strategies to improve local public administration management in the current period, which is characterized by the limitations imposed by the global economic crisis, integration into the EU, and the resulting obligations, while also raising the standard of services required by the general public. Improving public administration management is not a static process, but a continuous one, which requires flexibility for a systematic and public approach. As citizens' needs and expectations evolve, local public administration must be able to learn from experience, identify good practices and adapt to new demands.*

**Key words:** management, public administration, performance, objectives, strategies

**J.E.L. classification:** M11

### 1. Introduction

Currently, it is evident that the management of public institutions at the local level is receiving significant attention. However, it is crucial to emphasize the necessity for effective management that aligns with the demands of citizens and is structured to address their specific needs. This entails establishing a high-performing administration equipped with robust and sustainable development plans. Improving the management of local public administration is an essential and continuous process to ensure effective, transparent and community-oriented governance. Local public administration plays a vital role in the provision of public services, decision-making and community development at the local level. To meet the complex and dynamic challenges of today's society, a proactive and adaptive approach to the management of local public affairs is required.

Local public administration has a direct impact on the lives of citizens and the development of communities. To adapt to new challenges and meet the demands and expectations of citizens, an efficient, transparent and community-oriented governance is necessary. Improving local public administration management is essential to achieving these goals. One important factor in improving the management of local public administration is operational efficiency. By identifying and eliminating inefficient processes, local public administration can optimize the use of financial, human and material resources. The implementation of modern resource management methods and techniques can lead to a more efficient and sustainable use of resources.

Another important aspect in improving local public administration management is responsibility and accountability. This involves clearly defining objectives and expectations, monitoring performance and taking appropriate action if these are not met. Accountability contributes to more transparent governance and building citizens' trust in public institutions.

In order to ensure a governance oriented towards the needs of the community, citizen involvement and public participation in the decision-making process is essential. Local public administration must facilitate consultation and dialogue with citizens, non-governmental organizations and business to obtain valuable feedback and input into decision-making and public policy development. Public participation brings diverse perspectives and community needs into the discussion, which contributes to more informed and legitimate decisions.

The scientific approach to finding modern ways of managing public institutions is not necessarily new, being current in the specialized literature and found as a problem of major importance in the economy of the 21<sup>st</sup> century. Public sector bodies are required to become more effective and efficient, and the evolution of international economic integration, the increasing sophistication of technology and, last but not least, the heterogeneity of socio-economic conditions, produced by the merging of markets at very different levels of development, are all factors that accelerate the rate of change in the social environment. While there will be massive pressure on public sector bodies to achieve significant, quantifiable cost savings in the coming years, there is a bigger and more complex performance challenge facing public sector leaders. They will have to achieve the potential reduction in administration costs, without negatively affecting the performance perceived by citizens.

The article intersects between two distinct fields of study: management, particularly public management, and sociology. Therefore, the approach must encompass both branches and begin by considering the foundational contributions of these two major fields. Synthesis of the main currents including personalities who were concerned with deepening and finding logical, credible and substantiated explanations regarding the field of study.

The scientific significance of the article lies in its formulation of proposals aimed at enhancing local public administration management. These proposals include increased investment in human capital through staff training activities, facilitated by training courses financed either from the budget or through non-reimbursable external grants. The essay also highlights how critical it is to advance e-government, enhance organizational performance within local public administration, privatize some public services, and carry out local projects through public-private partnerships. These ideas offer workable methods for enhancing the management of local public administration while also expanding the field of research.

In conclusion, improving the management of local public administration is essential to ensure an efficient, transparent and community-oriented governance. By implementing effective strategies and practices, local public administration can increase operational efficiency, accountability and citizen involvement, contributing to sustainable development and prosperity of the local community.

## 2. Literature review

Scientific management developed within the rational school of managerial thought, led by Henri Fayol, the author of the work *General and Industrial Management* published in 1916. Within this school, management was viewed as a *rational system* and it was considered that in any business activities should be conducted based on a series of *elementary principles of management, such as: division of labor, discipline, authority and responsibility, unity of direction, decision-making unity, subordination of individual interests to the general interest, hierarchy, payment, centralization, order, equity, stability, initiative, verbal communication* (Profiroi, 2014). The orientation of management as a science is based on the approach of Frederick Winslow Taylor, who analyzed workplaces to identify the elements that make up physical work and proposed their redesign, modification to find the best or fastest work method (Androniceanu, 2016).

The school of human relations emerged as a result of the research of Professor Elton Mayo from Harvard University and emphasizes the importance of the relationship between management and workers for increasing productivity. He conducted a series of studies on labor productivity at the Western Electric plant in Hawthorne, Illinois. Based on these studies and the results of current research in the behavioral sciences, the discipline *organizational behavior* emerged. The human relations school emphasizes participative management, managerial style, teamwork, group dynamics, individual behavior, motivation and communication (Morey et al., 2002).

What is management? - one of the most important factors generating economic performance at the company level. Its functionality, efficiency and effectiveness are appreciably dependent on the quality, efficiency and effectiveness of management (Lena, 2015). It can be characterized as *science* - studying management processes - a distinct category of work processes, it can also be studied from a practical point of view, and elements of a theoretical-methodological nature are operationalized at the company level and processual or structural components they can be operationalized through specific decisions and actions (Cameron and Green, 2019).

Management can be defined as an activity, accumulating specific attributions in the exercise of which several positions from a compartment or even a compartment are involved (Leisering, 2011). The specific management functions forecasting, organization, coordination, training and control-evaluation, are exercised by managers and occupy the entire area of actions of the entity, and the management subsystems - methodological, decision-making, organizational information, human resources management, acquire due performance the era of internal informatization of the knowledge-based society. Unlike traditional entities, with well-established hierarchical relationships, in today's society, there is a reconsideration of the human factor and a change in its condition, by changing relationships that become little by little more informal, reducing the importance of organizational documents (Maney, 2011).

Between the five classical functions, the organizational, research, commercial, production, and financial/accounting functions, *a new function appears - knowledge*. In helping the manager, in carrying out his activity of coordination and decision, computer applications have a major implication, which centralize data structured by categories, statistics and comparisons revealing the evolution over time, facilitate the construction of estimating future evolutions of economic phenomena, with the additionality of influence due to political factors, the evolution of the European markets, the integration to the European Union, the influence of the euro exchange rate, the openness offered on the labor market. The study of public administration can be approached by studying its components and the links between them, the interaction with other social systems (Burnes, 2017).

*Descriptive perspective* reveals the analysis of the public administration from several points of view of the activities within public institutions, and the analysis from the *normative perspective* provides information regarding the design of public institutions, the administrative structure, organizational models and officials, not in the end, we can look at administration at an abstract level from the perspective of ideas, concepts or principles that allow an evolution of the field of study (Armstrong and Murlis, 2018). Max Weber, considered one of the founders of the modern study of sociology and public administration, begins his theory by defining the term *dominance* through the distinction that can be made between power and influence, which are the big categories from his point of view. Domination over groups of people requires a specialized staff, the problem raised by the author is how to maintain staff loyalty (Smith, 2014). Loyalty can usually be achieved by a complex of purely material interests, Weber identifies within the theory the following ways in which it manifests itself: emotional ties, payment as remuneration for loyalty or beliefs, but regardless of the reasons underlying loyalty, there is a need of legitimacy. Based on experience, notes Weber, different types of legitimacy give rise to different *types of listening*, *a type of administrative staff* and *a pattern of exercised authority* (Blakely and Leigh, 2017).

The classical managerial approach begins at the end of the 19<sup>th</sup> century, by moving from the practice of appointing supporters of the winning party to public positions, to the system based on merit and professionalism. The party that won the elections obtained the sinecure of the public administration and absolute control over its composition, although perhaps those appointed did not have the necessary professional training, their actions not being centered on the public interest (Nicholls, 2022).

The involvement of the state in all aspects of social life in order to ensure a high standard of living (that general well-being) for the most comprehensive part of the population, was considered the great problem of contemporary society - we are dealing with a situation of overload), in which public institutions are overwhelmed by both the quantity and the high degree of complexity of the tasks they have to perform. Trying to offer as many services as possible, the administration is overwhelmed by the tasks it has. The objectives are ambiguous, and this fact leads to inefficiency (Majone, 2006).

Another determining factor of the reform process was European integration. The policies implemented at the European level, focused on establishing a common market and subsequently introducing a single currency, have resulted in significant transformations in the organizational structures and operations of Western states. The administrations had to adapt to working conditions in a competitive environment similar to those in the private sector, triggered by a huge process of privatization or concession of some public services - national post, telephone, public interest services - unimaginable with 10-15 years ago. The European integration process has weakened the authority of central governments, in favor of local authorities. Considering the principles promoted by the EU, especially those of local autonomy and subsidiarity, the central government lost the position of sole intermediary between supranational and local institutions. Local authorities have the opportunity to interact directly with various European institutions. The implementation of European legislation in the national legal framework has determined a series of changes in the administrative structure, making it more flexible and open. The term *New Public Management* refers to all the modifications made to the traditional model of administration by incorporating some managerial strategies and procedures unique to the private sector in the field of public administration (Hayes, 2021).

### 3. Research methodology

The goal of the study is to investigate how management affects the development of local public administration management. The goal of the study is to identify and evaluate the variables that affect how much local public administration management has improved.

In this research, the sociological survey questionnaire was used as a data collection tool. The chosen method was interactive, which implies a direct exchange of information between the researcher and the subjects participating in the study. The main purpose of this method was to obtain relevant data regarding the influence of the main types of management on the degree of progress of local public administration management. Participants were questioned specifically and pertinently on important elements of management in local public administration through the sociological survey questionnaire. The researcher had the opportunity to interact directly with the participants, clarify questions and obtain additional or detailed information when necessary. The use of an interactive method made it possible to collect a lot of data, giving the researcher a deeper understanding of participants' opinions and experiences regarding the influence of different management philosophies on the development of local public administration management. The goal was to gather solid and representative empirical data through the use of sociological survey questionnaires and the interactive method for a more thorough analysis and comprehension of the relationship between local public administration management and the degree of progress in its management.

The sampling method used in this study is stratified sampling, more specifically stratified proportional sampling. Through this method, a complete representativeness of the sample in terms of its structure was ensured. In this study, the sampling was carried out by selecting subjects with management positions from several local public institutions in Romania (mayors, local councils, county councils, local public administrations, community public services, regional development agencies), and the selection was based on their willingness to participate in the research. The sample included a total of 482 participants.

In this research, SPSS software was used to perform statistical analyses, including Chi-Square tests and Kendall's tau\_b tests. These analyzes were performed to examine the relationships and associations between the studied variables. Chi-Square tests were used to assess the existence of a significant association between two or more categorical variables, while Kendall's tau\_b tests were used to examine correlation and rank order between two ordered variables. By means of these statistical analyses, it was aimed to obtain robust and relevant conclusions regarding the relationships and patterns identified in the collected data. These results were aimed at providing useful information for improving local public administration management. This system was used to analyze and organize the collected data, providing results and statistical information to gain a deeper understanding of the researched aspects.

The methodology used in this research was carefully selected and adapted according to the specifics of the field of study and the distinctive features of the researched problem. A rigorous approach was adopted to ensure the validity and reliability of the results obtained.



All these stages of the methodology have been carefully designed to ensure the achievement of valid and relevant results that contribute to the understanding and improvement of local public administration management.

#### 4. Findings

The degree of development in local public administration management and the style of management used are strongly correlated. A local public institution's total performance and efficiency are significantly impacted by the management strategy it chooses, as shown in Table 1.

*Table no. 1. Relationship between the type of manager used and the level of local public administration management progress*

		The degree of progress of local public administration management			Total
		Satisfactory	Good	Very good	
<b>The type of management practiced</b>	Strategic management	21,7%	44,9%	1,4%	68,1%
	Performance management			23,2%	23,2%
	Participatory management			8,7%	8,7%
Total		21,7%	44,9%	33,3%	100.0 %

*Source:* developed by authors based on collected data

From Table no. 1, we can conclude that managers who use performance-based management have very good results in proportion to 33.3% (of total results). This type of management focuses on measuring and evaluating the performance of local public administration in achieving objectives and providing quality services to citizens. Performance indicators are used, progress is monitored and corrective action is taken if results are not in line with expectations.

On the other hand, it can be observed that the type of strategic management obtains good results in 45% of the total cases and that it is the most used. This type of management focuses on developing and implementing a long-term vision for local public administration. Strategic goals are set and action plans are developed to achieve those goals. Emphasis is placed on analyzing and anticipating local community needs and effective resource management.

Participatory management promotes the involvement of citizens and stakeholders in the decision-making process of local public administration. Public consultations are held, dialogue mechanisms are created and citizens' feedback and input are taken into account in decision-making.

*Table no. 2. Chi-Square Tests*

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	129.191a	4	.000
Likelihood Ratio	156.320	4	.000
Linear-by-Linear Association	79.069	1	.000
N of Valid Cases	138		
a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 2.61.			

*Source:* developed by authors based on collected data

From Table no. 2 Chi-Square Tests, we note the significant value of X<sup>2</sup> of 0.000, which is below the threshold of 0.05, showing a significant link between the two variables, in other words, the types of management practiced influence the results of local public administration, conclusion also represented in the results recorded in the table below (Table no. 3).

Table no. 3. Factors that influence the degree of progress of local public administration management

			The degree of progress of local public administration management			Total
			Satisfactory	Good	Very good	
<b>The factors that influence the degree of progress of local public administration management</b>	Strategic planning	% of Total	2.9%	3.9%	2.2%	9.0%
	Public participation and consultation	% of Total	2.7%	7.0%	4.1%	13.8%
	Transparency and access to information	% of Total	3.9%	8.5%	5.3%	17.7%
	Operational efficiency	% of Total	3.9%	7.5%	5.8%	17.2%
	Developing skills and professionalism	% of Total	3.6%	6.5%	5.3%	15.5%
	Performance monitoring and evaluation	% of Total	2.9%	6.1%	4.4%	13.3%
	Technology and digitization	% of Total	1.5%	3.9%	3.1%	8.5%
	Effective assessment and resolution of complaints and	% of Total	0.5%	1.7%	2.9%	5.1%
<b>Total</b>		Count	90	186	137	413
		% of Total	21.8%	45.0%	33.2%	100.0%
Percentages and totals are based on responses.						
a. Dichotomy group tabulated at value 1.						

Source: developed by authors based on collected data

Transparency and access to information, which account for 17.7% of the overall influence, are the factors that have the greatest impact on the degree of progress of local public administration management, according to the data shown in Table no.3. This emphasizes how crucial it is to make information on the actions and choices made by local public administration accessible and pertinent. Budgets, activity reports, and other crucial information are made public to promote transparency and citizen trust. Operational effectiveness comes in second place, contributing 17.2% to the overall influence. Enhancing operational efficiency is essential for improving local public administration management. This calls for streamlining internal procedures, removing red tape, and managing the available human and financial resources better.

Overall, the findings underscore the significance of transparency, access to information, and operational efficiency in driving the progress of local public administration management. Addressing these factors can contribute significantly to improving the overall effectiveness and performance of local public administration. Then the item Development of skills and professionalism (15.5%). In order for the local public administration to be effective, it is necessary to develop the skills and professionalism of the staff involved. Through appropriate training and coaching, a well-prepared team capable of tackling the complex challenges of local public administration management can be ensured. On the last place is the item Evaluation and efficient resolution of complaints and complaints (in proportion of 5.1%). The implementation of an effective system for managing citizens' complaints and complaints can contribute to increasing trust in local public administration. It is important that these complaints are dealt with promptly and appropriate solutions are provided in a transparent and accountable manner.

These percentages explaining the results obtained by using performance management, as is revealed in the data contained in the following table (Table no. 4).

Table 4. Correlation of the way performance management functions are carried out

			Performance measurement	Performance monitoring	Performance evaluation	Performance improvement	The degree of progress of local public administration management
Kendall's tau_b	Performance measurement	Correlation Coefficient	1.000	.409**	.319**	.009	.285**
	Performance monitoring	Correlation Coefficient	.409**	1.000	.441**	.376**	.079
	Performance evaluation	Correlation Coefficient	.319**	.441**	1.000	.174*	.249**
	Performance improvement	Correlation Coefficient	.009	.376**	.174*	1.000	.454**
	The degree of progress of local public administration management	Correlation Coefficient	.285**	.079	.249**	.454**	1.000
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

Source: developed by authors based on collected data

In table no. 4 we find the Kendall's-Tau coefficient for each item taken into account. The coefficient shows us if there is a connection between these items and the degree of progress of local public administration management, the meaning and intensity of this connection. From the data presented in this table, it was found that, in most cases, the variables are correlated with each other, the relationships being significant at the 0.01 level as well as at the 0.05 level, the correlations are positive, medium in strength in the case of Performance improvement, correlated with the Degree of progress of local public administration management. The performance improvement function refers to taking measures and actions to improve the results of the organization and achieve the set objectives. This may include identifying and removing obstacles or inefficient processes, implementing continuous improvement initiatives, developing employee skills, and implementing best practices within the organization. By monitoring results and receiving feedback, the organization can identify opportunities for improvement and take appropriate action to increase performance and achieve better results in the future.

And weak in strength is the case of the Performance measurement function, correlated with the Degree of progress of local public administration management. This function involves the development and use of performance indicators to objectively evaluate the organization's results and progress toward achieving goals. Performance indicators can include financial measurements (such as revenue, expenses, profitability) and non-financial measurements (such as citizen satisfaction, service quality, delivery time).

In the case of the correlation between Performance Monitoring and the Degree of progress of local public administration management, currently, it can be observed that the correlation coefficient is insignificant, this shows the lack of connection between the two items. The performance monitoring function involves the collection, recording and analysis of relevant data to assess real-time progress towards objectives and to identify deviations or problems. This may involve the use of reporting tools and dashboards to track and communicate organizational performance to relevant stakeholders.

## 5. Conclusions

Performance management in local public administration is essential to ensure the monitoring and continuous improvement of organizational performance. By setting clear objectives, measuring and monitoring performance, evaluating and providing feedback, and implementing improvement initiatives, local public administration can achieve better results and respond more effectively to community needs. Performance management plays a vital role in enhancing efficiency, accountability, and transparency within local public administration, resulting in improved citizen services and the attainment of strategic objectives. By effectively implementing and integrating these functions, local governments can foster an environment that encourages innovation, operational efficiency, and sustainable growth.

Performance management is crucial for establishing efficient and effective governance in the field of local public administration. The local public administration can get the following advantages by putting these tasks into practice and managing them:

- Alignment with strategic objectives: by establishing precise and quantifiable objectives, performance management guarantees that the actions and outcomes of the organization are in line with its long-term vision and strategy. This approach aids in directing resources and efforts toward essential priorities, ultimately yielding concrete and measurable outcomes.
- Performance monitoring and evaluation: through the use of performance indicators and monitoring tools, local public administration can track and evaluate progress in achieving objectives. This monitoring allows the prompt identification of possible deviations and problems, allowing for appropriate interventions and continuous improvements.
- Accountability and improvement of results: performance management facilitates accountability and accountability for results. By evaluating performance and providing feedback, strengths and areas for improvement can be identified. Thus, the local public administration can take specific measures to improve performance and achieve better results.
- Transparency and effective communication: performance management plays a vital role in enhancing transparency and communication within local public administration. Through the provision of clear and pertinent performance information, it enables citizens and stakeholders to actively engage and gain a comprehensive understanding of how the administration is effectively working towards its goals and serving the community.
- Continuous improvement and innovation: By identifying opportunities for improvement and fostering a culture of innovation, performance management stimulates organizational growth and development. Local public administration can adopt better practices, implement innovative solutions and adapt approaches according to community needs and requirements.

Overall, performance management in local public administration is a continuous and interconnected process aimed at achieving objectives, monitoring results, evaluating performance and continuous improvement. By effectively implementing and integrating these functions, local public administration can promote a culture of performance and accountability, ensuring the efficient use of resources and achieving positive results in the service of citizens. The presence of committed and engaged leaders is crucial for the successful implementation of performance management. These leaders promote a results-oriented approach and provide the necessary support and resources for continuous improvement. With efficient management practices, local public administration can fulfill its mission of delivering quality services, ensuring transparency, and fostering citizen satisfaction. Consequently, this contributes to the development and prosperity of the local community.

Performance management in local public administration plays a pivotal role in enhancing efficiency, transparency, and accountability in the management of public affairs at the local level. Here are some important points to note:

*Efficiency and resource optimization:* performance management plays a crucial role in identifying and enhancing inefficient processes, as well as promoting the efficient utilization of financial, human, and material resources. By continuously evaluating performance and monitoring relevant indicators, local public administration can identify and implement measures to improve efficiency and save resources.

*Accountability and responsibility:* clear objectives and expectations are set through performance management, and outcomes are frequently tracked and assessed. This procedure promotes accountability in local public administration and motivates staff to accept accountability for their work product and accomplishment of predetermined goals.

*Transparency and effective communication:* providing citizens and stakeholders with pertinent and understandable information about the organization's performance is part of performance management. In addition to improving openness and fostering community trust in local public administration, this promotes efficient community communication.

*Improvement of public service quality:* local public administration can find and implement improvements in the delivery of public services thanks to performance management. The assessment of citizens' needs and expectations through performance evaluation and feedback from service recipients enables the adoption of steps to raise service quality.

*Achievement of strategic objectives:* performance management makes it easier for resources to be allocated and activities to be coordinated with local public administration's strategic goals. Progress toward reaching these objectives can be ensured through performance monitoring and evaluation, allowing for the corresponding modification of plans and activities.

Overall, performance management in local public administration is a complex and interdisciplinary process, which contributes to the efficiency of activities, improving the quality of services and increasing transparency and accountability to the community. By applying a systemic approach and continuous commitment to performance improvement, local public administration can create an enabling environment for development and progress in the local community.

To ensure the success of performance management in local public administration, it is important that the organization adopts a performance culture, where commitment and accountability for results is promoted. Also, the involvement of all stakeholders, including citizens, representatives of civil society and the business environment, is essential to obtain relevant feedback and ensure a comprehensive view of the organization's performance. It is also important to use appropriate tools and technologies for collecting and analyzing performance data, such as integrated IT systems, dashboards and performance reports. These tools facilitate real-time monitoring, identifying trends and providing relevant information for decision making.

In conclusion, performance management in local public administration has a significant impact on the efficiency, responsibility and quality of services offered to citizens. By implementing and integrating this process, local public administration can achieve superior results, increase citizen confidence and contribute to sustainable development and local community prosperity.

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## Human Resource Management from the Perspective of Ergonomical Requirements at the Workplace

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### Abstract

*This paper investigates the crucial role of human resource management within the scope of ergonomic workplace requirements and its effect on the well-being of employees and organizational output. When organizations embed ergonomics within their human resource management strategies, they stand to bolster job satisfaction, productivity, and overall employee health. Managing personnel in the workplace hinges significantly on human resource management, where the integration of ergonomic principles is essential to crafting an optimal work environment. The article emphasizes the necessity of human resource management in light of ergonomic needs and probes into the benefits arising from such a symbiotic approach. This research aims to comprehensively analyze the ergonomic aspects encountered in a variety of work environments, considering human resource management. This involves the investigation and deep understanding of the interaction between human factors and work environments, without being limited to a specific sector of the economy.*

**Key words:** ergonomics, workplace, workload, management, human resources

**J.E.L. classification:** M11

### 1. Introduction

Human resource management is a vital component of managing people at work, with the main objective of ensuring a qualified, motivated and efficient workforce. In today's context, where employees spend more and more time at work, aspects related to their comfort, safety and well-being are becoming increasingly important. Thus, the integration of ergonomic requirements in human resources management becomes essential to create a healthy and productive work environment. Ergonomics is an interdisciplinary science that focuses on the relationship between man and his work environment. It focuses on adapting the workplace to the characteristics and needs of employees, in order to maximize their comfort, safety and efficiency. Ergonomic requirements in the workplace include aspects such as ergonomic design of the work space, correct use of equipment and tools, adequate lighting, temperature control and organization of the work space. Since employees spend an average of about a third of their lives at work, the conditions in which they perform their activities have a significant impact on their health, satisfaction and performance. A poor work environment can lead to health problems such as musculoskeletal disorders, fatigue, stress and decreased productivity. Therefore, human resource management must integrate ergonomic requirements to ensure that the workplace is adapted to the needs and capabilities of employees.

Approaching the management of human resources from the perspective of ergonomic requirements involves the implementation of strategies and practices that promote an ergonomic work environment. Regular assessment of ergonomic requirements enables the identification and resolution of ergonomic issues, while appropriate recruitment and selection ensures that employees are matched to the physical and ergonomic requirements of the job. Also, by providing training and

ergonomics training, employees are educated about good ergonomic practices and ways to prevent work-related ailments. Promoting a health and safety culture in the workplace is also an important aspect in human resource management based on ergonomic requirements. By implementing policies and programs that promote employee health and safety, including aspects related to ergonomics, organizations demonstrate their commitment to employee well-being. This may include facilitating access to ergonomic equipment and furniture, promoting regular breaks and exercise, and implementing stress management and posture improvement programs. To be successful in implementing this type of management, it is important that organizations pay special attention to ergonomic aspects in their recruitment, selection and training processes. Identifying candidates who fit the physical and ergonomic requirements of the job, as well as providing appropriate training and ergonomics training, are key to developing an ergonomically aware and prepared workforce.

Communication and employee engagement are also critical to successful implementation. Organizations should create an environment where employees feel comfortable giving feedback, sharing problems, and contributing ideas to improve working conditions. By creating an open dialogue and actively involving employees in the decision-making process, organizations can benefit from multiple perspectives and identify effective solutions for improving workplace ergonomics. Employee communication and involvement is another crucial aspect in approaching human resource management from the perspective of ergonomic requirements. Creating a work environment where employees feel free to provide feedback and suggestions on ergonomic aspects, as well as their active involvement in the process of improving working conditions, are key elements. Employees should be encouraged to participate in discussions and offer suggestions for improving ergonomics, as they are the ones who directly interact with the work environment and can bring valuable insights. By implementing these human resource management strategies based on ergonomic requirements, organizations can achieve a number of significant benefits. These include improving employee satisfaction and engagement, reducing absenteeism and staff turnover, increasing productivity and quality of work, reducing workplace accidents and health problems, as well as increasing the organization's reputation as an employer concerned with employee well-being.

By examining in detail ergonomic aspects in different work environments, this research aims to highlight the importance of human resource management in ensuring a healthy, safe and productive work environment. It will explore how ergonomic requirements can be integrated into staff recruitment, selection and training processes, the implementation of health and safety policies, and the promotion of an organizational culture focused on employee well-being.

The study will be carried out on different fields and sectors of activity, with the aim of obtaining a comprehensive perspective on ergonomic aspects in various working environments. This includes, but is not limited to, industries such as manufacturing, services, healthcare, IT, construction and more. By examining the diversity of work environments, how ergonomic requirements are applied and integrated into human resource management practices in these areas will be identified and analyzed. Through this study, a significant contribution will be made to the understanding of the importance of ergonomic aspects in human resource management. The results obtained will provide valuable guidelines and recommendations for organizations regarding the improvement of workplace ergonomics, both in terms of employee health and safety, and in terms of increasing performance and productivity. Hence, this study serves as a valuable addition to the disciplines of human resource management and ergonomics, offering an in-depth exploration of ergonomic elements across diverse work settings and showcasing strategies for their effective incorporation and management. By fostering a profound comprehension of this intricate interplay between human resource management and ergonomics, organizations can foster work environments that are healthier, safer, and more efficient for employees, consequently contributing to their sustained success.

## **2. Literature review**

Research and investigations in the realm of human resource management and ergonomics have proven that embedding ergonomic requisites within human resource management techniques can yield manifold organizational and personal gains.

A significant advantage of human resource management grounded in ergonomic demands is the enhancement of employee satisfaction and dedication. When employees feel comfortable and safe at work, they become more motivated and engaged in their activities. This can lead to an increase in loyalty to the organization, a decrease in turnover and a strengthening of the organizational culture (Pausch, 2017).

Reducing absenteeism and staff turnover is another significant benefit. Employees who work in an ergonomic and comfortable environment are less prone to accidents and developing work-related health problems. Absenteeism related to musculoskeletal disorders and other health problems can therefore be significantly reduced, ensuring business continuity and minimizing costs associated with absenteeism and staff turnover (Rusu, 2001).

Increasing productivity and quality of work is an important goal of any organization. Good workplace ergonomics can help improve employee performance and efficiency. By eliminating the physical discomfort and fatigue caused by an inadequate work environment, employees can work more efficiently and deliver higher quality results.

Another consequence of human resource management based on ergonomic requirements is the reduction of accidents and health problems at work. By identifying and correcting ergonomic risk factors, accidents such as falls, bumps or sprains can be prevented, as well as musculoskeletal conditions such as carpal tunnel syndrome or back pain. This protects not only the employees, but also the organization from potential compensation and litigation costs (Lehmann, 2018).

In addition, human resource management oriented to ergonomic requirements can contribute to improving the image of the organization. By promoting the health and safety of employees and creating a friendly and healthy work environment, the organization becomes known as an employer concerned with the well-being and development of employees. This can attract talent and increase appeal to potential employees. Also, a positive image in terms of human resource management and ergonomics can strengthen relationships with customers, business partners and other stakeholders, thus enhancing the reputation and long-term success of the organization (Brangier, 2019).

To successfully implement human resource management based on ergonomic requirements, it is important that organizations follow certain steps and adopt specific strategies. First of all, the assessment of ergonomic requirements must be a regular and systematic process, through which ergonomic risk factors are identified and assessed in the different fields of activity and workplaces. This may involve collecting job data, ergonomically assessing equipment and evaluating employee feedback.

Based on the assessment results, appropriate corrective measures can be developed and implemented. These may include purchasing ergonomic equipment and furniture, modifying the design and layout of workplaces, organizing and planning tasks to minimize excessive physical and mental demand, and promoting and facilitating recovery and relaxation activities for employees (Calum, 2018).

An essential component of human resource management based on ergonomic requirements is ensuring effective communication and close collaboration between different departments and teams in the organization. This enables the exchange of information, the identification of specific needs and the implementation of customized solutions. Active participation and solicitation of employee feedback in the decision-making process and enhancement of working conditions is also a critical factor for the successful adoption of ergonomic standards.

Merging ergonomic standards within human resource management bestows plentiful organizational and personal advantages. By embracing a methodical approach and engaging all involved parties, organizations can foster a healthy, secure, and productive work environment that motivates employees to deliver superior results, thereby contributing to the organization's success. (Păun, 2006).

Workplace ergonomics entails tailoring the work setting to meet the attributes and requirements of the employees, with the aim of enhancing comfort, safety, and productivity in performing tasks. Ergonomics concerns itself with the adaptation of the work environment to suit the features and needs of employees. Ergonomic stipulations encompass the ergonomic design of the workspace, appropriate usage of equipment, suitable lighting, temperature regulation, organization of the workspace, and the encouragement of regular pauses and physical activity. These requirements contribute to employee comfort, reducing the risk of accidents and improving performance. Human



resource management has the responsibility to implement and promote ergonomic requirements in the workplace. By identifying employee needs and integrating them into policies and practices, HRM can create an enabling work environment that promotes employee health and performance. This may include recruiting and selecting the right employees for specific tasks, providing appropriate training and ergonomics training, monitoring working conditions and ensuring that they are adapted to the needs of employees (Pitariu, 2014).

Implementing an approach based on ergonomic requirements in human resource management brings a number of benefits. These include improving employee satisfaction and engagement, reducing absenteeism and staff turnover, increasing productivity and quality of work, reducing workplace accidents and health problems, and increasing the organization's reputation for concern for employee welfare.

In order to integrate ergonomic requirements into human resource management practices, it is important to adopt a number of strategies. These may include (Schmauder, 2020):

- evaluation of ergonomic requirements: carrying out periodic evaluations of workplaces to identify and solve problems related to ergonomics;
- appropriate recruitment and selection: selecting the right candidates for specific tasks, considering ergonomic aspects;
- ergonomics training and education: providing training and education to employees on good ergonomic practices, correct posture and proper use of equipment;
- promotion of health and safety culture: Implementation of policies and programs to promote health and safety in the workplace, including aspects related to ergonomics;
- communication and involvement: creating a work environment where employees feel free to provide feedback and suggestions on ergonomic aspects, and their active involvement in the process of improving working conditions.

Human resource management based on ergonomic requirements is an essential aspect in ensuring a healthy, safe and efficient working environment. Integrating ergonomic principles into human resource management practices brings significant benefits to both the organization and employees, including improving employee satisfaction and engagement, reducing absenteeism and staff turnover, increasing productivity and quality of work, reducing workplace accidents and health problems. work, as well as increasing the image and reputation of the organization. By adopting suitable strategies and fostering a culture of health and safety, organizations can establish a work environment that promotes employee growth and exceptional performance. The application of human resource management grounded in ergonomic demands necessitates a systematic approach, which includes periodic evaluation of ergonomic needs, suitable personnel selection and training, the promotion of a health and safety culture, employee involvement and communication, as well as ongoing monitoring and evaluation of the results achieved (St-Vincent, 2011).

The constant monitoring and evaluation of the obtained results is an important stage in the implementation of human resources management based on ergonomic requirements. By collecting and analyzing relevant data, organizations can assess the effectiveness of implemented measures and identify potential problems or additional needs. This process of continuous monitoring and evaluation allows for the constant adjustment and improvement of human resource management practices to ensure an ergonomic and efficient work environment.

### **3. Research methodology**

The purpose of this research consists in the detailed study of the ergonomic aspects present in different work environments from the perspective of human resources management, without being limited to a certain sector of the economy. The investigation aimed to analyze how ergonomics influences the work environment in different fields, thus providing a comprehensive perspective of its applicability within various economic organizations.

As part of this research effort, 250 managers from Romania were questioned, coming from four organizations active in the fields of medicine, scientific research, production and industry. This approach allowed obtaining a representative sample for the diversity of economic fields.

The study took place between December 2022 and March 2023, being a meticulous process that involved the use of a detailed questionnaire sent by e-mail to the participants. In this study, the sampling was simple random, so that the results are as close as possible to the reality on the ground. The questionnaire was thoughtfully designed and structured to ease the process of identifying and analyzing the primary ergonomic requirements that are commonly found across different work environments.

*E1. Ergonomic design of the work space:* this entails arranging furniture, equipment, and other elements in a manner that aligns with the employees' needs. Chairs, tables, monitor stands, and other items should be adjustable in height and offer appropriate support for the back, neck, and wrists.

*E2. Risk assessment and continuous improvement:* it is important to carry out periodic ergonomic risk assessments in the workplace and to identify potential problems or deficiencies in the design and organization of the workspace. Based on these assessments, corrective measures can be implemented and workplace ergonomics can be continuously improved.

*E3. Training and awareness:* employees should receive adequate training in good ergonomic practices and be aware of their importance to their health. This may include information on correct posture, safe lifting techniques and other relevant issues.

*E4. Work space organization:* a neat and organized work environment helps minimize stress and confusion. The workspace should be large enough for employees to move around comfortably and have easy access to necessary equipment and documents.

*E5. Task management and work organization:* appropriate distribution of tasks and work planning in a way that reduces excessive demands on employees can help prevent overwork and stress in the workplace. An analysis of tasks and a fair distribution of them can be helpful in this regard.

These elements are considered key to understanding and improving ergonomics in the work environment, each having a significant role in how workers interact with their environment and carry out their activities. By analyzing these elements in different contexts, we aimed to gain a clearer and deeper picture of the ergonomic aspects that can influence efficiency, safety and health in the workplace.

In this way, the research aimed to highlight how ergonomics can be implemented and optimized in different work contexts.

The objective of the questions formulated in the questionnaire was to analyze the degree to which the key elements of ergonomics in the work environment are put into practice, instead of checking the theoretical knowledge in this field of the study participants. This approach means that the questionnaire questions were designed to identify and assess how the essential components of ergonomics are actually implemented in the workplace. This means trying to understand to what extent these principles are applied in practice in different organizations, and not to check the theoretical knowledge of the respondents. Our approach aimed to highlight potential discrepancies between what is known in theory and what is actually implemented in practice. Therefore, the questionnaire was a useful tool to explore how ergonomics is understood and implemented in the real workplace context. Even though the theoretical knowledge of the participants is important, the purpose of this research was to highlight the actual application of ergonomics and to better understand the challenges this entails in different work environments. This hands-on assessment gave us a more realistic and relevant perspective on how ergonomics are integrated into daily work processes.

In the complex context of the social economy, problems related to the facilitation of economic decision-making are often caused by multi-criteria decision-making processes. For this reason, in our research study, we adopted the maximum global utility method. Modeling strives to efficiently and scientifically exploit the available information base. Procedures that attempt to imitate the rational way of substantiating decisions form, in varying degrees of complexity, the conceptual core of modeling. In more detail, in the socio-economic world we are trying to model, decision-making processes involve the evaluation of a series of diverse and often contradictory criteria. These multi-criteria decisions can pose significant challenges, especially when information is incomplete or uncertain. Therefore, we chose to use the maximum global utility method in our research study. This method aims to find the solution that provides the highest total value or utility, taking into account all relevant criteria. Modeling, in this context, represents an attempt to use the available information as effectively as possible, by applying rigorous scientific methods. Imitating rationality in decision-

making that is, trying to reproduce how a person would make decisions if they had all the necessary information and could perfectly evaluate all options is a central part of this process. In various forms of complexity, this principle underlies many decision-making models. The stages of implementing the global utility method include the following:

Step 1. The utility matrix is created, which includes the following elements:

$$x_{ij}, i = 1, \dots, r \text{ si } j = 1, \dots, n. \quad (1)$$

The calculation of each element of the matrix, for the maximum criterion, is done by the following formula:

$$x_{ij} = u_{ij} = \frac{x_{ij} - x_{i \min}}{x_{i \max} - x_{i \min}}, \quad (2)$$

on the other hand, for each minimum criterion, the matrix elements are calculated using the following formula:

$$x_{ij} = u_{ij} = \frac{x_{i \max} - x_{ij}}{x_{i \max} - x_{i \min}}, \quad (3)$$

where:  $x_{ij}$  = the value assigned to indicator  $i$  in relation to indicator  $j$ ;

$x_{i \max}$  = the lowest value observed for indicator  $i$ ;

$x_{i \min}$  = the highest value found for indicator  $i$ .

Step 2. For each project, the global utility is estimated as the sum of the products between the elements of the utility matrix (the column vector associated with the project) and the importance coefficient assigned to each indicator.

$$UG_j = \sum_{i=1}^r \alpha_i u_{ij}, \text{ unde } \sum_{i=1}^r \alpha_i = 1 \quad (4)$$

Step 3. The project with the highest global maximum utility is selected  $V_j$ .

$$\max \{UG_j\} \Rightarrow V_j \quad j = 1, \dots, n \quad (5)$$

To differentiate and select between the decision variants  $V_i$  (where there are  $n$  variants) and to choose the best offer, taking into account several evaluation criteria simultaneously ( $C_j, j=1, \dots, n$ ), the global utility method is used maximum. This method focuses on identifying the most favorable combination of attributes (characteristics specific to a variant), thus representing the essence of the multiattribute problem. In more detail, when faced with a number of options or decision variants, each with its own sets of attributes or characteristics, the problem becomes one of identifying the best combination of these attributes. This process of evaluating and choosing the best combination of attributes constitutes the multiattribute problem.

The maximum global utility method is a valuable tool in this context because it allows us to consider all these attributes simultaneously, evaluate them according to their relative importance, and choose the variant that provides the highest total value or "utility" based on these multiple criteria. This method involves the conversion of all numerical values  $a_{ij}$  (expressed in specific measurement units) and qualitative characteristics into utilities  $u_{ij}$ , that is, into numerical (dimensionless) values located in the range  $[0, 1]$ . The fundamental assumption for a correct application of the weighted sum method is the independence of the criteria. The variant with the highest synthetic utility indicates the best option. Explained in more detail, the method of maximum global utility requires a process of normalization or conversion of all values and characteristics into a common form - the utilities. These utilities are dimensionless numerical values, meaning they can be directly compared regardless of the units of measurement or the initial nature of the features. The assumption of criterion independence is central to this method. This means that each criterion or attribute is evaluated separately, without being influenced by the other criteria. In this way, we can calculate a total value or synthetic utility for each variant, by weighted addition of the utilities for each criterion.

The variant with the highest synthetic utility—that is, the variant that provides the greatest value when all criteria and their relative importance are considered—is considered the best option.

#### 4. Findings

Our research study is based on the examination of ergonomic features present in various work contexts. Our approach to data analysis treats it as a system consisting of five essential components that best describe ergonomics in the work environment:

- E1. Ergonomic design of the work space;
- E2. Risk assessment and continuous improvement;
- E3. Training and awareness;
- E4. Work space organization;
- E5. Task management and work organization.

Table no. 1 illustrates the information base of the study, indicating the percentage of importance that managers assign to each ergonomic component.

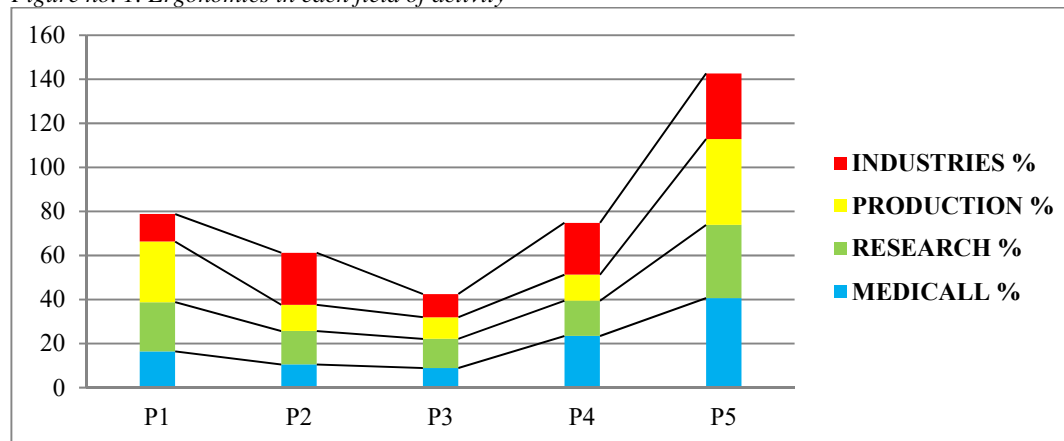
Table no. 1. Percentage of ergonomics components

ERGONOMICS COMPONENT	FIELD OF ACTIVITY			
	MEDICAL % (v1)	RESEARCH % (v2)	PRODUCTION % (v3)	INDUSTRY % (v4)
E1 (p1)	12,15	12,65	47,5	32,8
E2 (p2)	9,55	18,17	19,91	33,31
E3 (p3)	6,8	23,24	19,18	18,94
E4 (p4)	13,18	12,45	8,95	16,75
E5 (p5)	46,32	23,25	36,78	19,98

Source: the author's own concept

The obtained results, however, take into consideration first E5. Task management and work organization, and, lastly, E3. Training and awareness (Figure no.1).

Figure no. 1. Ergonomics in each field of activity



Source: the author's own concept

The implementation of the calculation algorithm involved the following stages:  
Step 1 - making the array of units containing xij elements (Figure no. 2).

Figure no. 2. Matrix of units

0.26	0.66	1.00	0.00
1.00	0.65	0.90	0.00
0.00	1.00	0.21	0.38
0.99	0.36	0.00	1.00
0.00	0.68	0.15	1.00

Source: the author's own concept

Step 2 - Determination of global utilities for each individual organization (Table no. 2):

Table no. 2. Results obtained from the calculation of global utilities

GLOBAL UTILITY	RESULT
MEDICAL	2,85
INDUSTRY	4,64
PRODUCTION	3,76
RESEARCH	3,28

Source: the author's own concept

Step 3 - According to Table no. 2, the analysis of global utilities indicates that the organization with the highest global utility comes from the industrial domain.

Thus, after applying the algorithm for the method of maximum global utilities, we can conclude that the organization in the industrial sector made the best evaluation of the ergonomic aspects at the workplace. More broadly, the results of this study suggest that the analyzed industrial organization paid particular attention to ergonomic aspects in its work environment. This is evident in the high value of global utility calculated for this organization, indicating that it has effectively implemented and adhered to ergonomic principles. This study is a valuable model for other organizations looking to improve workplace ergonomics.

## 5. Conclusions

The application of the algorithm of the maximum global utilities method and the conclusion that the organization in the industrial sector has best evaluated the ergonomic aspects in the workplace paves the way for a wider development of the subject. This conclusion can stimulate a series of researches and actions in various fields:

1) *Improving ergonomic practices*: organizations in other sectors can study and better understand the approaches and strategies used by the industrial sector organization to assess and implement ergonomic aspects in the workplace. This can lead to the development and adoption of better and more efficient practices within their own organizations, thus helping to improve working conditions and overall performance.

2) *Knowledge transfer and cross-sector collaboration*: finding that the industrial sector organization has excelled in workplace ergonomics assessment can open doors for knowledge sharing and cross-sector collaboration. Organizations in other fields can learn from the experiences and good practices of the industrial sector organization, adapting them to their own context and developing partnerships to collectively improve ergonomics and working conditions.

3) *Education and training*: the conclusion that the organization in the industrial sector achieved the best result in the evaluation of ergonomic aspects can underline the importance of adequate education and training in this area. This can stimulate the development and implementation of ergonomics training and education programs for managers and employees in various sectors, promoting a better understanding of ergonomic principles and practices and facilitating their correct application in the work environment.

3) *Focusing on the well-being and health of employees*: the focus on the excellent ergonomic assessment of the organization in the industrial sector emphasizes the importance of ensuring a safe and healthy work environment for employees. It can encourage and inspire other organizations to pay more attention to ergonomic aspects, implement preventive measures and promote employee well-being, thus helping to reduce accidents and work-related health problems.

Hence, the finding that the industrial sector has excelled in assessing the ergonomic aspects of the workplace serves as an opportunity for learning, knowledge sharing, and ongoing enhancements in the realm of workplace ergonomics. By exploring more deeply the reasons that led to the success of the industrial sector organization in ergonomic assessment, key factors and effective strategies can be identified that can be applied in various industries. It is also important to assess the direct impact of good ergonomic practices on organizational performance and employee satisfaction. Further studies can be conducted to measure the economic benefits, increased productivity, reduced absenteeism and workplace accidents associated with the implementation and compliance of ergonomic principles.

The development of research in the field of workplace ergonomics can contribute to the development of new techniques, tools and approaches to optimize working conditions and improve the well-being of employees. It can also provide useful information for the development of policies and regulations to support the implementation of ergonomic practices and promote a safe and healthy work environment.

Finally, the conclusion that the organization in the industrial sector has best evaluated the ergonomic aspects in the workplace is a starting point to improve working conditions and promote good practices in all fields and sectors. Continued research and collaboration between organizations and ergonomics experts can help create a more efficient, safe and healthy work environment for all employees.

Finally, this conclusion provides a clear direction for future research. It would be interesting to explore in depth why the industrial sector organization was able to evaluate ergonomic aspects so well and to determine whether these practices can be adapted and applied in other contexts. It would also be useful to assess the direct impact these good ergonomic practices have had on organizational performance and employee satisfaction.

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## How to Manage HoReCa Food Waste by Using Digital Technologies?

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### Abstract

*The hospitality, restaurant and catering (HoReCa) sector is one of the largest producers of food waste globally. This paper aims to identify how digital technologies can be used to manage food waste in the HoReCa sector as well as the digital tools available. Digital tools powered by Artificial Intelligence, Internet of Things and Big Data, such as smart software solutions for storage spaces, cameras, sensors, along with mobile apps, are able to improve foodservice units management regarding food waste. Significant quantities of food can be saved by automating waste tracking, inventory management and delivery times, kitchen processes and redistribution. Many technology providers developed a large variety of digital tools addressed to different activities inside the restaurants. The paper concludes that adopting digital technologies is very important in food waste management and HoReCa sector can use various digital tools.*

**Key words:** food waste, HoReCa, digital technologies, digital tools, management

**J.E.L. classification:** E30, L66, M10, M11, M12, M54, Q01, Q50

### 1. Introduction

Food waste (FW) has become a global concern for practitioners, policymakers and academics from a variety of academic fields in the previous decade (Reynolds *et al*, 2019, p.7). Particularly for consumption stage, FW can be found in households or in HoReCa industry (home eating and dining out) (Betz *et al*, 2015, p.218). A considerable amount of the 1.3 billion tons of food waste produced annually worldwide is attributable to the HoReCa (Hotel, Restaurant, Catering) industry (Danon *et al*, 2019). Given that this sector accounts for roughly 12% of all food waste, it is quickly emerging as an important issue. Additionally, due to the rising popularity of eating out, which is being fueled by rising incomes and tourism, HoReCa food waste (HFW) is now a significant problem for both developed and developing nations (Dhir *et al*, 2020, p.2; Wang *et al*, 2017, p.2). In order to reduce HFW, specific procedures connected to the operations of HoReCa businesses and consumer behavior were identified by the scientific literature. The analysis of HoReCa enterprises may comprise three phases: before-kitchen phase (FW in the storage facility and during storage preceding meals preparation), in-kitchen phase (FW during meal preparation) and after-kitchen phase (plate food waste). In the first two phases, FW is heavily influenced by firm business practices and supplier interaction. FW in the third phase is primarily determined by consumer behavior (Buczacki *et al*, 2021, p.6) In general, many HoReCa units adopt FW reduction strategies, such as assessing and engaging employees, revising inventory and purchasing methods, repurposing additional food and minimizing overproduction. Therefore, foodservice companies should prioritize continually menu adjustment, ingenious reproduction, prevention of overcooking, food donation actions to employees

or charitable organizations, marketing initiatives and implementation of the possibility for ordering smaller quantities (e.g. for children) (Buczacki *et al*, 2021, p.6; Erfe, 2018; Okumus, 2019, p.295; Vizzoto *et al*, 2020, p.268).

In order to decrease FW, numerous digital technologies can be adopted to enhance vertical collaboration between the technology user and other participants in the agri-food supply chain (Ciccullo *et al*, 2021, p.4). Technological advancements play a crucial role in waste prevention, minimization and re-use, as well as in the valorization of inevitable FW by recycling or recovery. Digital technologies addressing FW reduction and reuse at the consumer level have several goals, including extending the freshness of food products, reducing surplus food generation in retail, residences and HoReCa, increasing, as well as improving the efficiency of surplus food redistribution. Moreover, FW reduction solutions include technologies for food preservation, smart labelling and packaging, consumer-focused smart gadgets and food-sharing apps. Technology is crucial for improving the accuracy of any action performed in the HoReCa industry to reduce FW (Samsuddin *et al*, 2022, p. 6; UNEP DTU Partnership and United Nations Environment Programme, 2021).

Thankfully, technology is transforming the HoReCa industry in more manners than most people realize. Digital technologies, such as Artificial Intelligence (AI), Internet of Things (IoT) and Big Data, have specifically brought up new potential for this sector to reduce FW (Gull *et al*, 2021, p.4; Total Food Service, 2023).

## 2. Theoretical background

In terms of waste management, FW management has been ranked first. It is a serious topic that is constantly debated around the world. The quantity of FW generated is expected to increase by 1.9% between 2015 and 2030. To prevent rising waste, the food supply chain requires a digital transformation. To avoid negative consequences on the economy and environment as well as to prevent rising waste, it is crucial to develop effective FW management solutions, which can be enhanced by implementing a digital transformation (Lewis, 2022; Samsuddin *et al*, 2022, p. 1; Tomra, 2020).

Digital technologies have transformed the operations of most businesses and supporting the development of new business models aimed at increasing company profitability. The usage of digital solutions helps to store and distribute various forms of information, promote networking among businesses and plays a role in facilitating transactions of products and services between them. Therefore, acting as an intermediary between markets, digital technologies can store, share, manage, display, etc. data obtained from a variety of sources. They include the use of Big Data and IoT (enabling instant access to massive databases and facilitating connectivity between devices), as well as AI (providing high-quality information for sharing). These technologies can play a crucial role in FW management (Ahmadzadeh *et al*, 2023, p.1; Annosi *et al*, 2021, p.210; Martin-Rios *et al*, 2022, p.2; Ryax Technologies, 2023; Yoo *et al*, 2010, p.726). Since 1983 it has been asserted that HoReCa industry, especially restaurants, would undergo an automation revolution. Consumers, businesses, and society have shown an increased interest in adopting new technologies, such as AI, IoT and Big Data, over the past ten years. The HoReCa industry has also been showing an increasing amount of interest in these technologies (Nozawa *et al*, 2021, p.2) AI can be defined as the simulation of human intelligence processes by machines, particularly computer systems (Burns, 2023). For instance, the capability of computers to learn from previous experiences and teach themselves new abilities and behaviors is known as AI. The AI subfield, Machine Learning (ML), is centered on using algorithms and data to mimic how humans learn. When it is possible to identify process behavior from data, it is valuable. By processing a substantial volume of unstructured data (Bigdata) and finding patterns in data, computers can be trained to do specific jobs using AI. In order to generate a vast amount of data, the IoT makes device connectivity easier, allowing AI to make an assessment based on those patterns found (IBM, 2023; Sarabi, 2020).

By adopting an IoT ecosystem, the world becomes intelligent and embraces each aspect of existence. Thus, it becomes smarter and more intellectual as a result of this technology's use in businesses, workplaces, banks, supermarkets, security fields, hospitals, public spaces, as well as in HoReCa sector, especially in restaurants. Kitchen, the place where food is cooked and provided to



consumers to feed them, serves as the central component of the restaurant automation. However, the biggest issue is FW. Control, monitoring, and management of FW are notably important. By using IoT sensors and modules in order to create data and finding correlations and patterns in it through AI, HoReCa industry can be assisted in tracking and minimizing FW as well as in cost management, portion control and error reduction. But the potential for applying these digital technologies in the HoReCa sector can be much more useful in FW management (Berezina *et al*, 2019, p. 191; Gull *et al*, 2021, p.1) Being more specific, along with tracking food, management tools like optimizing food inventory and delivery times, creating smart menus, measuring recipe size accurately, automating the kitchen, improving smart storage and redistributing food can be acquired through the use of digital technologies (Bourke and Hymers, 2022; Mark Kubriak, 2023; Synergy Restaurant Consultants, 2023; UNEP DTU Partnership and United Nations Environment Programme, 2021).

### 3. Research methodology

This paper presents a systematic review of the literature on how digital technologies can be used to manage food waste in the HoReCa sector, along with some examples of digital tools available today. The research materials for this study comprise academic journals, government reports and industry reports. The academic journals were sourced from electronic databases such as Scopus and Google Scholar. The government and industry reports were sourced from the relevant websites, such as Restaurant Technology News, Total Food Service, Synergy Restaurant Consultants. The analysis of this phenomenon served to emphasize the food waste management in the HoReCa sector by adopting digital technologies and to provide an overview of some useful digital tools.

### 4. Findings

The tremendous expansion of data availability as well as of the methods for interpreting data have changed the service business (Cohen, 2018, p.1710). The incorporation of digital technologies into the food supply chain has been identified as very important for FW management (Annosi *et al*, 2021, p.210). Nowadays, digitality plays a significant role in the HoReCa industry in order to manage FW that cannot be ignored. As HoReCa industry is challenged by sustainability, foodservice units are required to build longer-term strategic plans as new management methods and behaviors regarding FW. (Martin-Rios *et al*, 2021, p.3; Roy *et al*, 2022, p.3688). A broad collaboration between foodservice enterprises and technology providers is useful (Calabrese *et al*, 2018, p.786). Technology suppliers are able to create data and apps that offer information about FW and show the benefits of digital solutions regarding food surplus management to foodservice organizations.

Development of innovative technologies to enhance the quantification, reduction and valorization of FW has been a part of the technological race for sustainable solutions in the HoReCa industry since 2010 (Martin-Rios *et al*, 2021, p.3; Martin-Rios *et al*, 2021, p.5). According to specific database related to FW management by using digital technologies, including scientific articles (Ahmadzadeh *et al*, 2023; Annosi *et al*, 2021; Celli *et al*, 2022; Goossens *et al*, 2022; Martin-Rios *et al*, 2020; Martin-Rios *et al*, 2021) and dedicated web resources there were identified the main values of the most known digital technologies and the essential features of some existing digital tools. Table 1 summarizes the key features of ones of the most representative digital tools for FW management in the HoReCa industry.

Table no. 1 The essential features of the most representative digital tools for FW management applicable in the HoReCa industry

Company name	Specific procedure to manage FW	Process category
Selfly Store	Intelligent storage areas featuring expiration date management function	Waste tracking
Kitro	Machine learning-based classification of FW	Waste tracking
Leanpath	A network of tracking stations for measuring FW	Waste tracking

Orbisk	Quantifying and automatically identifying the type of food that is thrown out	Waste tracking
5-Out	A software designed to improve purchasing decisions by forecast consumers' demand	Optimizing inventory and delivery times
Satis AI	A tool for avoiding mixed up orders	Optimizing inventory and delivery times
Distancematrix.ai	A tool for time delivery optimization	Optimizing inventory and delivery times
Meez	Digital platform for easy recipe organization	Kitchen automation
FoodOP	IoT-based platform designed for smart menu planning	Kitchen automation
Zerynth	Assisting restaurants in keeping perishable food fresh and safe.	Kitchen automation
Too Good to Go, Karma, Breathing	Solutions for saving valuable food products by selling them at a discounted price	Food redistribution
The Food Rescue US, Goodr	Solutions for donating the surplus food to charity causes	Food redistribution

*Source:* own preelucration after (5-Out, 2023; Bozhinova, K., 2018; Corbo and Fraticelli, 2015, p. 137; FoodOP, 2023; Kubriak, 2023; Martin-Rios et al, 2021, p.6; Meez, 2023; Oddbox Team, 2021; Orbisk, 2023; Selfly Store, 2023; UNEP DTU Partnership and United Nations Environment Programme, 2021; Zerynth, 2023)

These digital technology providing companies support the transition of foodservice units from traditional measurements made with paper and pens to digital ones, optimization of inventory and delivery processes, automation of the restaurants kitchens and provide methods for food redistribution. The previously stated digital tools were grouped in four categories regarding process category in which they are applicable.

#### 4.1. Waste tracking

By taking into consideration that the largest quantity of FW in foodservices comes from leftovers, it is essential to be adopted waste-tracking solutions. There are several methods for measuring FW. The first option is to employ manual or semi-automatic instruments, including paper forms, tables or websites. The second option consists of employing automated instruments or waste management systems (Eriksson *et al*, 2019, p.3; Goossens *et al*, 2022, p.2).

Firstly, numerous restaurants track manually when food is about to expire, which wastes a lot of assets. Monitoring expiration dates in almost real-time as well as developing automated sign-off sheets can be achieved adopting automation solutions powered by AI. These systems leverage data generated by kitchen personnel to automatically sync with software for inventory management based on existing information. In this way, restaurants gain knowledge about what products are still able to be used and, more crucially, the time until expiration date (Total Food Service, 2023). Being based on RFID technology, Selfly Store company provides storage spaces specifically designed in expiration date management, aiming to assist food business in reducing FW. The connection between Selfly Cloud and Selfly Intelligent Cabinet, both of them being powered by Stora Enso, allows food service units to automatically track expiry dates and receive instant notifications. Also, this system provides a remote price management function that helps in enhancing sales of products nearing expiration by suggesting discount criteria and featuring a screen on which can be displayed these discounts (Selfly Store, 2023).

Secondly, a lot of businesses have no idea about what it in their garbage bin is. HoReCa units can increase their profitability by paying attention to what products end up in the garbage bin (Martin-Rios *et al*, 2021, p.5). Smart bins have been designed to solve this issue. They gather and analyze FW data in order to reduce waste and save money (UNEP DTU Partnership and United Nations Environment Programme, 2021). The Kitro startup focuses on developing new FW management

solutions for the HoReCa industry (Martin-Rios *et al*, 2020, p.1130). It was designed to face a worldwide challenge by harnessing the digital technologies and putting them to be used for long-term change in FW area. Kitro's quantification approach is a high-end IoT combination between hardware and software. While the hardware is represented by a camera (placed above the client's existing trash bin) linked to a scale mounted beneath it, the software consists of distinguishing between unavoidable and avoidable waste by analysing the images captured by the camera. When new waste is disposed of in the bin, images of its content are collected. Its technology allows to make possible changes to the sort and size of portions offered being able to examine the returned plates. Thus, Kitro employs a revolutionary AI approach for autonomous food classification and helps HoReCa business to avoid daily wasting of important sums of money and essential resources which end up in the trash (Martin-Rios *et al*, 2021, p.6). In addition to Kitro, restaurant managers should adopt other digital solutions developed by FW quantification service providers, such as Leanpath or Orbisk (Leanpath, 2023; Orbisk, 2023).

#### **4.2. Optimizing inventory and delivery times**

In order to effectively predict a restaurant's most likely future stock demands, AI systems can be trained on historical data about past client purchases. The information gathered by these systems will assist restaurants in locating and purchasing food that is both reasonably priced and sufficiently fresh to avoid spoiling prior to serving (Synergy Restaurant Consultants, 2023; Total Food Service, 2023). With the help of 5-Out, a software designed to manage food inventory, restaurants are able to estimate consumers' demand by evaluating sales data. Thus, units can improve their purchasing decisions and make sure that they have available the proper quantity of ingredients to satisfy customers' requirements or to minimize costs associated with FW (5-Out, 2023).

ML techniques can be used to estimate demand for food goods. For instance, a retail company may develop a ML model to estimate demand for certain products using past sales and weather forecast data. A restaurant is able to prevent FW by making sure that the appropriate amount of food is prepared, picked up and delivered to the appropriate location at the appropriate time (Singh, 2023). Orders prepared by humans usually get mixed up. To enhance order sequencing, equipment monitoring, and packaging accuracy, Satis AI makes use of sensors placed around the cooking area. Specially designed to reduce human errors and significantly increase efficiency, AI-powered sensors are equipped with a variety of modules. By notifying the team when an order is mixed up, this digital technology claims to reduce FW by 50% as well as to minimize refunds. Along with Satis AI, Distancematrix.ai software can serve restaurants in preserving meals quality by optimizing delivery times. To achieve this, factors such as speed and rest periods of individual drivers, traffic, transportation methods are taken into consideration (Kubriak, 2023).

#### **4.3. Kitchen automation**

Kitchens may be monitored using voice and video recognition software which minimizes the need for human eyes. Restaurants managers can more effectively identify food spoilage and equipment problems by adopting AI systems in their businesses. In this way, carefully noticing the expiration dates of food products and tracking the incoming shipments process become easier. Besides closely monitoring the process of purchasing ingredients, it is also necessary to use them in adequate quantities in recipes. Developing accurate recipe sizing can be done with the help of AI systems. When recipes are sized incorrectly, a surplus result, costing money and increasing FW. ML algorithms can ensure kitchen staff that the quantity of ingredients used in each dish remains accurate. Therefore, this results in an appropriate serving size for a particular dish (e.g., kitchen staff could be informed when a specific dish requires more or fewer components than anticipated). They have enough time to make the necessary adjustments and stop FW before it starts (Gschnitzer, 2021; Total Food Service, 2023). The digital recipe manager, Meez platform, aims to develop the recipes organization by making this process easier. Its functions include content sorting according to the time of the year, menu or location, allergens tagging, avoid misplacing or forgetting a certain recipe. Along with other features such as quicker and more efficient team training, detailed food costing and nutrition analysis, this platform is able to reduce FW and overproduction by 20-30% (Meez, 2023).

Another useful digital tool is the smart menu-planning digital platform FoodOP, based on data from IoT, that provides a never-ending selection of recipes created by great chefs and recommendations for consumers (FoodOP, 2023).

Inside the kitchen, an automatically rotating of the menu items can help cut down on FW by decreasing food surplus (Total Food Service, 2023). Consumers' preferences can shift very quickly, especially in matters of taste (Smith and Lux, 1993, p.595). Thus, effective techniques regarding menu rotation are capable to prioritize various meals. This useful method aims to satisfy the different changes in consumers' tastes or to be a solution for the ingredients that begin to become scarce, during certain seasons of the year. Systems with AI enhancements are able to monitor the client's preferences. In this way, restaurants managers can give diners a new dining experience by changing menu over time based on AI system suggestions (Total Food Service, 2023).

In the age of digital menus and ordering, menu design is increasingly more relevant. Dynamic menu design and individualized recommendations are made possible by digital ordering (Roy *et al*, 2022, p.3702). FW can be reduced by increasing the use of digital ordering. Firstly, when consumers have additional customisation options, they can target the foods they require and want. Secondly, orders are processed without any human's errors when the ordering process is digitalized via mobile, web, or kiosks. These digital tools allow to easily take orders and send them straight to the kitchen, where they are accurately and thoroughly completed in accordance with the preferences of the consumers. Thus, by adapting the orders according to their needs and improving orders accuracy, digital ordering systems can reduce FW and generate financial savings for restaurants (Tacit, 2023).

Currently, the majority of commercial refrigeration-related businesses, including food service establishments, face a pressing need to track temperatures in real time (Zerynth, 2023). Another step to manage FW involves smart refrigeration systems. Tracking accurately and consistently the food from refrigerator is a difficult endeavor (Restaurant Technology News, 2019). But with the help of the IoT systems this task becomes easier. Longer food preservation is improved by adopting this digital technology. Unlike the classic ones, smart refrigeration systems are permanently monitoring the levels of temperature and humidity, and automatically adjusting the parameters to guarantee ideal storage conditions. Zerynth assists businesses in digitalizing their different processes (e.g., production). Particularly for refrigeration process, this industrial platform provides a solution based on IoT called Wi-Ref. This solution is very easy to be implemented within restaurant kitchens. If these two parameters are too low or excessively high, it tracks variables such as temperature and humidity and notifies the system to which it is connected. Zerynth helps restaurants to maintain the freshness and safety of perishable food (Zerynth, 2023).

#### **4.4. Food redistribution**

In recent years, there were developed a lot of methods referring to food redistribution during the final consumption stage (including HoReCa sector). This results in availability of various mobile technologies (apps) and websites that assist restaurants in food redistribution (Michelini *et al*, 2018, p.206; UNEP DTU Partnership and United Nations Environment Programme, 2021). Food service owners are using digital technology to address FW by enabling the recovery of the surplus food that would normally be thrown away. Therefore, digitality plays a huge role in connecting food that might be discarded with consumers or food banks (Cather, 2019).

On the one hand, by redistributing food to consumers, the food service business is sharing food for money. This for-profit strategy aims to generate income while reducing waste. The major goal of this concept is to reduce retail FW. One of the most representative digital tools is Too Good to Go app. It covers a large area of Europe and provides an interface where units from HoReCa list their unsold food. Users may then look up nearby restaurants on the map and buy food products for a small fraction of the initial retail price. Additionally, Too Good To Go features an option for users to enter their dietary needs and collaborates with units in the HoReCa sector to assist them in examining their specific FW issues. In the same way, users of the Karma app or Breeding website can purchase significantly discounted fresh food that might otherwise be discarded (Corbo and Fraticelli, 2015, p. 137; Oddbox Team, 2021; UNEP DTU Partnership and United Nations Environment Programme, 2021).

On the other hand, the foodservice business can donate the surplus food to food banks which means sharing for charity. Donors can be rewarded with financial incentives as well as they can easily reduce FW (Cather, 2019; UNEP DTU Partnership and United Nations Environment Programme, 2021). For instance, apps like The Food Rescue US and Goodr aim to combat food insecurity by creating a link between donors and organizations that help hungry people. While The Food Rescue US app features a request meal delivery option, the Goodr app enables companies to plan food pick-ups (Bozhinova, K., 2018).

## 5. Conclusions

Food waste is a global issue and occurs at the consumption stage. The HoReCa sector accounts for approximately 12% of total food waste, and the surge in out-of-home meals, increased earnings and tourism growth are all expected to enhance this contribution further. Foodservice units must not undervalue the role that digitality plays in managing food waste. By adopting and implementing digital technologies such as Artificial Intelligence, Internet of Things and Big data in food preparation processes, HoReCa sector can benefit from leftovers tracking (knowledge about expiration dates and leftovers), food inventory and delivery times optimization (improvement of purchase decisions and orders delivered more accurately and in time), kitchen automation (better recipes management) and food redistribution (almost all the food ends up being consumed). Based on these technologies, numerous companies have developed powerful digital tools aiming to prevent and minimize as much as possible food waste. For instance, digital storage spaces and kiosks, cameras, sensors, useful apps and websites, all powered by intelligent softwares, were specially designed to achieve a better food waste management in HoReCa industry.

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## The Evolution of the World's Most Valuable Brands in the Period 2018-2023

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### Abstract

*The competition between enterprises has become more fiercely as they have the possibility to easily move across national boundaries to exploit opportunities in other countries or markets. The turbulent market environment imposes enterprises, irrespective of their size, industry and geographical region, to permanently adapt to its everchanging conditions. This is why they have tried to identify and implement various techniques and methods in their activities and processes in order to attain high levels of competitiveness. One of them is branding, a powerful marketing tool and an important aspect of any business. The paper aims to briefly define the brand concept and present the evolution of ten world's most valuable brands in the period 2018-2023. In this respect, the author used a qualitative research method. The results of the paper concludes that the American brands have dominated the hierarchy. Amazon and Apple were the two main competitors for the global supremacy.*

**Key words:** brand, brand value, enterprise, Amazon, Apple

**J.E.L. classification:** M00, M31

### 1. Introduction

The last decades witnessed the appearance of numerous changes in the global business world. Alongside the unprecedented expansion of the globalization process all over the world (Cornescu *et al*, 2004), other phenomena, such as the rapid diffusion of disruptive technologies (Grossman *et al*, 2015) and the emergence of the COVID-19 pandemic combined with its economic effects (Belitski *et al*, 2021), have significantly impacted the way business organizations performed in recent years.

As the business world has increasingly become hypercompetitive in the past decades, multinational and transnational corporations worldwide have made significant efforts to occupy higher positions in the global arena. In this sense, the competition between enterprises has become more fiercely as they have the possibility to easily move across national boundaries to exploit opportunities in other countries or markets (Masroor *et al*, 2019).

The turbulent market environment imposes enterprises, irrespective of their size, industry and geographical region, to permanently adapt to its everchanging conditions (Toma *et al*, 2007). This is why they have tried to identify and implement various techniques and methods in their activities and processes in order to attain high levels of competitiveness. One of them is branding, a powerful marketing tool and an important aspect of any business (Haig, 2004). The brand names products and/or services have become parts of our daily life (MacNabb, 2018).

The paper aims to briefly define the brand concept and present the evolution of ten world's most valuable brands in the period 2018-2023. The structure of the paper is as follows. The next chapter illustrates the literature review. The third chapter of the paper displays the research methodology. The findings of the paper are shown in the fourth chapter. The paper ends with conclusions.

## 2. Literature review

In a hypercompetitive global business environment (Toma, 2005; Toma, 2013), the brand and its value have increasingly become a differentiation factor (Modreanu *et al*, 2023). The growing recognition of the brand as a critical component of the marketing mix (Grădinaru *et al*, 2017a; Toma *et al*, 2018a; Catană *et al*, 2021a), either for products or services (Grădinaru *et al*, 2016; Grădinaru *et al*, 2017b; Catană *et al*, 2021b), and the increasing emphasis on brand value in determining enterprise wealth (Arvidsson, 2006) have led to the emergence of an array of scientific studies related to this topic in the literature. Despite the inexistence of an universal definition, the concept of brand is considered as:

- "a mechanism for achieving competitive advantage for firms, through differentiation (purpose)" (Wood, 2000, p.666).
- "a make of product, which can be recognised by a name or by a design" (Collin, 2007, p.41).
- "the name of a product that a particular firm makes" (Brookes, 2011, p.57).
- "an organization's promise to a customer to deliver what the brand stands for not only in terms of functional benefits but also emotional, self-expressive, and social benefits" (Aaker, 2014, p.1).
- "an intangible marketing or business concept that helps people identify a company, product, or individual" (Kenton, 2022, p.1).

Thus, the term of the brand has different meanings for various authors. However, it is a quasi-general opinion that there is a strong relationship between a products/services and brands.

As the "strategic outcome of marketing initiatives of a firm useful to measure the effectiveness of efficiency of other organisational strategies" (Gupta *et al*, 2020, p.212) brand value represents its financial value and, therefore, a key corporate performance metric. In other words, brand value shows "the sale or replacement value of a brand" (Raggio *et al*, 2007, p.387) and constitutes "what the brand is worth to management and shareholders" (Kumar Tiwari, 2010, p.421). Consequently, a brand and its value play an important role within the marketing mix of an enterprise, in particular, and within its business strategy, in general (Toma *et al*, 2015a; Toma *et al*, 2015b; Toma *et al*, 2016). Moreover, the business model of an enterprise is also influenced by its brand value in an increasingly digitalized business world (Tohănean *et al*, 2018; Toma *et al*, 2018b; Toma *et al*, 2019).

These considerations show that the brand value concept is important both in theory and practice. This is why the evolution of the first ten world's most valuable brands in recent years is illustrated in the fourth section of the paper.

## 3. Research methodology

In order to attain the purposes of the paper, the author employed a qualitative research method based on a desk research investigation. Several secondary sources of data were explored through desk research. In this sense, the author searched for information in Romanian libraries and electronic databases. After the deployment of the literature review, he analyzed and synthesized the data. In the end, the author concluded the paper.

## 4. Findings

After reviewing the scientific literature, the author thoroughly analysed all the data obtained. This allowed him to reach several interesting results. In 2018, Amazon was the most valuable brand all over the world (Table no. 1), followed by Apple and Google. The first ten world's most valuable brands were from:

- the United States of America (USA): Amazon, Apple, Google, Facebook, AT&T, Microsoft, Verizon, Walmart;
- the People's Republic of China (PRC): Industrial and Commercial Bank of China (ICBC);
- South Korea: Samsung.

*Table no. 1. The ten world's most valuable brands in 2018*

No.	Company	Value (\$m)
1	Amazon	150,811
2	Apple	146,311
3	Google	120,911
4	Samsung	92,289
5	Facebook	89,684
6	AT&T	82,422
7	Microsoft	81,163
8	Verizon	62,826
9	Walmart	61,480
10	ICBC	59,189

Source: (Brand Finance, 2018, p.9)

One year later, Amazon preserved its first place in the world (Table no. 2), followed by the same Apple and Google. The first ten world's most valuable brands were from:

- the USA: Amazon, Apple, Google, Microsoft, AT&T, Facebook, Verizon;
- the PRC: ICBC, China Construction Bank;
- South Korea: Samsung.

*Table no. 2. The ten world's most valuable brands in 2019*

No.	Company	Value (\$m)
1	Amazon	187,905
2	Apple	153,634
3	Google	142,755
4	Microsoft	119,595
5	Samsung	91,282
6	AT&T	87,005
7	Facebook	83,202
8	ICBC	79,823
9	Verizon	71,154
10	China Construction Bank	69,742

Source: (Brand Finance, 2019, p.9)

The year 2020 witnessed a small change in the hierarchy as Google surpassed Apple (Table no. 3) but without threatening Amazon, the leader. The first ten world's most valuable brands were from:

- the USA: Amazon, Google, Apple, Microsoft, Facebook, Walmart;
- the PRC: ICBC, Ping An, Huawei;
- South Korea: Samsung.

*Table no. 3. The ten world's most valuable brands in 2020*

No.	Company	Value (\$m)
1	Amazon	220,791
2	Google	159,722
3	Apple	140,524
4	Microsoft	117,072
5	Samsung	94,494
6	ICBC	80,791
7	Facebook	79,804
8	Walmart	77,520
9	Ping An	69,041
10	Huawei	65,084

Source: (Brand Finance, 2020, p.11)

In 2021, Amazon lost its first place and Apple finally succeeded in becoming the leader (Table no. 4). The first ten world's most valuable brands were from:

- the USA: Apple, Amazon, Google, Microsoft, Walmart, Facebook, Verizon;
- the PRC: ICBC, WeChat;
- South Korea: Samsung.

*Table no. 4. The ten world's most valuable brands in 2021*

No.	Company	Value (\$m)
1	Apple	263,375
2	Amazon	254,188
3	Google	191,215
4	Microsoft	140,435
5	Samsung	102,623
6	Walmart	93,185
7	Facebook	81,476
8	ICBC	72,788
9	Verizon	68,889
10	WeChat	67,902

Source: (Brand Finance, 2021, p.13)

One year later, Apple preserved its first place in the world (Table no. 5), followed by the same Amazon and Google. The first ten world's most valuable brands were from:

- the USA: Apple, Amazon, Google, Microsoft, Walmart, Facebook, Verizon;
- the PRC: ICBC, Huawei;
- South Korea: Samsung.

*Table no. 5. The ten world's most valuable brands in 2022*

No.	Company	Value (\$bn)
1	Apple	355.1
2	Amazon	350.3
3	Google	263.4
4	Microsoft	184.2
5	Walmart	111.9
6	Samsung	107.3
7	Facebook	101.2
8	ICBC	75.1
9	Huawei	71.2
10	Verizon	69.6

Source: (Brand Finance, 2022, p.11)

The year 2023 witnessed the comeback of Amazon as a leader, followed by Apple and Google (Table no. 6). The first ten world's most valuable brands were from:

- the USA: Amazon, Apple, Google, Microsoft, Walmart, Verizon, Tesla;
- the PRC: ICBC, TikTok;
- South Korea: Samsung.

*Table no. 6. The ten world's most valuable brands in 2023*

No.	Company	Value (\$bn)
1	Amazon	299.3
2	Apple	297.5
3	Google	281.4
4	Microsoft	191.6
5	Walmart	113.8
6	Samsung	99.7
7	ICBC	69.5
8	Verizon	67.4

9	Tesla	66.2
10	TikTok	65.7

Source: (Brand Finance, 2023, p.13)

In the period 2018-2023, the developed countries, in a considerable proportion, have clearly dominated the hierarchy of the world's most valuable brands. The findings expose several valuable insights as follows:

- The American brands succeeded in taking over the supremacy at the top of the first ten world's most valuable brands: eight brands in 2018, seven brands in 2019, six brands in 2020, seven brands in 2021, 2022 and 2023.
- Four American brands (Amazon, Apple, Google, Microsoft), one Chinese brand (ICBC), and one South Korean brand (Samsung) were always present in the hierarchy.
- Amazon remained the most valuable brand in the world in the period 2018-2020 and Apple in the period 2021-2022. In 2023, Amazon retook the top spot despite the fact its brand lost around US\$50 billion.
- The value of the brand leader continuously increased in the period 2018-2022 and decreased in 2023.
- The pre-pandemic period (2018-2019) witnessed the presence of the same nine brands in the top ten: seven from the USA (Amazon, Apple, Google, Facebook, AT&T, Microsoft, Verizon), one from the PRC (ICBC), and one from South Korea (Samsung).
- The pandemic period (2020-2021) attested the existence of the same eight brands in the top ten: six from the USA (Amazon, Google, Apple, Microsoft, Facebook, Walmart), one from the PRC (ICBC), and one from South Korea (Samsung).
- The post-pandemic period (2022-2023) witnessed the presence of the same eight brands in the top ten: : six from the USA (Apple, Amazon, Google, Microsoft, Walmart, Verizon), one from the PRC (ICBC), and one from South Korea (Samsung).
- The presence of ICBC, the world's largest bank in terms of total assets, has remained a constant phenomenon.

In sum, 60% of the first ten world's most valuable brands have remained the same in the period 2018-2023. The above-mentioned results show that most of them were Americans.

## 5. Conclusions

The competition among enterprises has become more intense in an everchanging global business environment. In order to face multiple and continuous changes business organizations have understood the need to identify and implement in their processes valuable tools and methods that can allow them to remain competitive. In this respect, brands and their values are critical elements of their business strategies and models.

The paper contributes to the enrichment of the scientific literature related to this topic. First, it provides a better understanding of the brand concept, emphasizing the importance of its value. Second, the paper analyses the evolution of ten world's most valuable brands in the period 2018-2023 and concludes that the American brands have evidently dominated the hierarchy. Amazon and Apple, two famous American brands, were the two main competitors for the global supremacy.

Further researches may be widen this study by taking in consideration other characteristics of the brands.

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## The Age of Agile Enterprises

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### Abstract

*Since the turn of the century, the global market environment has become hypercompetitive. As the pace of technological novelty continues to abruptly advance, the competition between enterprises will be more intense. In order to meet customer expectations and quickly respond to market changes, enterprises has to apply agility to their processes, products and/or services. It is basically a winning business philosophy and mindset that should be part of any organizational culture as agility conducts to productivity gains, quality improvement and innovation. The aims of the paper are to define the agile enterprise concept and briefly characterize this type of enterprise. To reach the goals of the paper, the author used a qualitative research method based on a desk research exploration. The paper contributes to a better understanding of the agile enterprise concept. Also, it briefly illustrates some of the key features of agile enterprises that led to their expansion worldwide.*

**Key words:** agile enterprise, agility, enterprise, organization

**J.E.L. classification:** L2, M00

### 1. Introduction

Since the turn of the century, the global market environment has become hypercompetitive. A plethora of factors, such as the diffusion of globalization all over the world, the rapid ageing of the workforce, especially in advanced economies, the labour force migration, the higher-than-expected rate of inflation, geopolitical tensions, customization and the widespread adoption of new technologies, have led to significant changes both in the economic and business landscape (Lipsey, 1999; Toma, 2005; Krueger, 2006; Shine, 2023).

As the pace of technological novelty continues to abruptly advance, the competition between enterprises as well as between countries will be more intense. Digitalization, Internet of Things, communications and artificial intelligence (AI) are among the factors that have a major impact on enterprises and provide competitive advantage in today's Industry 4.0 (Tohănean *et al*, 2018; Toma *et al*, 2018; International Strategic Analysis, 2019). The emergence and rapid expansion of AI in an increasing number of domains (e.g., data analytics, aerospace, automotive industry, defense industry) is already producing breakthrough innovations and efficiency improvements (Siraudin *et al*, 2023). Moreover, AI-based approaches strengthen systems agility and resilience, and facilitate growth (Wang *et al*, 2022; Stern *et al*, 2023).

Today's turbulent market environment requires business organizations to continuously adapt to its shifting conditions. In order to meet customer expectations and quickly respond to market changes, enterprises has to apply agility to their processes, products and/or services. It is basically a winning business philosophy and mindset that should be part of any organizational culture as agility conducts to productivity gains, quality improvement and innovation.

The aims of the paper are to define the agile enterprise concept and briefly characterize this type of enterprise. The paper is structured as follows. The next part displays the literature review. The research methodology is shown in the third part of the paper. The findings of the paper are illustrated in the fourth part. The last part of the paper exhibits the conclusions.



## 2. Literature review

Since the beginning of this century, numerous scientific studies have been published about agile enterprises. Agile means not only able to „move quickly and easily” (The Britannica Dictionary, 2023, p.1), but also to successfully deal with changes (Cambridge Dictionary, 2023) or to „move with quick easy grace” (Merriam-Webster, 2023, p.1). Due to the fact that today’s complex business world requires continuous adaptation to its shifting conditions, agility has become a core feature of many enterprises, regardless of their dimension and industry. As a characteristic that helps an organization to “deliver more value to customers and achieve better business outcomes” (Moreira, 2017, p.2) and “the ability of an organization to thrive in a continuously changing, unpredictable business environment” (Dove, 1991, p.19), agility encompasses not only the physical ability to operate but also the intellectual capacity to detect suitable things to act on (Dove, 2001).

In academia, the agile enterprise concept was launched in 1991 when the American Lehigh University organized a collaborative workshop entitled “21st Century Manufacturing Enterprise Strategy– An Industry Led View” (Dove *et al*, 1991). In spite of the fact there is no universal definition, the agile enterprise is seen as:

- “one which is able to both manage and apply knowledge effectively” (Dove, 1991, p.18).
- “the ability of an enterprise to develop and exploit its inter- and intra-organisational capabilities to successfully compete in an uncertain and unpredictable business environment” (Hooper *et al*, 2001, p.630).
- “the organisation’s capacity to gain competitive advantage by intelligently, rapidly and proactively seizing opportunities and reacting to threats” (Bessant *et al*, 2002, p.487).
- an organization that “has a continuous change culture and business processes to adapt the enterprise in response to disruptive events” (Cummins, 2009, p.23).
- “an organization’s ability to develop and quickly apply flexible, nimble and dynamic capabilities” (Holbeche, 2015, p.11).

The deployment of the Fourth Industrial Revolution has changed the way enterprises operate all over the world. The fusion of technologies is one of the main features of this revolution that has led to the emergence of a new type of enterprises, digital and agile (Toma, 2013; Schwab, 2016; Siebel, 2019). The vast majority of them are familiar with and use a plethora of distinct tools and methods in order to become and remain competitive, such as Six Sigma (Toma, 2008; Van Assen *et al*, 2009), balanced scorecard (Toma *et al*, 2010; Van den Berg *et al*, 2015), quality management (Toma *et al*, 2009; McGrath *et al*, 2017), lean management (Ten Have *et al*, 2003; Marinescu *et al*, 2008;), marketing mix (Grădinaru *et al*, 2017a; Catană *et al*, 2021), corporate social responsibility (Toma *et al*, 2011; Imbrișcă *et al*, 2020) and organizational learning (Toma, 2012; Marinescu *et al*, 2013). Also, the Fourth Industrial Revolution imposes enterprises to adopt entrepreneurial thinking (Grădinaru *et al*, 2017b; Zainea *et al*, 2020), rapidly design and implement enduring strategies (Cornescu *et al*, 2004; Toma *et al*, 2015; Toma *et al*, 2016) and green business models (Toma *et al*, 2019).

Therefore, the agile enterprise concept represents a rather complex one in the business literature. Some of the main characteristics of this type of enterprise are briefly displayed in the fourth section of the paper.

## 3. Research methodology

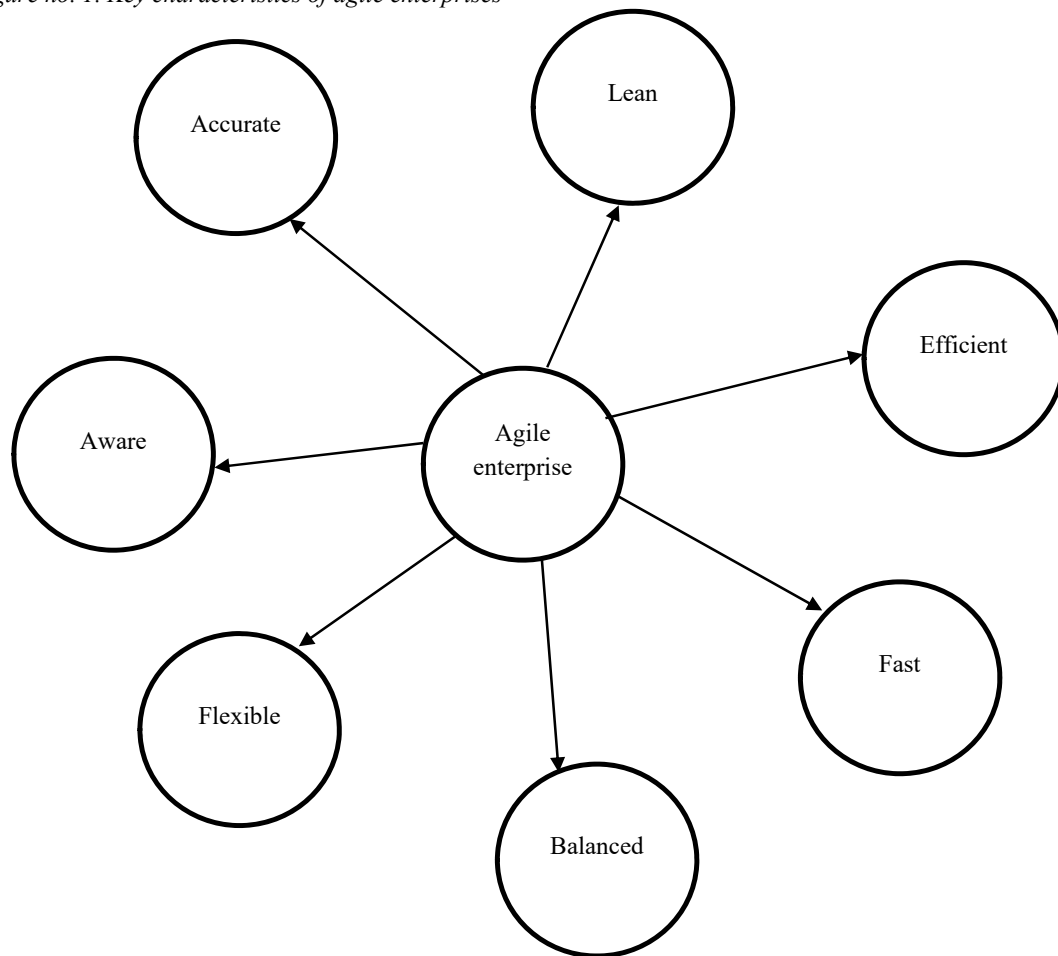
To reach the aims of the paper, the author used a qualitative research method based on a desk research exploration. The desk research was based on the investigation of various secondary sources through the deployment of a broad literature review. In this respect, the author identified and classified several articles and books found in Romanian libraries (e.g., the Central University Library Carol I of Bucharest) and electronic databases (e.g., Emerald Insight). Then, he analyzed, synthesized the data and, wrote the paper.

#### 4. Findings

After carrying out the literature review, the author succeeded in reaching some interesting results. He identified the following main features of the agile enterprise:

- Enterprise agility has three cornerstones:
  - The well-timed awareness that changes should be performed, facilitated by concentrated knowledge management processes.
  - The effective hierarchization and choice-making from several competing variants, facilitated by value-propositioning skills.
  - The response ability which represents the capacity of changing business processes and customizing responses in due time (Dove, 2005).
- There are several key characteristics of a an agile enterprise. Efficiency and flexibility are among them (Figure no. 1).

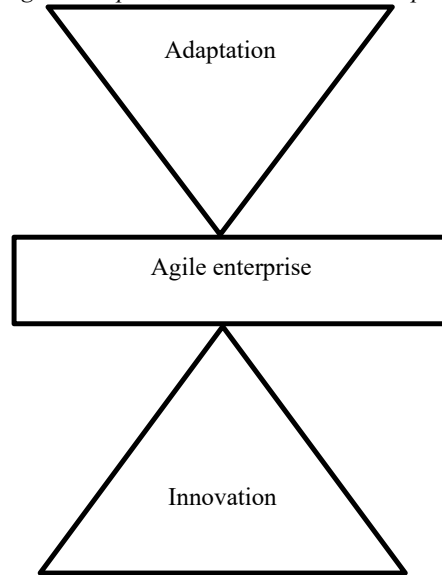
Figure no. 1. Key characteristics of agile enterprises



Source: (Waldock, 2015)

- An enterprise may become agile by achieving the balance between the adaptation approach and the innovative approach (Figure no. 2). On the one hand, the innovative capacity allows an enterprise to change the environment. Thus, it may become a disruptive force within the marketplace. On the other hand, the enterprise has to adapt itself to the market changes.

Figure no. 2. The agile enterprise, a balance between adaptation and innovation



Source: (Pal et al, 2005)

- As a business organization, the agile enterprise has to be able to face the threats and seize the opportunities of its external environment. In this sense, it should assimilate the values and principles of the agile philosophy and implement them in its processes and activities as follows:
  - an organizational culture of engaging both customers and employees;
  - a learning organizational culture;
  - accurate knowledge management;
  - focus on the desired business outcomes;
  - continuous delivery of valuable products and/or services;
  - building projects around motivated people;
  - sustainable development;
  - ability to manage change;
  - adaptive capacity;
  - quickness in decision-making;
  - technical excellence;
  - good design;
  - accelerated innovation;
  - speed;
  - simplicity;
  - self-organizing work teams etc. (Holbeche, 2015; Moreira, 2017).
- In order to rapidly adapt to disruptive phenomena, the top management of an agile enterprise should have a new way of business thinking. As agility requires a new business paradigm, technology plays a fundamental role in its processes and activities. This is why the agile enterprise uses and implements specific configurations and methods, such as service-oriented architecture (SOA), model-driven architecture (MDA), and business process management (BPM).

The above-mentioned characteristics illustrate that agile enterprises may become successful business organizations in a highly turbulent global business world.

## 5. Conclusions

In the last decades, agility has been a topic of interest for many researchers and practitioners from various domains. Consequently, agility has become a quintessential characteristic of many enterprises all over the world, irrespective of their size and industry, operating in a constantly changing environment.

The paper contributes to a better understanding of the agile enterprise concept. Also, it briefly illustrates some of the key features of agile enterprises that led to their expansion worldwide.

This research may be widened by future studies that can emphasize other characteristics of agile enterprises.

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## Study on Visual Identity Elements Used in the Coffee Market in the Digital Age

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### Abstract

*Historical visual identity features have been used primarily in the physical environment. Its application in the virtual world has become essential due to digitalization and digital marketing development. The Romanian coffee market is characterized by several elements, such as preferences for specific varieties of coffee, consumption patterns, and coffee's cultural significance. The authors conducted quantitative marketing research to ascertain consumer perceptions, views, and attitudes regarding the visual identity components employed by businesses in the Romanian coffee market in offline and online environments. The research's findings showed that most respondents consume coffee, with a sizable portion doing so several times daily. Investing in visual identity components may make coffee brands stand out, draw in new customers and keep existing ones. The brand is significant when deciding which coffee to drink, with quality and cost also important considerations.*

**Key words:** marketing strategies, design, packaging, coffee market, visual identity

**J.E.L. classification:** M31

### 1. Introduction

The coffee market is competitive with strong players who must use visual identity elements as part of the applied marketing policy. They contribute sustainably to increase the visibility of products on the market and convince the consumer to make the purchase decision.

If in the past visual identity elements were used mainly in the physical environment, due to the evolution of digitalization and digital marketing, their use in the virtual environment has become a necessity. For a company it is essential to synchronize the visual identity elements used in the physical environment and those used in the virtual environment (Pu et al, 2023, p.4).

Nowadays, the goal of any company is to create a strong brand using visual identity elements that are easily recognizable by consumers and that send a clear message to them. Visual identity elements are characterized by solid shape, color and graphics to make the company and its products stand out on the market (Olins, 2009, p.30).

The primary purpose of the paper was to identify the attitudes and opinions of consumers regarding the visual identity elements used in the physical and virtual environment by the companies in the coffee market in Romania. In addition, the authors also sought to identify the most important visual identity elements used by the big players in the coffee market in Romania. In this regard a quantitative marketing research has been carried out.

## **2. Literature review**

### **2.1. Coffee consumption in Romania**

Coffee consumption in Romania has been on the rise recently, with many coffee shops and cafes popping up in cities and towns across the country. Various factors, including preferences for certain types of coffee, trends in coffee consumption and the role of coffee in Romanian culture, characterize the Romanian coffee market.

In terms of coffee consumption trends, the Romanian market has shifted towards specialty coffee in recent years. Specialty coffee refers to coffee made from high-quality beans grown and processed using sustainable methods. It is often roasted in small batches and has a distinct flavor profile. Many coffee shops and cafes in Romania now offer specialty coffee drinks and some even roast their beans in-house (Neacșu, 2020, p.111).

Another trend in the Romanian coffee market is the rise of third-wave coffee shops. It refers to a movement that emphasizes the quality and craft of coffee making. These shops often focus on single-origin coffee and offer a variety of brewing methods, such as pour-over or French press. They also strongly emphasize the sourcing and roasting of their beans, often working directly with coffee farmers and cooperatives to ensure fair prices and sustainable practices (Perfect Daily Grind, 2017).

Despite the growing interest in specialty coffee, traditional coffee shops and cafes continue to be popular in Romania. These establishments typically serve a range of coffee drinks, pastries and other snacks. They often have a cozy and welcoming atmosphere and many view them as important social spaces where they can meet with friends and family (Wang, 2022, p.24). Coffee also plays an important role in Romanian culture. It is often a welcoming gesture to guests in homes and businesses and is considered an essential part of hospitality. Many Romanians also enjoy coffee breaks during the workday.

Regarding the direction of the Romanian coffee market, the trend toward specialty coffee and third-wave coffee shops will likely continue. Consumers are becoming more interested in the quality and sustainability of their coffee and are willing to pay a premium for high-quality beans and unique brewing methods. However, traditional coffee shops and cafes will also remain popular, particularly in smaller towns and villages where they play an essential role in community life. As mentioned by (Maciejewski *et al*, 2019, p.140) "consumers expect coffee that is easy to prepare, even ready for immediate consumption, high quality and yet affordable. Coffee which will stimulate you, but also improve the time spent at work or with friends. Coffee which entertains with its unusual combinations and intrigues with its original technological solutions. The actions of coffee producers and sellers responding to these expectations take the form of product trends."

Overall, the Romanian coffee market is diverse and dynamic, with various preferences and trends shaping its direction.

### **2.2. Coffee brands present in Romania**

The coffee market in Romania has experienced significant growth in recent years, with a diverse range of international and local brands available to consumers. The market is characterized by a strong presence of Italian and German coffee brands, which offer a range of products, including whole bean, ground, and capsule options (Capital, 2023). Lavazza, Jacobs, Nescafe, Illy, Segafredo, and Tchibo are Romania's most popular international brands. However, there is also a growing interest in local Romanian coffee brands, such as Doncafe or Cafea Fortuna. These brands offer a range of products, including whole bean, ground and instant coffee, as well as coffee capsules and pods (Gros, 2022).

The direction of the Romanian coffee market is towards greater diversity and specialization, with consumers showing an increasing interest in high-quality, specialty coffees and unique brewing methods (Ferro, 2022). As the coffee culture in Romania continues to develop, there is potential for local coffee brands and specialty roasters to gain greater prominence and recognition. Furthermore, the increasing popularity of online sales channels and home brewing equipment may also provide opportunities for smaller coffee brands to reach a wider audience.



The Romanian coffee market is characterized by a wide range of international and local brands, reflecting the country's diverse coffee culture. As the market continues to evolve, it will be interesting to see how local brands and specialty roasters adapt to changing consumer preferences and compete with established international brands.

### 2.3. Visual identity elements used by coffee brands

Visual elements are crucial in building a coffee brand's identity and creating a memorable customer experience. Coffee brands use various visual elements to distinguish themselves from their competitors and convey their values to consumers. These elements can include the brand logo, packaging design, color schemes, typography and imagery. (Mergillano, *et al*, 2022, p.336) states that they bring "creativity and branding together, giving consumers visual elements that reflect their feelings about a company or brand. These attributes are not only for creative purposes. It also provides instant recognition to some brands, and many combinations can be used depending on the type of advertisement a brand will be producing".

One of the essential visual elements used by coffee brands is their logo. The logo is the primary symbol representing the brand and is often the first thing customers notice. Many coffee brands have distinct logos that feature coffee-related imagery, such as coffee beans, cups or steam. Some logos also uniquely and recognizably incorporate the brand using a specific font or color scheme (Agustin, 2021, p.2).

Packaging design is another important visual element used by coffee brands. The packaging design must be visually appealing and communicate the brand's values and quality to customers. Many coffee brands use earthy and natural color schemes to convey a sense of authenticity and quality, while others use bright and bold colors to stand out on store shelves. The packaging design may also feature coffee-related imagery, such as illustrations of coffee beans or brewing methods (Swasty *et al*, 2021, p.1).

Graphic is another visual element used by coffee brands to convey their identity. The font used for the brand name and other text on the packaging or promotional materials can evoke different emotions and associations in customers. For example, a bold and modern font may suggest innovation and cutting-edge quality, while a more traditional and ornate font may convey a sense of history and tradition. Imagery is another important visual element used by coffee brands to communicate their values and create an emotional connection with customers. Many coffee brands use imagery that evokes the coffee production process, such as photos of coffee beans or farmers. This imagery can help convey a sense of authenticity and ethical sourcing practices. Other coffee brands may use imagery more focused on the customer experience, such as photos of people enjoying coffee in a cozy cafe or socializing with friends over a cup of coffee (Sousa, 2020, p.2).

Visual elements are essential for coffee brands in online communications. They are arguably more important online than physical retail due to the digital space's highly competitive and visually-driven nature.

Firstly, the internet is a highly visual medium and images and videos tend to receive more engagement and attention from consumers than text-based content. Coffee brands must use visual elements effectively to capture their audience's attention and communicate their message. Secondly, online platforms such as social media and e-commerce websites offer coffee brands the opportunity to showcase their visual elements in a highly curated and controlled way. Brands can use high-quality product photography, videos, and graphics to create a consistent and appealing visual identity across their online channels. This can help create a sense of trust and credibility with customers, who are likelier to engage with brands that present a professional and visually appealing image online. Thirdly, visual elements can help coffee brands stand out in a crowded online marketplace. With so many coffee brands vying for consumers' attention online, a visually compelling and distinctive brand identity can help a brand differentiate itself from its competitors and create a lasting impression in customers' minds (Park *et al*, 2022).

Visual elements can help coffee brands to communicate their values and build an emotional connection with customers online. By using imagery and videos that convey a brand's ethical and sustainability values, they can create a sense of purpose and engagement with customers who share these values (Chaffey *et al*, 2019, p.152)

Overall, visual elements are crucial for coffee brands in online communications. By using high-quality imagery, videos, and graphics, brands can capture their audience's attention, differentiate themselves from competitors, communicate their values and build a lasting emotional connection with customers.

Considering all the aspects mentioned above, the research questions that emerge are: What factors influence consumers in choosing a particular coffee brand in the Romanian market? What is the role of visual identity elements in the virtual environment for coffee companies in Romania, and how do consumers perceive this role? How effectively do coffee companies use the visual identity elements in Romania to create a positive brand image? The research questions aim to gain insight into Romanian coffee consumers' opinions, attitudes and perceptions towards the coffee market and the visual identity elements used by coffee companies both online and offline.

### 3. Research methodology

In order to determine the opinions, perceptions and attitudes of consumers regarding the visual identity elements used in the offline and online environment by the companies in the Romanian coffee market, the authors conducted a quantitative marketing research.

Given the topic of the paper and the research questions identified, the survey conducted was based on the following objectives:

O1 – identifying respondents' opinions on the coffee market and the reasons for choosing a particular brand.

O2 - identifying the respondents' opinions and attitudes toward the visual identity elements used in the offline and online environment by the companies in the Romanian coffee market.

O3 - determining the respondents' perception of the place and the role of visual identity elements in the virtual environment.

The research method used was the online survey, the data collection tool was the computer-administered questionnaire (CAWI: computer-assisted Web interviewing). The questionnaire included 24 questions, 19 of which concerned the collection of information on the analyzed topic, namely the opinions and attitudes of the population questioned on the visual identity elements used offline and online by the companies in the coffee market, and the final five questions collected the data necessary for the characterization of the respondents.

Given the exploratory nature of the research and the large geographical dispersion, the aim was to obtain as many questionnaires as possible completed by consumers. The study was conducted on a sample of 602 consumers, structured as follows: 53.5% women, 46.5% men, out of which 66.1% came from urban medium and 33.9% from rural one. The age of the surveyed subjects is presented in Table 1, the majority of the people surveyed (31.23%) had ages between 36 to 50 years, followed by those with ages of 25 to 35 years (23.42%).

*Table no. 1 Descriptive information of survey participants*

Categories		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 25 years	113	18.77	18.77	18.77
	25 - 35 years	141	23.42	23.42	42.19
	36 – 50 years	188	31.23	31.23	73.42
	51 – 65 years	102	16.94	16.94	90.36
	Over 65 years	58	9.64	9.64	100.0
<b>Total</b>		602	100.0	100.0	

Source: Authors' own research

The data was analyzed using the IBM Statistical Package for Social Sciences (SPSS) program. The authors have fully organized and supervised the research process, from the development of the questionnaire to the data analysis.

#### 4. Findings

In order to be competitive and productive, companies in the coffee market need to adopt elements of visual identity as diverse and ingenious as possible, both offline and online. With these elements, companies communicate the preliminary information to potential buyers and guide them in purchasing decisions.

The authors also analyzed the main visual identity elements for the most famous brands in the coffee market in Romania: Jacobs, Lavazza, Nescafe and Tchibo.

Jacobs is the leader of the Romanian coffee market and one of the most important players in the production and distribution of coffee. In physical and virtual environments, Jacobs mainly uses green and gold to promote itself. Green is a color associated with financial relationships and expresses concentration, security, and introspection. Gold is associated with luxury and elegance. Jacobs is identified by a logo in which a crown is symbolized at the base of a coffee bean and the company name is written in capital letters to stand out. The crown is a solar symbol, this is offered to the winners and signifies their victory (Jacobs, 2023).

Lavazza is an Italian coffee that has made itself known on the Romanian market, becoming one of the consumers' preferences, being second only to Jacobs. Lavazza also focuses on offline and online communication with consumers, so it uses an attractive and colorful design depending on the type of coffee. It uses several colors on the packaging, mostly red and blue, followed by gray (suggests financial support and strength), black (gives the impression of depth), brown, gold, purple and pink. Red is an intense color and quickly captures attention. This color has a stimulating effect on buyers because it tends to stimulate and guide them to action. Blue is a soothing color; it encourages calm and reverie, inner peace and seriousness, and suggests the thirst for knowledge. Lavazza identifies itself with the company logo, in which the blue color gives a sense of tranquility and guides consumers to purchase the products they sell. The company's name is written in capital letters in the foreground, and below it is the city and country of origin, as well as the year in which it started selling coffee (Lavazza, 2023).

Nescafe is the third-highest consumer brand in the world, belongs to Nestle and has been sold in Switzerland since 1938. Nescafe also focuses on communication with the consumer so it uses an attractive and colorful design depending on the type of coffee and the message it wants to convey. Thus, it uses several colors, red and gold are most often used, followed by blue, brown, orange, green, and yellow. Red is a strong color and quickly captures attention, incites action and shopping, and suggests abundance and luxury. Nescafe is identified with the company logo in which white noncolor is used, meaning purity and new, and the accent from "E" is red. The company's name is written in capital letters in the foreground to make it stand out (Nescafe, 2023).

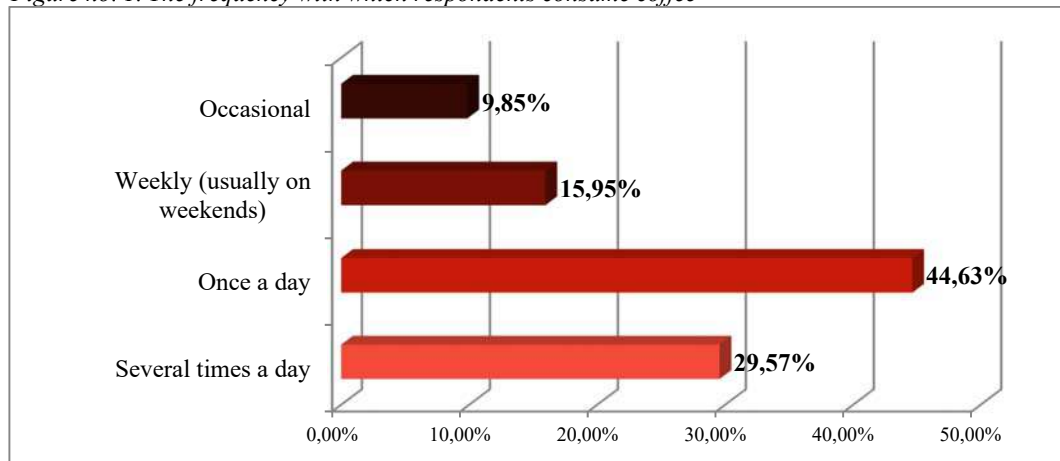
Tchibo is a German coffee company founded in 1949. In offline communication, it uses a modern design with commercial graphics, with the image of a cup of coffee on the packaging of the capsules and three coffee beans being present on the coffee packaging. It also uses an attractive and colorful design depending on the type of coffee. In the physical and digital environments, the main element of visual identity used by Tchibo is the color blue, a soothing but powerful color that suggests elegance and seriousness. Tchibo is identified with the logo of the company written calligraphically, and above we find a coffee bean combined with the letter "s" to give the smell of aroma transmission (Tchibo, 2023).

Next, the quantitative research results are presented and structured on each of the objectives mentioned above.

##### ***01 – identifying respondents' opinions on the coffee market and the reasons for choosing a particular brand.***

Of the total respondents, only 5.65% said they were not coffee drinkers. Respondents who said they were coffee drinkers (94.35%) were asked to specify how often they drank coffee (fig.1). 29.57% reported drinking coffee several times a day, 44.63% once a day, 15.95% weekly (usually on weekends) and 9.85% occasionally.

Figure no. 1. The frequency with which respondents consume coffee

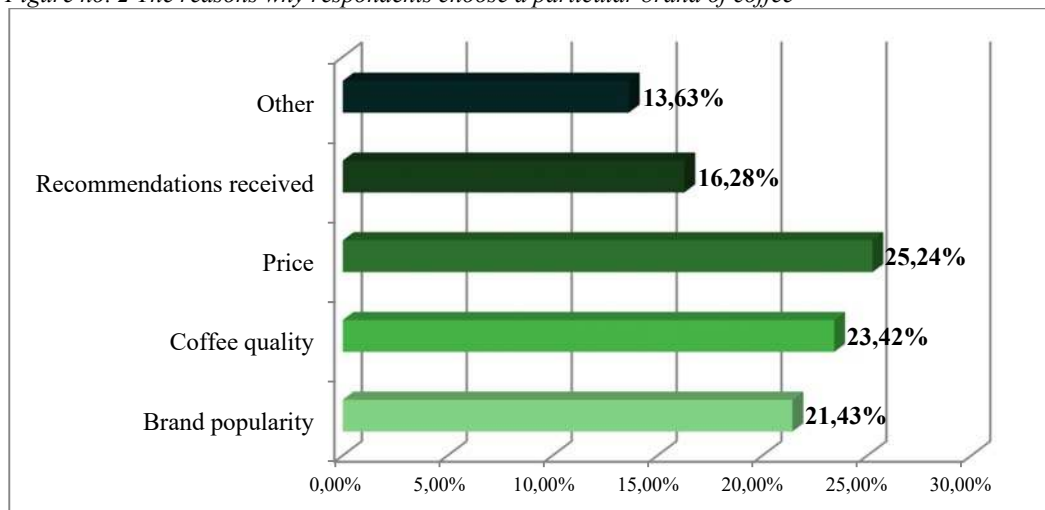


Source: Authors' own research

Of the respondents, a large proportion (71.59%) believe that the brand is important when choosing which coffee they want to consume. The authors wanted to identify the reasons for choosing a specific coffee brand by the respondents (fig. 2).

Also, 21.43% of the respondents said they chose coffee based on the brand's popularity, 23.42% chose it according to the quality of the coffee, 25.24% chose it according to the price and 16.28% chose it according to the recommendations received.

Figure no. 2 The reasons why respondents choose a particular brand of coffee



Source: Authors' own research

## ***O2 – identifying the respondents' opinions and attitudes toward the visual identity elements used in the offline and online environment by the companies in the Romanian coffee market.***

Further to the study, the authors wanted to identify the subjects' perceptions and opinions on the importance of visual identification elements used in the online and offline environment (table 2). Thus, referring to the market of the image, the respondents were asked to assess the importance of the most known visual identity elements in the physical environment and the virtual environment.

Table no. 2 The importance of visual identity elements

Characteristic	Not important at all (1)	Not important (2)	Moderately important (3)	Important (4)	Very important (5)	Scor
<b>Offline environment</b>						
1.Colour	4	59	130	218	191	<b>3.89</b>
2.Graphic	96	128	135	179	64	<b>2.98</b>
3.Shape	29	45	156	206	166	<b>3.72</b>
4.Text (message)	52	68	154	185	143	<b>3.49</b>
5.Logo	22	51	148	208	173	<b>3.76</b>
<b>Online environment</b>						
1.Colour	15	74	135	207	171	<b>3.74</b>
2.Graphic	16	31	120	241	194	<b>3.96</b>
3.Shape	307	141	128	26	0	<b>1.79</b>
4.Text (message)	12	58	129	209	194	<b>3.86</b>
5.Logo	28	61	142	203	168	<b>3.70</b>

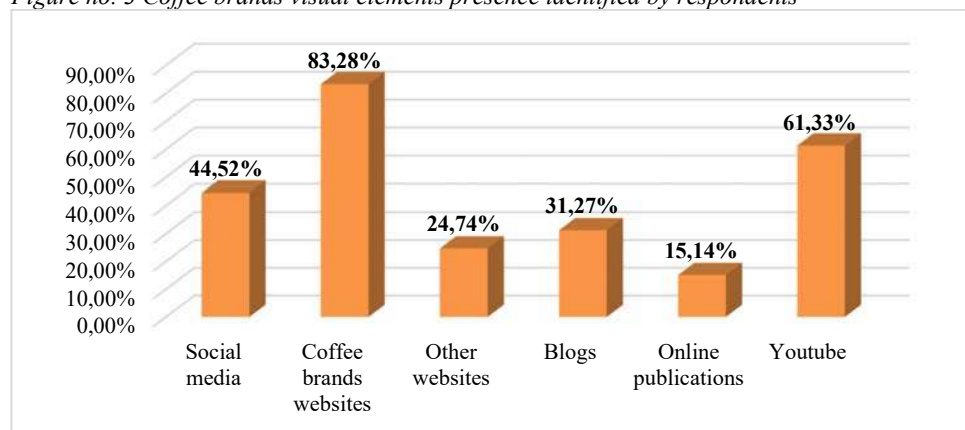
Source: Authors' own research

The data processing revealed that for the subjects, the most important elements of the visual identity in the offline environment were color (3.89 scores), logo (3.76 scores) and shape (3.72 scores). The text (3.49 scores) and graphic elements (2.98 scores) were considered less significant when evaluating their importance in offline circumstances. When comparing the online environment importance of the same elements of visual identity, the results emphasized as most important the graphic (3.96 scores) and message (3.86 scores), followed by colour (3.74 scores) and logo (3.70 scores). The shape was considered the least important element (1.79 scores).

### ***03 – determining the respondents' perception of the place and the role of visual identity elements in the virtual environment.***

Most respondents (91.2%) mentioned noticing the visual identity elements of various coffee brands in the online environment. The subjects were also asked to select the online channels where they saw these elements, the results are presented in fig. 3.

Figure no. 3 Coffee brands visual elements presence identified by respondents



Source: Authors' own research

The channel which the respondents most selected was the coffee brand's website (83.28%), followed by YouTube (61.33%) and social media channels (44.52%). The smallest percentages were obtained by blogs (31.27%), other websites (24.74%) and various online publications (15.14%).

In an industry with intense competition, a well-designed visual identity can help a coffee brand stand out from the crowd and attract and retain loyal customers. Elements such as logos, graphic, colors and messages can create a brand personality that resonates with the target audience.

Consistency in visual identity elements across various touchpoints, such as packaging, websites, and social media, can also reinforce brand identity and build trust with consumers. Investing in visual identity elements that appeal to the target audience can increase brand recognition, customer loyalty and revenue in the competitive coffee industry.

## 5. Conclusions

The research findings reveal that most respondents are coffee drinkers, with a significant proportion consuming coffee several times a day. The brand is essential when choosing which coffee to consume, with quality and price also playing a significant role.

The study shows that the most important visual identity elements in the offline environment are color, logo, and shape. At the same time, graphics and messages are considered the most significant elements in the online environment. The coffee brand's website, YouTube, and social media channels are the most common online platforms where consumers notice visual identity elements. These findings suggest that a well-designed visual identity is essential in the coffee industry. Investing in visual identity elements can help coffee brands stand out and attract and retain loyal customers.

Also, based on the research findings, coffee brands in Romania should prioritize developing a strong visual identity that appeals to offline and online consumers. The research indicates that a brand's popularity, quality, price and recommendations received are the main factors influencing consumers' coffee choices. Therefore, coffee companies should emphasize these factors in their marketing and branding strategies to attract and retain loyal customers.

Overall, the study provides valuable insights for coffee brands in Romania to enhance their branding and marketing efforts and increase their market share in the competitive coffee industry. By investing in the proper visual identity elements and effectively communicating their brand message, coffee companies can differentiate themselves from competitors and build a strong brand reputation among consumers.

The study's main setback of the paper is the inability to conduct a study using a random sample method, which prevents statistical validation of the sample and the application of the results to the entire population under consideration. However, the authors think the research brings a significant contribution to the study of the coffee market in Romania and the importance of the visual elements of the coffee brands in both online and offline environment.

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## Adapting Organizational Culture Analysis Tools for SMEs: Application for Veterinary Clinics

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### Abstract

*Every organization, regardless of its size and field of activity, has its own organizational culture, which depends on its evolution, problem-solving approaches, and managerial practices. Current theories define this organizational culture as the main cause of success or failure of organizational strategies. The first step in addressing dysfunctions regarding organizational performance is understanding how specific traits of an organization influence and even determine the behavior of each individual, as well as collective behavior.*

*To analyze the culture of an organization, researchers and consulting firms use various tools, typically applicable to large companies. The purpose of this study is to adapt the method of organizational DNA and its operationalization as a testing tool for traits and behaviors specific to veterinary practices, in order to identify and isolate the underlying causes of organizational dysfunctions and contribute to their elimination before they manifest.*

**Key words:** organizational DNA, veterinary services, organizational culture, diagnostic tools

**J.E.L. classification:** M10

### 1. Introduction

Organizational culture reflects the mix of personalities and leadership styles, leaving its mark on how things will be accomplished, changes will be made, organizational personality will be expressed, and the psychosocial climate will manifest. It is represented by the system of values, the common beliefs of organization members regarding its existence and functioning, rituals, myths, and incidents that shape how employees think and act (Nica *et al*, 2014).

Organizational performance, pursued by both managers and researchers, is determined by the organization's ability to apply its strategies, tactics, and achieve its objectives. Although companies are often seen as monolithic entities, they can also be regarded as a collection of individuals who usually act in their own interest. Consistent and determined implementation occurs only when the actions of individuals within the organization align with each other and with the overall strategic interests and values of the company (Neilson *et al*, 2003). Organizational culture is the key element for multinational organizations that have employees with different national cultural values but are held together by an organizational culture based on common practices (Hofstede, 1993). Unfortunately, many managers fail to understand the importance of organizational culture and instead focus solely on strategy (Hofstede Insights, 2023). Organizational culture should be seen as an important tool that can help achieve organizational objectives. Even if another company can replicate a product, design, or even a service, it can never duplicate all the organizational methods and concepts that influence people's actions and decisions.

The first step in addressing dysfunctions regarding organizational performance is understanding how the inherent traits of an organization influence (Manolescu, 2001) and even determine the behavior of each individual.



There are certain items that impact organizational culture: talent retention, fewer lost workdays, better margin growth, more significant sales growth, greater customer engagement and retention, and better individual growth and development (Coffman *et al*, 2013). Considering this approach, it is demonstrated that leaders' disregard for organizational culture can have serious consequences for the organization through the loss of member engagement. However, as most theorists have shown, there is hardly any general framework that provides managers with the perspectives and procedures necessary to combat the deep causes of organizational performance gaps. Only the effect can be set: healthy companies improve productivity and easily adapt to organizational changes.

Through this study, we aim to adapt the method of organizational DNA and its operationalization as a testing tool for traits and behaviors specific to veterinary practices, in order to identify and isolate the underlying causes of organizational dysfunctions and contribute to their elimination before they manifest.

## **2. Theoretical background**

### **2.1. Instruments used in organizational culture research**

To analyze the culture of an organization, researchers and consulting firms generally use various instruments such as interviews, surveys, focus groups, observation sheets, etc. The obtained results are aggregated to analyze organizational efficiency from the perspective pursued in those studies. Most of these instruments are designed for large organizations, but small and medium-sized enterprises (SMEs) have specific characteristics and constraints (Manolescu *et al*, 2022), requiring adaptation of the structure and specific items of the analysis instruments. The adaptation needs to be even more profound when it comes to a specific domain like veterinary medical services. In order to identify an instrument that can be applied to SMEs, four of the most important organizational culture diagnostic instruments have been analyzed.

One of these instruments is the Organizational Culture Assessment Instrument (OCAI), developed in 1999 (OCAI Online, 2023). The OCAI is built on a framework of four competing values based on six aspects that represent an organization's culture (dominant characteristics, organizational leadership, employee management, organizational glue, strategic emphasis, and criteria of success). The competing values model assumes that there is not a single cultural model in an organization because there are different organizational levels. The purpose of the instrument is to identify the current situation and the direction in which the organizational culture needs to be adjusted. The target of the study should be small subunits, hierarchical groups starting from a leader and the entire team (Cameron *et al*, 2006). The criteria underlying this instrument are divided into two dimensions: internal-external and stability-flexibility. In this context, four types of organizational culture are defined: entrepreneurial, dynamic (adhocracy); collaborative, friendly, people-oriented (clan culture); control-oriented, structured, process-oriented (hierarchy culture); competition-oriented, result-oriented (market culture). The difference between the profile outlined for the present organization and the desired one, the organization of the future, shows the willingness and direction of change. The results report also shows the congruence of the six aspects. Cultural incongruence often leads to a desire for change; if the six cultural aspects emphasize different values, people can be confused, frustrated, and conflicts may arise (Cameron *et al*, 2006).

Other methods of analyzing organizational culture focus on characteristics that constitute human motivations: viability, relationships, performance, evolution, alignment, collaboration, contribution (Barrett, 2013), or analyze people's interactions and the organization's orientation towards interaction and coordination, as well as the response to change; they identify styles that apply to both organizational cultures and individual leaders (Groysberg *et al*, 2018). Additionally, a group behavior analysis has been developed, which assesses the likelihood of groups of people acting in a certain way (Hofstede Insights, 2023). The model proposes six dimensions of organizational culture: organizational effectiveness, customer orientation, level of control, focus, accessibility, and management philosophy.

In 2005, a new concept was introduced in organizational theory, called Organizational DNA (Aguirre *et al*, 2005). The metaphor was intentionally chosen by researchers to highlight the similarity between the double helix of DNA, which is held together by bonds between pairs of four

nucleotides, and the organizational structure in which the interrelationship between the four constitutive elements (structure, motivators, decision-making process, information) defines the distinct traits and behaviors of the organization, crucial for its normal functioning. This model is suitable for analyzing SMEs, having a simplified structure and increased versatility.

## **2.2. Studies on the specific organizational culture of veterinary clinics**

Studies regarding organizational culture and its influence on veterinary clinic management are very limited globally and almost non-existent at the national level (Vieru, 2022b). In general, studies focus on identifying existing issues within veterinary organizations in order to address questions related to work relationships or employee well-being. The American Animal Hospital Association, together with the University of Denver (AAHA, 2006), analyzes the relationship between employees' perceptions of culture and the values of the practice. Eight cultural dimensions were examined: career training and development, rewards and recognition, fairness and institutional communication, employee involvement, teamwork and personnel, supervision, leadership skills, and relationships with veterinarians. In Romania, the study on the organizational DNA of veterinary clinics (Vieru, 2022a) reiterated the fact that organizational culture is only considered at a basic level, without an awareness of the specific mechanisms of organizational management. Veterinary clinics focus on implementing strategies or operational procedures that prioritize the clients of the veterinary clinics and/ or the patients.

Most researchers (BSAVA, 2021) focus on developing detailed operational procedures, especially medical procedures. Their conclusion is that customer satisfaction stems exclusively from the quality of the medical service. Clarke and Linder (2022) conclude that despite sustained efforts by clinic managers, customers can still be dissatisfied. Diez (2020) aims to find a similarity between the specific processes of organizational culture in corporations and their application in veterinary businesses. He concludes that applying organizational culture concepts in small clinics is very challenging.

In the studies conducted for Merck Animal Health (Volk *et al*, 2018; Volk *et al*, 2020; Volk *et al*, 2022), only one chapter addresses some aspects of organizational culture. In an effort to determine the potential impact of the work environment on the well-being, mental health, burnout of veterinarians, and auxiliary staff in veterinary clinics, 15 different factors related to leadership and working conditions are examined over several years. The studies conducted on the management of veterinary clinics in Hungary, within clinic-type organizations or individual clinics (Ózsvári, 2014), emphasize a lack of information and necessary resources for clinic managers to implement programs that directly reflect business efficiency. Veterinarians feel the need for more rigorous training in the field of business in general and the lack of tailored tools for veterinary clinic management, resulting in underperformance compared to the expectations of business owners. Changing the veterinarians' perspective is recommended through training programs in management and acquiring skills (Dürnberger, 2020).

The literature review highlights a lack of management tools for veterinary businesses that can be used in projects to improve organizational performance. Therefore, the effective and efficient application of management and marketing strategies and tactics remains an aspiration. The recommendations of the American Veterinary Medical Association (AVMA, 2018) and the British Small Animal Veterinary Association (BSAVA, 2021) emphasize leadership represented by the veterinarian as a determining factor in coordinating and evolving the entire managerial ecosystem of the veterinary clinic, with clear orientations towards the development of individual skills. The conclusion of the studies is that the processes of learning and applying marketing and management principles would be sufficient if embraced by veterinarians and accompanied by specific implementation actions. It is evident, given the current economic context, compounded by the impact of technology, that much more is needed to have a high-performing and adaptable organization in the face of significant variations in the external organizational environment. Organizations must continuously learn (Manolescu, 2005), and individuals must continuously expand their capacity to create the desired outcomes. This entails cultivating new and valuable thinking models, where aspirations become collective, and people continuously learn to see the whole together. Learning organizations adjust to all changes flexibly, adapting to all possible or unforeseen situations, while

keeping people in a constant learning process that occurs at all levels of an organization (Senge, 1990). These mechanisms are highly adaptable to veterinary organizations where the organizational structure consists of medical teams whose members are closely interdependent.

### 3. Research methodology

The purpose of the research is to adapt the tool developed within the organizational DNA approach and use it as a testing instrument for the traits and behaviors of veterinary practices, aspects that can define the organization in its functioning, in order to identify and isolate the underlying causes of organizational dysfunctions and help eliminate them before they manifest, with concrete effects on firm management.

The research objectives are as follows:

- Analyze, adapt, and evaluate the organizational DNA method by using the Org DNA Profiler tool to test organizational DNA in veterinary clinics to identify distinct traits and behaviors that define the organization and affect the performance of veterinary organizations.
- Utilize the data obtained from the application of the Org DNA Profiler tool to correct elements of organizational culture that can assist veterinary clinics in designing the organization for successful strategy execution and goal achievement.

There is currently no instrument or research on organizational culture as a defining element of veterinary organizations' performance as a whole. Most studies present and analyze surface-level issues and do not consider deeply rooted problems within the organization. Their results focus on individual performance and the professional skills or lack thereof of organization members, without being interested in the constitution and functioning of the organization as a whole or the relationships within the organization. One possible reason for this research orientation is the lack of an applicable instrument for a real diagnosis of the organization as a functional whole, the connections and interrelationships that make the organization work, or highlight the areas that need improvement in veterinary organizations.

Therefore, the initial research questions were developed based on the analysis of the literature, which states that "the organizational genetic code largely determines the extent of organizational performance" (Aguirre *et al*, 2005; Neilson *et al*, 2003), and can be formulated as follows: Can the organizational genetic code be identified in veterinary organizations, given their existing size and organizational structure (small and medium), using the Organizational DNA tool? Is it necessary to adapt this instrument?

From this theoretical perspective, the two premises of the research emerge.

- The Org DNA Profilers tool for analyzing Organizational DNA can be successfully used to define and analyze the traits of a veterinary organization.

Despite the studies and long-standing activities of professional organizations that have identified various causes and problems faced by veterinary organization management, and have organized training stages for veterinary managers to address the identified deficiencies, the situation of the organizations has not improved (AAHA, 2006; AVMA, 2018; BSAVA, 2021). In these circumstances, we ask the following questions: Are the problems identified through those studies at the individual level the real causes of organizational inefficiency? Is the lack of training of veterinary managers the only cause of malfunctioning mechanisms within organizations? Have the real causes and their interconnectivity with other aspects of the organization been correctly diagnosed? Is organizational culture an element that needs to be considered when analyzing the inefficiency of veterinary organizations?

- Identifying and analyzing the traits of a veterinary organization using the organizational DNA method does not take into account the organizational size, and it can obtain relevant results about the genetic code of the organization that determines all aspects of the architecture of resources and relationships within a company.

This tool allows anyone working in any organization, anywhere in the world, to provide an instant diagnosis of their organization's type. It is a "personality test" for organizations. When many individuals from the same organization undergo the test, the aggregated results reveal the root causes of many performance failures and identify areas on which a company can focus to improve its execution capability (Aguirre *et al*, 2005).

To achieve the purpose and objectives of the research, we have defined the following steps in conducting the study:

- Detailed analysis of the Org DNA Profiler tool: conducting a well-documented analysis of the methodology of the Org DNA Profiler tool for testing organizational DNA to adapt it to small-sized organizations with a particular organizational culture, such as veterinary organizations.
- Adaptation of the tool for veterinary organizations: verification of the results from the first stage through the use of the focus group method; analyzing this tool for the organizational diagnosis of veterinary clinics and determining if this method can identify distinct traits and behaviors that define the organization in its normal functioning and affect the performance of veterinary organizations with implications for their management.

#### 4. Findings

In the first stage of the analysis, the research started from the four bases of organizational DNA presented by Neilson: structure, decision rights, motivators, and information (Neilson *et al*, 2003). The following definitions of the four elements were outlined from the perspective of veterinary business characteristics.

Structure: in principle, each company chooses the structure it considers most appropriate to successfully carry out a certain strategy. However, in practice, the organizational structure and the strategic intent of a company are often unrelated. A common structural problem that hinders strategy execution is the existence of too many management levels, with too many individuals at each level, and too few direct reports (Neilson *et al*, 2003). Organizational structure in veterinary clinics differs from that of large corporations or ordinary firms where the inconveniences mentioned by Neilson may exist. In fact, even though it is a small organization, a veterinary clinic's structure is equally complex, with multiple layers easily identifiable in the organizational chart. The complexity arises from the multitude of tasks assigned to employees, both in terms of execution and decision-making. Few veterinary practices have a structured strategy for their structure, organizational chart, and the spatial and temporal deployment of a coherent structure. In the majority of cases, they are a conglomerate of veterinarians and assistants who all know their place in a hypothetical organizational chart, both in terms of action and decision-making (Vieru, 2022b). In the case of veterinary clinics, there aren't many layers of decision-making, but due to the unstructured nature of the organization, the same execution inefficiency appears. Thus, in veterinary clinics, responsibility and execution get diluted in the amorphous mass of the organization, similar to bloated organizations where they get lost through network nodes. Considering these premises, it was necessary to answer a series of clarifying questions (Table no. 1) to verify the relevance of the points in the Org DNA Profiler questionnaire for analyzing a veterinary clinic.

Table no. 1 Adapting the corresponding items to the „Organizational Structure” dimension

Items of the Org DNA Profiler questionnaire	Clarifying questions related to the specific nature of the veterinary clinic
Identifying solutions is common in this organization	How are solutions established for issues that arise within the organization, and how are decisions made? Is there a flow of decision-making information based on an organizational chart or structure? Is the clinic structured?
The structure of our organization has... (An appropriate number of layers (decisions are made according to an optimal model) / Too many layers and too much complexity)	What should the organizational chart of a high-performing clinic look like? Do clinics have organizational charts? Is there a decision-making structure in the veterinary clinic? Is there an organizational chart at the clinic level?
People in our organization collaborate efficiently across all organizational lines	How is the organizational hierarchy established? Is there a vertical structure? Is there a horizontal structure? What is the decision-making boundary established through the organizational chart?
Influence in this organization largely depends on... (Title and role / Reputation, credibility, and relationships)	How are the lines of decision-making and influence connected within the organization? Can we talk about employee decision-making if the owner is also a veterinarian working alongside them?

	What are the relationships among the veterinarians indicated in the organizational chart?
Too many people here have overlapping roles	How many layers are there in the hierarchy, and how many direct reports does each layer have? Can we talk about hierarchical layers in a clinic? Does a clinic with multiple veterinarians have defined levels of decision-making? How is decision-making limited? What is the difference in a clinic between medical decisions with financial implications and exclusive management decisions?

Source: (Strategyand, 2023)

Decision rights: specify who has the authority to make certain decisions. Clear decision rights lead to lower costs and faster execution (Neilson *et al.*, 2003). In veterinary organizations, even though there are fixed positions with clear responsibilities, decisions are often made by other individuals, beyond those entitled to do so. This situation arises from the necessity of making medical decisions that involve nearly all members of the veterinary organization. One possible solution would be a simple working procedure that establishes and respects the decisions of each level regardless of hierarchical position, including the separation of medical and non-medical responsibilities (Vieru, 2021). To clarify the meaning of the items in the Org DNA Profiler questionnaire, we identified the synthesized questions in Table no. 2.

Table no. 2 Adapting the corresponding items to the „Decision rights” dimension

Items of the Org DNA Profiler questionnaire	Clarifying questions related to the specific nature of the veterinary clinic
Strategic and operational decisions are quickly translated into action.	Are there strategic/operational decisions at the clinic level? Is there a difference between strategic, operational, and medical decisions? Is there a chain of command and execution in the clinic?
The culture of this organization can best be described as... (command and control / persuasion and influence).	How many people are involved in the decision-making process at the clinic? How are decisions made in the veterinary clinic: as a group or individually? Are there different approaches depending on the type of decision?
Everyone has a clear understanding of the decisions and actions for which they are responsible.	Is there regulation regarding the level of decision-making and the implementation of decisions in clinics? Is there internal control over individual decisions?
We are disciplined in focusing our efforts where we can win.	Are different strategies defined in the clinic regarding areas of focus? How are the strategies for focusing efforts adjusted and implemented in each clinic's context? Do all team members perform multiple tasks in the clinic?
When we look at new opportunities, we prioritize... (financial attractiveness of the market / alignment with our strategy and capabilities).	In veterinary organizations, are there criteria used to determine if an opportunity aligns with the company's strategy and capabilities? What is the importance given to financial attractiveness when analyzing new opportunities? Are there important criteria or factors in evaluating new opportunities? Are the information used to evaluate new opportunities accurate and complete?
Once decisions are made, they are rarely accompanied by a second opinion.	Is a distinction made between medical decisions and other types of decisions at the organizational level? How are situations managed when there is uncertainty about whether the decision is the best available option? How are decisions evaluated compared to the best option? Are all team members involved in the decision-making process and have the opportunity to express their opinions? What factors are considered when making important decisions within the company?
We have a distinct culture that gives us a competitive advantage.	Can we define the culture and reflect it in the organization's strategy? Are there specific elements that can define the culture of clinics and provide a competitive advantage? Can members evaluate the impact of culture on clinic performance? Does the culture reflect in the team's behavior and decisions? What are the most important values and principles promoted within the clinic's culture?

Source: (Strategyand, 2023)

**Motivators:** In general, employees respond quite rationally based on what they see, what they understand, and how they are rewarded. Just urging them to follow the vision and pursue the company's strategy is not enough if the organization's incentives and information flows make it difficult for employees to understand and do what they should (Neilson *et al*, 2003). As a principle, in veterinary clinics as well as in other companies, motivators refer to the set of goals, incentives, and career opportunities designed for employees. However, the extremely high emotional stress, the functioning and reward system, and the physically and mentally exhausting work in a veterinary clinic create significant issues for the staff. The situation in veterinary clinics in this regard is often dramatic. Tensions related to motivators can trigger conflicts in veterinary clinics with financial, social, and psychological repercussions. Therefore, this specificity should be taken into account when evaluating responses to the questionnaire items (Table no. 3).

*Table no. 3 Adapting the corresponding items to the „Motivators” dimension*

<b>Items of the Org DNA Profiler questionnaire</b>	<b>Clarifying questions related to the specific nature of the veterinary clinic</b>
If a colleague here makes a commitment, I can count on them.	Is commitment defined within veterinary organizations, and what expectations are there for employees in this regard? Can the reflection of commitment be observed in the behavior and decisions of members? Are the benefits brought by commitment to individual and team performance "seen"? Can we talk about constructive feedback in veterinary organizations?
People are rewarded more based on... (individual performance/company performance).	Is individual performance defined within our organization's veterinary clinics, and what criteria are used to evaluate it? Are expectations regarding performance communicated in clinics, and is there monitoring of employees' progress in this regard? How is individual performance encouraged within the team, and what are the strategies for developing it? Is constructive feedback and encouragement provided?
People who innovate are rewarded in the company.	What do we understand by innovation within veterinary organizations, and what is expected of employees in this regard?
People in this organization are motivated more by... (values and pride/stimuli and rewards).	Are there criteria for evaluating the level of innovation, rewards, and recognition of innovation? Are there incentives, resources, and opportunities for innovation in veterinary organizations?
People here "walk the talk."	Is there a culture of seniors in veterinary organizations? Are there plans for educational and cultural transfer between organizational levels if such levels exist?
The ability to meet performance commitments strongly influences career advancement and rewards.	Are there career plans in veterinary organizations? Is there a culture of performance and commitment within these organizations? Are there motivations in this regard?

Source: (Strategyand, 2023)

**Information:** Ensuring that high-quality information is available is among the most challenging tasks of the modern corporation and one of the most underappreciated contributors to high performance and competitive advantage (Neilson *et al*, 2003). The lack of effective communication among team members or between medical teams can lead to major issues for an organization. Additionally, poor communication with clients is the most frequent cause of failure for a veterinary clinic. Some clarifying questions need to be analyzed as synthesized in Table no. 4.

*Table no. 4 Adapting the corresponding items to the „Information” dimension*

<b>Items of the Org DNA Profiler questionnaire</b>	<b>Clarifying questions related to the specific nature of the veterinary clinic</b>
Information flows freely beyond organizational boundaries.	Are there procedures in veterinary clinics regarding information, classifications, monitoring, and the protection of personal information?
When important things change in our environment, we adapt successfully.	Are there elements in veterinary clinics that encourage and support innovation as a driver of change?

Important information (even bad news) about the competitive environment quickly reaches decision-makers.	Is there an information flow, information analysis, and communication channels in veterinary clinics?
We rarely send contradictory messages to the market.	Is there a communication program in veterinary clinics? Is there a consistent and coherent approach to message delivery?
Top leaders convey consistent messages.	Who knows what? Who needs to know what? How is information transferred from those who possess it to those who request it?
The leaders here are more focused on... (short-term objectives/ long-term game).	Do veterinary clinics have established objectives, and are they known and embraced by members of the organization?
Field or frontline employees usually have the information they need to understand the negative impact of their day-to-day choices.	Are there work procedures for clinic employees regarding decision-making, customer communication, etc.?
We have the values we need to evaluate business performance.	Do veterinary clinics have a set of procedures to evaluate the values and performance of members? Are these values used for managerial decision-making?
The organization is generally more... (people-oriented/ activity-oriented).	Are there activities and processes in veterinary clinics for evaluating people and/or activities?

Source: (Strategyand, 2023)

These definitions of the DNA profile basics of veterinary organizations and questionnaire items from Org DNA Profiler were evaluated using specific questions in a focus group. The focus group was organized in collaboration with the Veterinary Association and the editorial team of Veterinarul Magazine, with the participation of two medical editors from the magazines and three veterinary doctors who own veterinary clinics. The procedure aimed to determine if these sets of questions are relevant for veterinary clinics regardless of their size, if they highlight relevant information that can be used by clinic managers to evaluate organizational performance and behavior in general as a reflection of the organizational culture. In summary, the results of the focus group indicate that the Org DNA Profiler questionnaire can be successfully applied in diagnosing issues within veterinary organizations to uncover the company's visible or hidden strengths and weaknesses, with the most relevant information regarding the four dimensions of veterinary clinics being analyzed in Table no. 5.

Table no. 5 The basic aspects of Organizational DNA within veterinary organizations

<b>Organizational DNA Foundations</b>	<b>Elements examined in the diagnosis of veterinary organizations</b>
Structure	The organizational hierarchy, the formal or informal existence of the organizational chart, the connections between its elements, hierarchical layers, and direct reporting relationships
Decision Rights	Who makes decisions and what decisions are made in terms of management, financial matters, medical decisions, etc. The number of individuals involved in the decision-making process and the extent of decision-making authority of a member in relation to other members of the organization
Motivators	The alignment of the goals, incentives, and career progression of organization members with those of the organization itself. Do members receive the expected financial and non-financial rewards? Are they encouraged to have a vested interest and care about the organization, using explicit or implicit means?
Information	Is there a coherent and smooth flow of information among organization members, between those who possess information and those who request it? Performance is valued within the organization, measured, appropriate values are chosen, expectations and progress are communicated. Who knows what? Who needs to know what?

Source: (Strategyand, 2023)

With the help of the responses to these questions, we have separately defined the distinct characteristics of the four bases of organizational DNA specific to veterinary clinics. These elements are interwoven in defining a real organization. By combining and recombining them, the identity and personality of each organization are explained, significantly shaping how an organization appears

and behaves, internally and externally (Neilson *et al*, 2003). The conclusion of the focus group was that the use of this method can "unravel" the organizational structure of a veterinary organization to uncover issues within its DNA. By finding solutions that utilize the recombination of these four bases, it can ultimately lead to the optimization and improvement of organizational performance.

## 5. Conclusions

The purpose of this study was to identify a viable, adaptable, and user-friendly method to assist veterinary clinics in their sustained efforts to create a consistently functioning environment. The aim was to identify organizational dysfunctions and find solutions to eliminate them before they manifest. The analysis, evaluation, and testing of the organizational DNA method using the Org DNA Profiler tool proved useful in identifying distinct traits and behaviors that define the organization and impact the performance of veterinary clinics.

The Org DNA Profiler tool for organizational DNA analysis can be successfully used to define and analyze the characteristics of a veterinary organization, regardless of its size. However, it needs to be better tailored to the management knowledge of the organization's members. Even though all executive roles are held by veterinarians, who essentially function as a group of executive managers, they may lack expertise and specific management information. Nevertheless, their daily actions within the organization resemble management activities. Therefore, management studies conducted on similar firms to veterinary clinics will need to be better adapted to their informational level.

The study of this organizational analysis tool has demonstrated its adaptability and practicality in evaluating veterinary organizations. It can be easily used to diagnose problems within a veterinary practice, identify strengths and weaknesses within the organizational structure, and shape the behavior of the organization to achieve performance, considering its specific interdependencies. The study's results suggest steps that even small firms can take to better understand the nature and causes of the difficulties they face as an organization and improve their execution capacity.

In this area, most liberal professions operate within a single organization, such as lawyers, notaries, doctors, veterinarians, architects, and others. At the organizational and functional level, most are assimilated as executive managers at various hierarchical levels. They all have a certain degree of authority, decision-making attributes, and autonomy. Most existing tools for studying organizational culture and behavior are aimed at large companies with many respondents, where dozens or even hundreds of responses can be aggregated to generate statistically meaningful results. However, for these small firms, such labor-intensive instruments are difficult to use. Therefore, adapting this tool can be a topic for future, more comprehensive research.

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## Research Based on Secondary Data into the Influence of Colours on the Online Consumer's Behaviour

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### Abstract

*The current article presents the importance of colours in day-by-day life of online marketing. With the accelerating progress in science as well as information and technology, marketing is always changing. The neuroscience of colour in relation to customer conviction is one of the numerous topics studied in marketing. As a starting point, the paper opens with a brief theoretical presentation of the consumer behaviour as the central element of marketing, while in the second part, a study of colours is clarifying the link between them and the perception of the customers. A good reason for everything that follows is represented by the fact that colour is pervasive and a source of knowledge. The paper presents the level of importance that colours represents in everyday online marketing. Marketing is permanently changing with rapid advances in science, information and technology.*

**Key words:** colours, consumer, online, marketing

**J.E.L. classification:** M31

### 1. Introduction

Philip Kotler defines marketing in its work "Marketing Principles", published for the first time in 1980 as "a social and managerial process by which individuals or groups of individuals get what they need and want by creating, offering and exchanging products and services of certain value". (Kotler, Armstrong, 2011) In other words, we can say that marketing is a mix of science and art to sell. The current concept of marketing assumes that every economic activity must be guided in the direction of meeting the consumer's needs in an efficient and effective manner. Any individual intending to order or purchase, use or procure products or services for purposes not related to professional needs shall be referred to as a consumer.

### 2. Theoretical background

This paper is a research based on secondary data. It begins with a theoretical presentation of the concept of consumer behavior. The main theoretical aspects being taken from the book of Professor Cătoi.

#### 2.1. Importance of knowing consumer behaviour

Guiding marketing toward the development of market requirements requires learning and knowledge, monitoring them in the evolving field and even preventing and influencing them on a scientific basis. To this end, complex mechanisms are being sought to turn needs into wishes for goods and services that are a self-standing component of the makeup, i.e. consumer behaviour. It goes without saying that there are several influencing factors that play a very important role. These include income, education, membership groups, reference groups, and not least the perception of each individual. Before defining what consumer behaviour is, the difference between the concept of

"consumer" and "customer" must be stated. To this end, Dan Manaila mentioned in an Article posted in September 2017 that "consumer" refers to "a natural person consuming for private and non-professional purposes products and services offered on the market by producers, distributors and suppliers." The concept of 'buyer' as is also the morphology of the word is that economic operator that is directly involved in the purchase process. According to the Romanian language's explanatory Dictionary, the concept of "customer" symbolizes both the person buying from a shop and the individual enjoying the consumption of a good or service. A first condensed definition as a result of the concerns of the various professionals is as follows: "Consumer behavior can be defined, as an overall approach as all decision-making acts carried out at individual or group level, directly related to the procurement and use of goods and services, with a view to meeting current and future needs, including the decision-making processes preceding and determining these acts." (Balaure, 2002) Another very explanatory and elaborated definition is that of Professor Iacob Cătoiu together with Professor Nicolae Teodorescu, and that is: "the behaviour of the consumer can be defined as a concept by multidimensional excellence, as the specific result of a system of dynamic relationships between the processes of perception, information, attitude, effective motivation and manifestation, which characterizes the integration of the individual or group into the open area by all consumer goods and services existing in society at a given time, by individual or group decision-making acts relating thereto.

## 2.2. Basic processes in addressing consumer behaviour

Although it is a notion with which the majority of market research specialists operate, consumer behaviour does not have a universally accepted definition. The sum of the definitions proposed by the various authors shows some elementary processes, the combination of which is the definition of consumer behaviour. (Martin, 1976) The processes mentioned above are: Perception, attitude, actual behaviour, information and motivation. Perception is a broad process that, among many others, consists of mental activity to observe, connect and make decisions.

After the '50, the attitude was approved as a multidimensional concept, being "a syndrome of constant reactions to social objects" in W.'s Campbell vision.. Motivation is defined as 'an inner state which mobilizes an organism to fulfil a particular purpose. (I. Cătoiu 2003)

Information is an assembly of elements by which individuals get to know the product. Actual behaviour is the process that distinguishes the 4 processes mentioned above. This is the only process that can be examined directly and directly.

Fundamental theories and global models of consumer behaviour

Over time, scientists have been concerned about studying and knowing the processes and mechanisms that take place at the level of the "black box" in their attempt to explain consumer behaviour.

This has led to the emergence of various fundamental theories and global models, including:

- Marshall's model
- Pavlov's model
- Freud's model
- Veblen's model
- Hobbes's model (Solomon, 2007)

Marshall's model accredits the theory that assumes that people make the decisions to purchase goods and services following rational calculations.

Pavlov's model is based on the theory of learning and operates with the following four basic concepts: Impulse, suggestion, reaction and repeat. (Schiffman, Kanuk, Hansen, 2012)

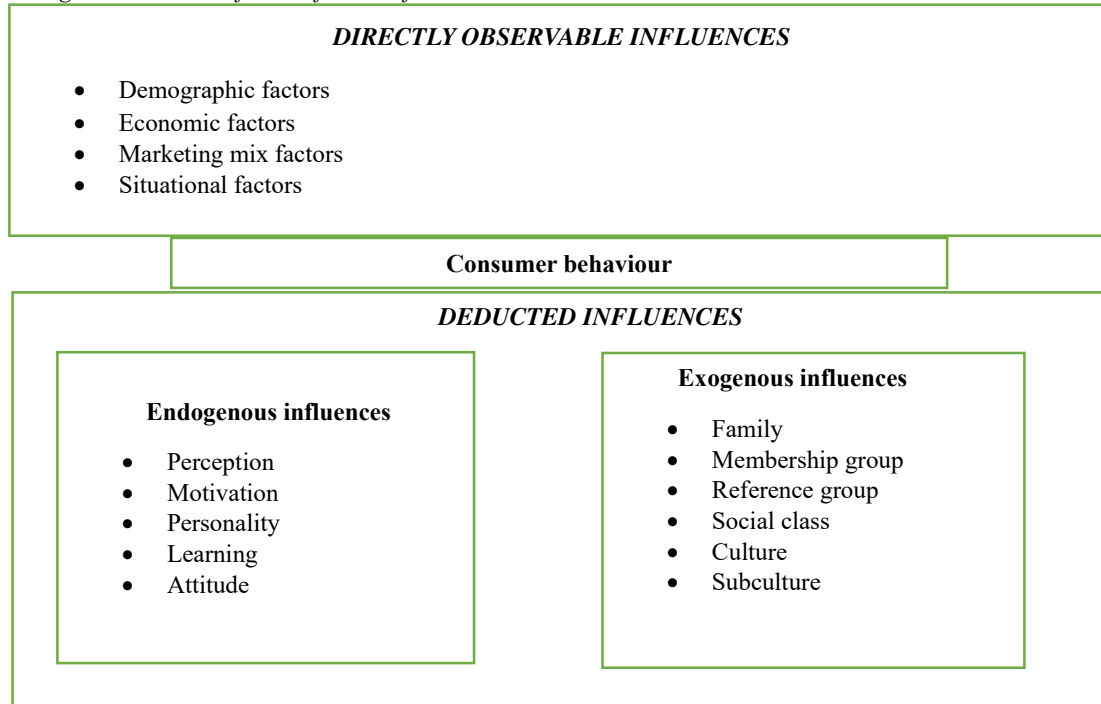
Freud's model is formed from the psychoanalytical theory of S. Freud that refers to the human being. This model requires a motivational research based on the study of consumer attitudes.

Veblen's model, a social-psychological model that requires the development of motivational research. It is based on the theory of ostentatious consumption and involves studying social influences. (Catoiu, 2003).

Hobbes's model is also called the organizational factor model. It presents the problem of "consumer behaviour associated with people representing organizations". (Cătoi, 2003)

### 2.3. Influence factors of consumer behaviour

Figure no. 1. The Influence factors of consumer behaviour



Source: Authors' contribution

**Directly observable influences.** A wide variety of variables are included in the demographic factor category for which they have been shown to have a high degree of influence on consumer behaviour. This category includes many variables including: Occupation, age group, employment status, consumer distribution by sex and geographical area. Economic factors are a category that operates in any market, affecting any category of consumers. When examining consumer behaviour, the persons concerned take into account economic factors such as consumer income, inflation rate, minimum wage, public expenditure and product prices. (Cătoi, 2003)

Starting from the "4Ps", we can see the four factors specific to the marketing mix, namely product, price, placement and promotion. Together with the other categories of factors, we also find situational factors. Specialist Russell Belk claims that situational influences are generated by "all factors specific to well-defined observation (situation) in time and space, which do not result from knowledge of the personal (intra-individual) and stimuli (variant chosen) attributes, but which have a demonstrable and systematic effect on current behaviour." (Belk, 2004)

**Deducted influences.** The deducted influences are also divided into two categories: Endogenous influences and exogenous influences. Among the endogenous variables, specialists in this field consider the most relevant are: Perception, information/learning/personality, motivation and attitude. (Cătoi, 2003)

The perception process is a process by which the individual selects, organizes and understands stimuli coming from the environment, giving them a certain meaning. The most important features of the sensory input are colour, contrast, size, position, intensity and motion.

Learning, a process that takes place throughout the life of the individual, represents a series of observable or unobservable changes in consumer behaviour. The three theories that best explain the learning process are: The theory of learning through classic Pavlov conditioning, the theory of

instrumental learning and the cognitive learning theory.

Personality is defined as a series of summed traits resulting in the factor that determines the uniqueness of the consumption behaviour of each individual. The rationale assumes that the manner in which the consumer is reacting in behavioural terms is due to a state of voltage due to an unmet need. The reasons were classified by specialists for primary or biological and secondary or psycho-friendly reasons. (Catoiu, 2003)

Attitude is a particularly important variable for understanding the mechanism of consumer behaviour. In G.W.'s vision Allport, attitudes are a series of, predispositions learned to react consistently to an object or class of objects in a favourable or unfavourable manner. (Allport, 1935)

Actual behaviour is the only variable that can be observed directly and directly.

In explaining consumer behaviour, the inferred influence of the social factors of an endogenous nature must be taken into account, as they are an important component of the marketing macro medium. Specialists say that a key role is played by the family, social groups, social class, culture and subculture. The family is considered to be the variable that has the greatest influence on consumer behaviour. Social groups are divided into 2 categories: Reference groups and membership groups. The groups of membership are a form of social structure in which people feel they belong to a group, which is due to common objectives and norms. The reference groups are current or imaginary clues of the kind used by different people, who take into account the opinions, attitudes and rules of certain individuals in the process of buying a good or service.

Social classes are understood as "relatively homogeneous and lasting subdivisions in a society, which is hierarchically ordered and whose members have the same values, interests and behaviour". (Kotler, Armstrong, Saunders, Wong, 1999)

A series of research conducted since the 19th century by Edward Burnett Tylor laid the foundation for a first definition of culture, which is still valid. It defined culture as "a complex whole that includes knowledge, beliefs, art, morals, law, traditions and any other productions and ways of life created by the man living in society".

In marketing, a very important role is the influence of subculture, which is a distinct cultural group, based on geographical, ethnic, religious and age. In general, four sub-crop groups are distinguished which define the individual and influence his consumption behaviour:

- Nationality groups, living in broad communities, with specific ethnic tastes and traditions
- Religion groups, with their own preferences and needs
- Racial groups, with distinct cultural styles and attitudes
- Geographic group, with distinct cultural styles and attitudes;

the feature is geographical groups with territorial lifestyles.

#### 4. Findings

English has a number of well-known idioms that pair words with colours. For instance, "purple with fury" or "green with jealousy." To be clear, the study asked participants to select the colour they connected to a group of phrases that are not part of a well-known proverb. The findings are as follows: Most people associate the word "trust" with the colour blue, on the second place is situated the shade white. The word "security" is mostly represented also by the blue colour. When it comes about "speed", almost 80% of people think of red. "High quality" is associated mostly with black. (Mederrick, 2022)

According to QuickSprout, individuals choose a particular product 85% because of its color, brand recognition being enhanced by 80% by colours. In an A/B test, Hubspot just changed the call to action button's color from red to green, and the results showed a remarkable 21% difference. Green is likely believed to have a greater conversion rate. Contrary to what was actually true, red received a 21% higher conversion response.

Joe Hollock tested a wide range of individuals from various ages, ethnic origins, and genders by asking them a series of questions centered on ten colors (including the shade black and the shade white).

Red was selected as the color most closely associated with speed by 76% of the participants. (Hallock, 2003)

Judicious use of colour can influence attitudes toward particular products by positively or negatively impacting moods and feelings as well as differentiating them from those of competitors. It's critical that managers comprehend the significance of colours in marketing given the erratic nature of our emotions and how colours shape attitudes. The study aims to advance the discussion. (Singh, 2006)

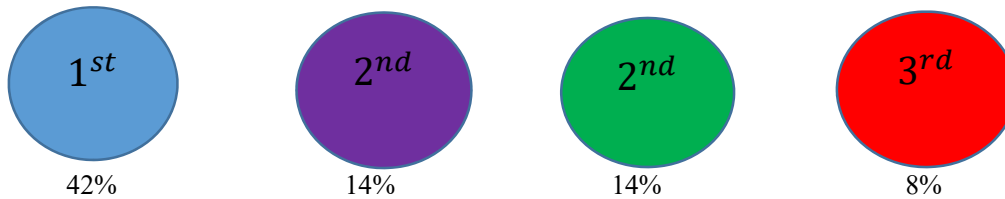
The psychological effects of colour should be taken into consideration before launching the next social media campaign or designing the next landing page, website, or brand.

It's no joke how much power colour has. It directs the user's gaze in various directions, advises what to do, and enables them to comprehend the relative value of various elements. According to a research titled *The Influence of Colour in Marketing*, 90% of consumer product judgments are made solely based on color. Colours, according to Swiss psychiatrist Carl Jung, aid in information processing and storage more successfully than black and white:

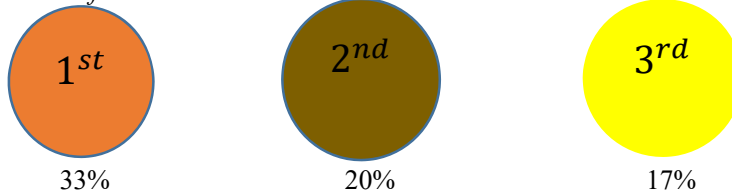
"Colours are the subconscious' native tongue." Using surveys, Joe Hallock, Principal Design Manager of Microsoft Azure, carried out a thorough investigation on two important color-related subjects: word associations and gender-based preferences.

The group under investigation's favorite and least favorite colors were:

*Favourite colour*



*Least favourite colour*



As previously discussed, gender might have some influence on one's affinity for certain colours.

*Table no. 1. Colour preferences based on gender*

	Favourites			Least Favourites		
Female preferences	First	Second	Third	First	Second	Third
	Blue	Purple	Green	Orange	Brown	Gray
Male preferences	First	Second	Third	First	Second	Third
	Blue	Green	Red	Brown	Orange Purple	Yellow

*Source:* (Hallock, 2003)

Consumers frequently link colours to the things they buy. In the survey, questions about consumer behaviour were asked.

*Table no. 2. The type of product linked to colour*

	First	Second	Third
<b>Cheap/Inexpensive</b>	Orange	Yellow	Brown
<b>High Quality</b>	Black	Blue	Gray
<b>High Technology</b>	Black	Blue, Gray	White
<b>Dependability/Reliability</b>	Blue	Black	White

*Source:* (Hallock, 2003)

The study also investigated whether the following feelings were associated with specific colours.

*Table no. 3. Feelings associated with colours*

	<b>First</b>	<b>Second</b>	<b>Third</b>
<b>Fear/Terror</b>	Red	Black	Gray
<b>Fun</b>	Orange	Yellow	Purple
<b>Trust</b>	Blue	White	Green
<b>Security</b>	Blue	Black	Green
<b>Speed</b>	Red	Yellow	White

*Source: (Hallock, 2003)*

In English there are a few correlations between colors and feelings, such as blue denoting sadness or green signifying jealousy. The following phrases are important to remember if a logo is established even if they don't normally have color implications. (Hallock, 2003)

The following represent a part of Hallock's study key conclusions:

Every company has the option to use complementary and analogous colors, which can be used in marketing a product for a variety of reasons in addition to the primary and conspicuous colors.

If the brand already has a clearly defined identity plus a logo that serves as the foundation, that will have a big impact on the colors used. The target market for the products is another element that is frequently advised. But, more and more of these clichés are beginning to lose their effectiveness (like the colour blue for males, and the colour pink for females). These traditional meanings may have more or less influence, depending on the target age group, on how the product is perceived and how a digital catalog is designed.

Above all, keep in mind the purchasing experience. Instead than overcrowding the user with textual or graphic information, the objective is to make the user's search and purchasing process easier. Much may be learned from a well-balanced e-commerce design that considers both what customers often look for and how they typically search the site.

## **White**

*Figure no. 2. White Background*



*Source: (Apple, 2023)*

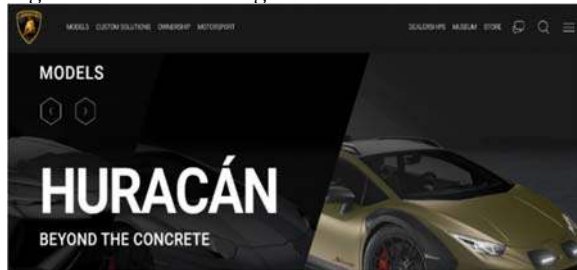
In all online retailers, this background is advised. Images and informational blocks are easier to read and distinguish when they are white. It conveys a sense of clarity and cleanliness, making it a great background for e-commerce sites' design and catalogs.

When is talked about projecting their brand online, Apple goods have without a doubt become the most recognizable. White backdrops draw attention to the merchandise and draw attention to more overtly appealing messages.



## Black

Figure no. 3. Black background



Source: (Lamborghini, 2023)

This color exudes power and authoritarianism. A demanding or luxury- and high-quality-loving audience will appreciate the professional and serious impression that the internet trends based primarily in black convey.

## Gray

Figure no. 4. Gray background



Source: (Splendor, 2023)

Gray is the ideal hue for text and items that should be reading-friendly or inspire balance since it promotes disinterest. Due to its elegance and ability to make the brilliance and colors of the items and diamonds stand out, it has also been a color that is frequently employed in jewelry e-commerce website design.

## Red

Figure no. 5. Red buttons



Source: (Kaufland, 2023)

The hue that, in e-commerce, evokes vitality, urgency, and attention. Since it can cause both a bad feeling (panic and worry) and a favorable one for the sale, it must be used carefully and at the proper times.

It can undoubtedly serve as a brand's primary hue. It is advised more for important buttons or places on the website where it is desired to swiftly draw the eye in accordance with color psychology for websites.

## Green

Figure no. 6. Green website



Source: (Dr.Max, 2023)

It promotes trust and is currently the dominant color associated with sustainability themes in online goods sales. Not only in health and wellness brands like pharmacies, but in any area of e-commerce devoted to telling customers about a company's dedication to the environment during the development, manufacture, and sale of its products.

## Brown, Yellow and Orange

Figure no. 7. Orange website

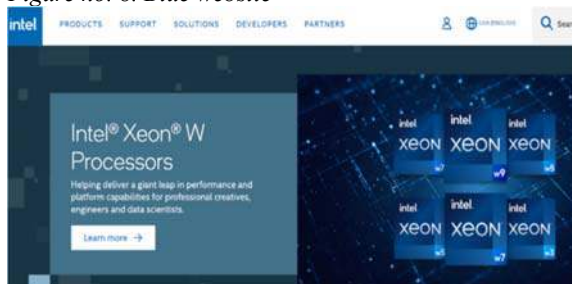


Source: (HalibOrange, 2023)

These are hues that evoke warmth, joy, and curiosity; as a result, they are frequently utilized with in baby and children's product industries as well as in sports and animal products. They should only be used for very specific purposes and shouldn't be overused because they can irritate the eyes or cause stress.

## Blue

Figure no. 8. Blue website



Source: (Intel, 2023)

The hue symbolizes harmony and peace. These color schemes are typically linked to the technology industry and sales of electronics, computers, and gadgets.

## Pink and violet

Figure no. 9. Pink website



Source: (Kylie Cosmetics, 2023)

Certain colours seem to be reserved for the cosmetics business, and pinks in particular have a long history of being used to appeal to youngsters. Yet, these are tones that inspire creativity, elegance, and care, and they are able to convey a professionalism and great taste in the display of e-commerce products, especially in backdrops and much more pastel or assertive tones, according to the intended market for the company. (Gasco, 2022)

## 5. Conclusions

Using colour effectively may be quite beneficial in marketing and any form of business. Colour psychology can significantly help traders and consumers alike make the best choices. When choosing what to buy, it also applies to the customer. On the other hand, blunders can be made the colour cognition if it is not understood of both parties. In contrast to the influence of the product itself, colour has a significant impact on a product's success. Whether we embrace it or not, we are indeed a product of the culture, and a significant part of that culture is associated with colour. Understanding how to decipher the appeal of hidden hues not only saves money but also enables us to logically purchase goods based only on quality rather than design (Singh, 2006). Colour has the ability to convey the feelings and spirit of a product's interior.

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## **Section V**

### **Finance and Accounting**

## Testing Population Health Security through a Correlative Economic Development Model

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### Abstract

*In the context of the current overlapping crises: the global financial and economic crisis, the energy crisis, the health crisis, the geopolitical and military crisis, the countries of the world are faced with multiple solutions and ways to limit public spending, health systems must increase their efficiency and provide value for money. We aim to test the health security of the population through a correlative model of economic development considering the dynamics of sustainable economic development in 6 countries (Germany, Italy, Latvia, Spain, Bulgaria and Romania). The results will be analysed in relation to the level of health security that the 6 Member States have developed in the pandemic and post-pandemic period, and the results will assess the impact of the correlation between economic deprivation and access to quality healthcare. The methods used will consist in achieving an econometric correlation with the help of multiple linear regression and will allow the identification of the need for health security policies.*

**Key words:** health security, sustainable development, multiple crises, econometric model

**J.E.L. classification:** H51, I15

### 1. Introduction

The main objective of OECD (OECD, 2013) work on health is to help countries increase the performance of health systems by measuring health outcomes, to improve the ways in which health systems use their resources, and to analyse policies that improve access, efficiency and quality of health care services. OECD health data is an authoritative source of statistics and indicators for comparing health and health systems in OECD and non-OECD countries. The COVID-19 pandemic has generated enormous human, social and economic costs and revealed the vulnerabilities of health systems to withstand shocks. The pandemic put immense pressure on health care services, which were often already overstretched before the pandemic, effective health spending is an investment: stronger and more resilient health systems protect both populations and economies (OECD, 2021). The COVID-19 pandemic led to increases in health spending, but the public health crisis and unprecedented measures to reduce the spread of SARS-CoV-2 had a significant negative impact on global economic activity around the world, with global gross domestic product (GDP) contracting by 3.4% in 2020 (OECD, 2021), as a result of restrictions on travel and trade activities, tourism, production limitations, services in hotels, restaurants, etc. Just as health status is an important determinant of a country's economic development, so economic status is an important determinant of health status. In all countries with low economic status, mortality, morbidity and disability rates are highest, the criteria for high health status are a range of macroeconomic determinants, educational attainment, family patterns, social networks, income and employment. Macroeconomic determinants (for example GDP per capita) partly explain the purchasing power of countries and individuals for

healthcare. The prevalence of health problems and the chances of premature death rise steadily with falling income levels, real GDP growth rates show high life expectancy values.

The objectives of the study are:

1. Identify the main directions in the literature with reference to health security in the context of sustainable economic development;
2. To test the correlation between economic development indicators and access to health services and the impact of this correlation on the health security of the population;
3. Development of a new health security assessment model in 6 (six) EU Member States (Germany, Italy, Latvia, Spain, Bulgaria and Romania).

The study continues with the presentation of the results of the literature review, the methodological elaboration of the Health Security model in terms of sustainable economic development, the presentation of the main results and conclusions.

## **2. Literature review**

Recently there has been an increased focus on international health financing, which will continue in the future to ensure that health disparities per capita are continuously reduced (Chang et al., 2019), since the start of the pandemic and the current multiple crises (Castaño-Rosa et al., 2022; Leppold et al., 2022). There is a need to increase public spending on health to replace out-of-pocket payments in order to increase access to health care for as many people as possible in an equitable and efficient way, to ensure universal health coverage and to improve health status at all levels.

The main objective of public health systems is to increase the quality and number of years of healthy life and to eliminate health disparities. Assessing the evolution of the general health status of the population can help us to identify priority times and areas where action can be taken to improve the health status of a population or areas where action may be needed by exploring causal factors and using preventive measures. If in the past it was the states of the world could be characterized by a low standard of living, with poor hygiene and nutrition, the main causes of most premature deaths were communicable diseases and acute diseases. In periods of time to date, public health measures, such as improving socio-economic conditions, sanitary conditions, quality of food, water, air, etc., have led to a dramatic decrease in the number of deaths from infectious diseases and a significant increase in life expectancy. Infectious diseases have been replaced by chronic diseases (cardiovascular diseases, diabetes, cancer), which have become the main causes of death and require a different approach to prevention, detection and treatment than the infectious and acute diseases of the past.

Global health status has increased dramatically over the last century due to economic progress and medical advances (vaccines, antibiotics, etc.) which have helped reduce disease (morbidity) and mortality (Lewis, 2014).

From the perspective of authors Stewart & Ware (Stewart and Ware, 1992), health status is a multidimensional concept, requiring several indicators of health status and using several methodologies for appropriate measurement. Health status measures are modified according to the objectivity of information obtained from standardised examinations of health determinants, health service utilisation and behaviours. The multidimensionality of health information and activity increases the complexity of health studies and requires the use of different data collection and measurement methods (Madans and Webster, 2015). The data obtained could be used once to provide a functional and psychosocial profile of individual patients or could be applied serially to monitor the natural history of disease or responses to standard interventions (Krabbe, 2016).

The health status of a population can be measured by a variety of factors, ranging from birth and death rates, life expectancy, quality of life, morbidity from specific diseases and conditions, environmental risk factors, use of outpatient and inpatient care, financial and geographical accessibility of staff and health facilities, health insurance coverage, and many other factors (U.S. Department of Health and Human Services, 2016).

At the global level, health status involves a great diversity of social and economic standards, diseases, disabilities and mortality, an important role being played by environmental and socio-economic factors, as well as interventions in the field of health. An important determinant in assessing these factors is the large differences between and among developed and developing

countries, but there are common concerns and shared interests in global health development (Tulchinsky and Varavikova, 2014). In order to obtain an image of the level of global health, demographic flows and socio-economic changes, studies and databases are carried out by the World Health Organization (WHO) that classifies countries according to geographical region or economic status, as the countries of the Organization for Economic Co-operation and Development (OECD) are classified.

The use of health indicators should contribute to the overall population health objectives of improving the health status of the population and reducing health inequalities. Health indicators support this objective through the following key applications: advocacy, accountability, system management, quality improvement and research. No measure can uniquely reflect the state of health of the nation, it is necessary to provide indicators that reflect a wide range of factors, such as health, the risk of disease and the performance of the health system. Over time, as new information becomes available and official indicator data sources expand, indicators may change, or new indicators may emerge. Therefore, there is no global set of indicators as perfect or permanent, potential indicators can be identified that respect the data constraints and then applied to the described framework can determine the most accurate results (Committee on the State of the USA Health Indicators, 2009).

Indicators are considered positive when they have a direct relationship (association, correlation) with health status, so the higher the value of the indicator, the better the health status of people in the population studied. Otherwise, indicators are considered negative when they have an inverse relationship (association, correlation) with health status, the higher the value of the indicator, the worse the health status of the people in the population studied (Pan American Health Organization, 2018).

### 3. Research methodology

In the analysis of the economic status of the population with an impact on the access to medical services for the period 2010 - 2021, we used the following indicators: GDP per capita (converted according to USD exchange rate), GDP per capita in terms of purchasing power (converted according to USD exchange rate), Consumer price index (2015=100), Real individual consumption in terms of 2015 consumer prices.

Data on the evolution of selected indicators have been taken from the Organisation for Economic Co-operation and Development (OECD) public database, OECD Statistics section, which includes data and meta-data for OECD member countries and selected non-member economies, Health subsection (OECD, 2022) for the period 2010-2021.

The analysis was performed with the help of the SPSS program version 25, the correlation tests being performed using the linear regression method, being obtained 6 correlative models for the 6 European countries analyzed: Germany, Italy, Latvia, Spain, Bulgaria and Romania.

The summary of the regression models is presented in Table no 1.

Table no. 1 Model's summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson	Notes	
					R Square Change	F Change	df1	df2	Sig. F Change		Predictors:	Dependent Variable:
De (Germany)	0.88	0.777	0.693	1622.1948	0.777	9.273	3	8	0.006	2.170	(Constant), AICDe, GDPPPSDe, CPIDe	GDPPDe
It (Italy)	0.78	0.613	0.468	1767.5712	0.613	4.220	3	8	0.046	1.935	(Constant), AICIt, GDPPPSIt, CPIIt	GDPIIt
Lv (Latvia)	0.98	0.953	0.936	638.7017	0.953	54.268	3	8	0.000	2.025	(Constant), AICLv, GDPPPSLv, CPILv	GDPLv



Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson	Notes	
					R Square Change	F Change	df1	df2	Sig. F Change		Predictors:	Dependent Variable:
Es (Spain)	0.47	0.224	-0.066	1831.3691	0.224	0.772	3	8	0.542	1.975	(Constant), AICEs, GDPPPSEs, CPIEs	GDPEs
Bg (Bulgaria)	0.97	0.934	0.909	436.6436	0.934	37.798	3	8	0.000	1.994	(Constant), AICBg, CPIBg, GDPPPSBg	GDPBg
Ro (Romania)	0.97	0.935	0.910	634.4722	0.935	38.049	3	8	0.000	2.030	(Constant), AICRo, GDPPPSRo, CPIRo	GDPRo

Source: Authors' calculations using SPSS v 25

It can be seen from the table that most models (with the exception of Spain and Italy) have values of the coefficients of determination (Adjusted R Square) of a high statistical significance that allow their validation from the point of view of objective 2 of the research: the economic status and the access to medical services are in direct correlation and ensure the health security of the population. As far as the two countries are concerned, the situation during the pandemic period, which put economic status and access to health services in counter correlation, demonstrates by antithesis the objective of the research, i.e. in order to achieve health security for the population, access to health services must be correlated with the economic status of the Member State.

To validate the model, the null hypothesis was tested for the 6 models using the ANOVA test and the results are shown in Table no 2.

Table no. 2 ANOVA method

Model	Distribution test	Sum of Squares	df	Mean Square	F	Sig.
De (Germany)	Regression	73206417.274	3	24402139.091	9.273	0.006
	Residual	21052126.932	8	2631515.867		
	Total	94258544.207	11			
It (Italy)	Regression	39558305.732	3	13186101.911	4.220	0.046
	Residual	24994464.748	8	3124308.094		
	Total	64552770.480	11			
Lv (Latvia)	Regression	66414603.907	3	22138201.302	54.268	0
	Residual	3263518.722	8	407939.840		
	Total	69678122.629	11			
Es (Spain)	Regression	7765687.211	3	2588562.404	0.772	0.542
	Residual	26831301.878	8	3353912.735		
	Total	34596989.089	11			
Bg (Bulgaria)	Regression	21619714.572	3	7206571.524	37.798	0
	Residual	1525260.930	8	190657.616		
	Total	23144975.503	11			
Ro (Romania)	Regression	45949923.497	3	15316641.166	38.049	0
	Residual	3220439.773	8	402554.972		
	Total	49170363.269	11			

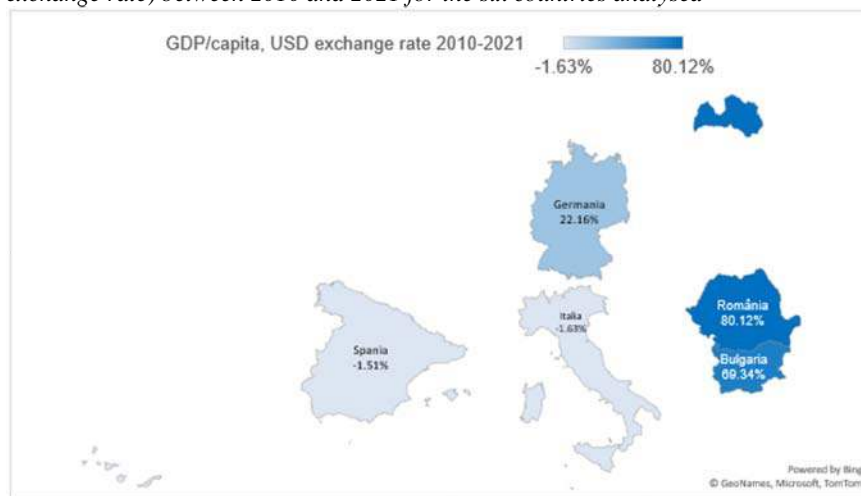
Source: Authors' calculations using SPSS v 25

The ANOVA method allowed the rejection of the null hypothesis, keeping the alternative hypothesis in all cases except Spain. For Italy, the coefficient of significance of the representation of errors was close to the maximum selected limit ( $\alpha < 0.05$ ) without, however, crossing the representation threshold. The results of the ANOVA test confirm the objective of the study and justify the implementation of health policies more favourable to national health safety in the context of large disparities at EU level.

#### 4. Findings

The GDP/capita indicator (converted according to the USD exchange rate) over the period 2010-2021 at the level of the analysed countries evolved as follows (Figure 1): in Germany the indicator increased by 22.16%, from 41572.5\$ GDP/capita, USD exchange rate in 2010 to 50786.1\$ GDP/capita, USD exchange rate in 2021. The minimum value was reached in 2015 (41103.3\$ GDP/capita, USD exchange rate). The maximum value was reached in 2021 (50786.1\$ GDP/capita, USD exchange rate). In Italy the indicator decreased by -1.63%, from 36035.6\$ GDP/capita, USD exchange rate in 2010 to 35449.3\$ GDP/capita USD exchange rate in 2021. The minimum value was reached in 2015 (30242.4\$ GDP/capita, USD exchange rate). The maximum value was reached in 2011 (38649.6\$ GDP/capita, USD exchange rate). In Latvia the indicator increased by 79.72%, from 11424.7\$ GDP/capita, USD exchange rate in 2010 to 20532.5\$ GDP/capita, USD exchange rate in 2021.

*Figure no. 1. Mapping the dynamics of the GDP/capita indicator (converted according to the USD exchange rate) between 2010 and 2021 for the six countries analysed*



*Source:* Elaborated by the authors based on Organisation for Economic Co-operation and Development public data (OECD, 2022)

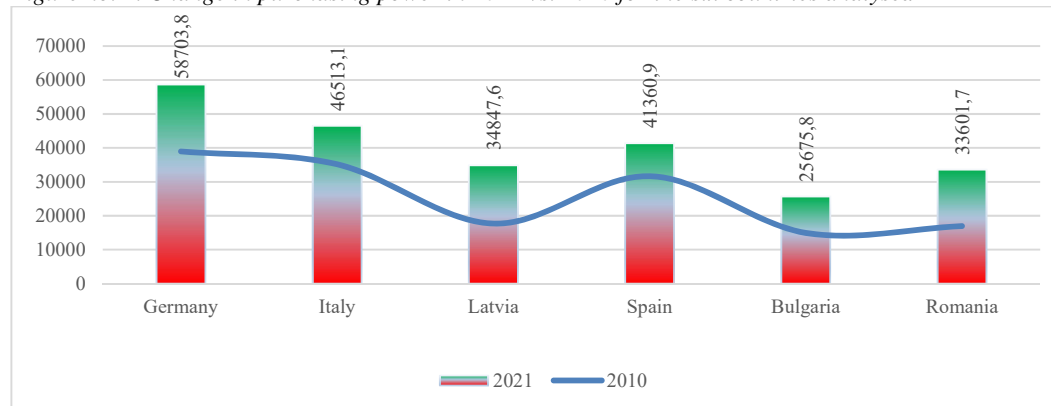
The minimum value was reached in 2010 (11424.7\$ GDP/capita, USD exchange rate). The maximum value was reached in 2021 (20532.5\$ GDP/capita, USD exchange rate). In Spain the indicator decreased by -1.51%, from 30532.5\$ GDP/capita, USD exchange rate in 2010 to 30070\$ GDP/capita, USD exchange rate in 2021. The minimum value was reached in 2015 (25742.4\$ GDP/capita, USD exchange rate). The maximum value was reached in 2011 (31677.9\$ GDP/capita, USD exchange rate).

In Bulgaria, the indicator increased by 69.34%, from 6853\$ GDP/capita, USD exchange rate in 2010 to 11605.1\$ GDP/capita, USD exchange rate in 2021. The minimum value was reached in 2010 (6853\$ GDP/capita, USD exchange rate). The maximum value was reached in 2021 (11605.1\$ GDP/capita, USD exchange rate). In Romania the indicator increased by 80.12%, from 8214.1\$ GDP/capita, USD exchange rate in 2010 to 14794.9\$ GDP/capita, USD exchange rate in 2021. The minimum value was reached in 2010 (8214.1\$ GDP/capita, USD exchange rate). The maximum value was reached in 2021 (14794.9\$ GDP/capita, USD exchange rate).

The GDP/capita indicator in terms of purchasing power (converted according to the USD exchange rate) over the period 2010-2021 at the level of the analysed countries evolved as follows (Figure 2): in Germany the indicator increased by 50.71%, from 38952.7\$ GDP/capita, USD exchange rate in 2010 to 58703.8\$ GDP/capita, USD exchange rate in 2021. The minimum was reached in 2010 (38952.7\$ GDP/inhabitant, USD exchange rate). The maximum value was reached in 2021 (58703.8\$ GDP/capita, USD exchange rate). In Italy, the indicator recorded an increase of 32.3%, respectively from 35158.4\$ GDP/capita, USD exchange rate in 2010 to 46513.1\$ GDP/capita, USD exchange rate in 2021. The minimum value was reached in 2010 (35158.4\$

GDP/capita, USD exchange rate). The maximum value was reached in 2021 (46513.1\$ GDP/capita, USD exchange rate). In Latvia, the indicator recorded an increase of 96.8%, respectively from 17706.9\$ GDP/capita, USD exchange rate in 2010 to 34847.6\$ in GDP/inhabitant, USD exchange rate in 2021. The minimum was reached in 2010 (17706.9\$ GDP/capita, USD exchange rate). The maximum value was reached in 2021 (34847.6\$ GDP/capita, USD exchange rate).

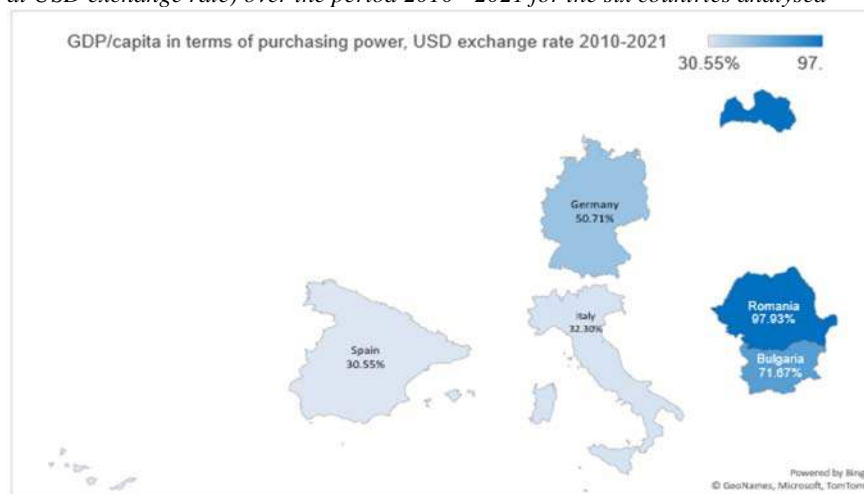
Figure no. 2. Change in purchasing power in 2021 vs. 2010 for the six countries analysed



Source: Elaborated by the authors based on Organisation for Economic Co-operation and Development public data (OECD, 2022)

In Spain, the indicator recorded an increase of 30.55%, respectively from 31682.7\$ GDP/capita, USD exchange rate in 2010 to 41360.9\$ of GDP/capita, USD exchange rate in 2021. The minimum was reached in 2010 (31682.7\$ GDP/capita, USD exchange rate). The maximum value was reached in 2019 (41695.1\$ GDP/capita, USD exchange rate). In Bulgaria, the indicator recorded an increase of 71.67%, respectively from 14956.5\$ GDP/inhabitant, USD exchange rate in 2010 to 25675.8\$ of GDP/capita, USD exchange rate in 2021. The minimum was reached in 2010 (14956.5\$ GDP/capita, USD exchange rate). The maximum value was reached in 2021 (25675.8\$ GDP/capita, USD exchange rate). In Romania, the indicator recorded an increase of 97.93%, respectively from 16976.3\$ GDP/inhabitant, USD exchange rate in 2010 to 33601.7\$ of GDP/capita, USD exchange rate in 2021. The minimum was reached in 2010 (16976.3\$ GDP/capita, USD exchange rate). The maximum value was reached in 2021 (33601.7\$ GDP/capita, USD exchange rate) (Figure 3).

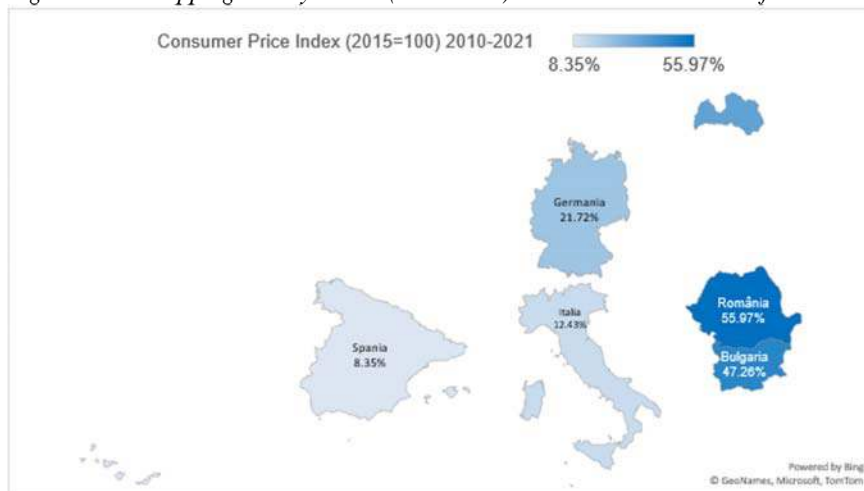
Figure no. 3 Mapping the dynamics of the GDP/capita indicator in terms of purchasing power (converted at USD exchange rate) over the period 2010 - 2021 for the six countries analysed



Source: Elaborated by the authors based on Organisation for Economic Co-operation and Development public data (OECD, 2022)

The Consumer Price Index - CPI (2015=100) recorded increases over the period 2010-2021 in all countries analysed (Figure 4). The highest value was in Romania, where there was an increase of 55.97%, from 85.4% in 2010 to 133.2% in 2021.

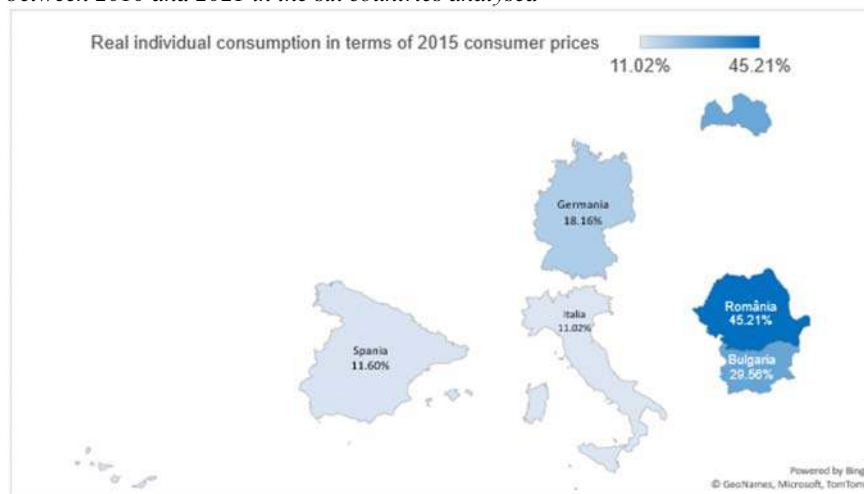
Figure no. 4. Mapping CPI dynamics (2015=100) between 2010 and 2021 for the six countries analysed



Source: Elaborated by the authors based on Organisation for Economic Co-operation and Development public data (OECD, 2022)

The minimum value was reached in 2010 (85.4%). The maximum value was reached in 2021 (133.2%). Spain recorded the lowest growth rate of 8.35%, starting in 200 from 99.4% and reaching 107.7% in 2021. The minimum value was reached in 2012 (99.3%). The maximum value was reached in 2021 (107.7%). In Germany the indicator increased by 21.72%, from 92.1% in 2010 to 112.1% in 2021. The minimum value was reached in 2010 (92.1%). The maximum value was reached in 2021 (112.1%). The consumer price index in Italy increased by 12.43%, from 94.1% in 2010 to 105.8% in 2021. The minimum value was reached in 2010 (94.1%). The maximum value was reached in 2021 (105.8%). In Latvia, the index increased by 35.17%, from 87.3% in 2010 to 118% in 2021. The minimum value was reached in 2010 (87.3%). The maximum value was reached in 2021 (118%). In Bulgaria the indicator increased by 47.26% from 89.3% in 2010 to 131.5% in 2021. The minimum value was reached in 2010 (89.3%). The maximum value was reached in 2021 (131.5%).

Figure no. 5. Mapping the dynamics of real individual consumption in terms of 2015 consumer prices between 2010 and 2021 in the six countries analysed



Source: Elaborated by the authors based on Organisation for Economic Co-operation and Development public data (OECD, 2022)

Real individual consumption in terms of consumer prices 2015 between 2010-2021, at the level of the countries analysed, had an increasing trend (Figure 5). The highest level was recorded in Romania, of 45.21%, respectively from 87.6% in 2010 to 127.2% in 2021. The minimum value was reached in 2010 (87.6%). The maximum value was reached in 2021 (127.2%). The lowest level was recorded in Italy, with an increase of only 11.02%, respectively from 94.4% in 2010 to 104.8% in 2021. Real individual consumption in Germany increased by 18.16%, respectively from 93.6% in 2010 to 110.6% in 2021. The minimum value was reached in 2010 (93.6%). The maximum value was reached in 2021 (110.6%). In Latvia the indicator increased by 28.92%, respectively from 89.9% in 2010 to 115.9% in 2021. The minimum value was reached in 2010 (89.9%). The maximum value was reached in 2021 (115.9%). In Spain the indicator increased by 11.6% from 95.7% in 2010 to 106.8% in 2021 and in Bulgaria consumption increased by 29.56% from 91% in 2010 to 117.9% in 2021. The minimum value was reached in 2010 (91%). The maximum value was reached in 2021 (117.9%).

## 5. Conclusions

The authors set out to and carried out a test of population health security through a correlative economic model of economic development. Using analytical and empirical methods, the objectives of the research were achieved, respectively to test the state of correlation of economic development indicators and access to health services and the impact of this correlation on the health security of the population and to develop a new model for assessing health security at the level of 6 (six) Member States of the European Union (Germany, Italy, Latvia, Spain, Bulgaria and Romania).

The analysis of the economic indicator's GDP/capita standardized by currency conversion USD and GDP/capita in terms of purchasing power showed that they have a directly proportional variability in relation to purchasing power regardless of the type of profile studied (segregated profile or general profile). In medical terms the health status of the population is sensitive to purchasing power, with margin differences of the segregated profile in relation to the general profile depending on the level of socio-economic development of the subject state and the health risk factors impacting the health of the population in the target state.

It was demonstrated during the modelling and validation of 4 models out of the 6 proposed that the economic status and access to medical services are in direct correlation and ensure the health security of the population.

It was confirmed the objective of the study that motivates the implementation of health policies more favourable to the national sanitization safety in the context of great disparities at the level of the European Union (the results of the research have applicability being taken over by the authorities for the improvement of the health policies and for the level of health funding at the level of the EU Member States).

## 6. Acknowledgement

This research was conducted within the internal research grant RF 1821/31.03.2023 provided by "Dunarea de Jos" University of Galati.

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## Pharma Sector under the Influence of the Parafiscal Mechanism: Clawback Tax

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### Abstract

*The authors of this paper address the issue of the „Clawback Tax” in the context of the desire to ensure an efficient and sustainable public health care system, but without affecting the legitimate interests of the Romanian Pharma Sector. Knowing what is meant by taxation and parafiscality, the penetration of the Clawback Tax substrata certainly requires a double approach: a legal one and an economic one (fiscal- budgetary). We consider the circumstances that led to the introduction of the Clawback Tax, the effects generated along the way and any changes that may be necessary, giving our work the following structure: Introduction; Theoretical Background; Research methodology focusing on the adoption of the Clawback Tax in Romania; Size and evolution regarding the financial source for the Single National Health Insurance Fund (FNUASS), based on the collection of the Clawback Tax; Adaptation of the regulatory framework on the Clawback Tax to the requirements of the Treaty on the Functioning of the European Union and Conclusions.*

**Key words:** Pharma sector; financing health; parafiscal mechanism; Clawback Tax; clarifications/assessments; necessary corrections

**J.E.L. classification:** H51, I15, I18, K34

### 1. Introduction

Before actually bringing the „Clawback Tax” into the debate, we feel it is necessary to present a few issues in relation to what parafiscality means. Thus, the concept in question refers to parafiscal contributions (taxes), which are nothing more than sums of money collected - either by the tax authorities or directly by the beneficiaries of the revenue in question - on the basis of legal rules adopted specifically for this purpose, but which are paid/transmitted to the accounts of certain public institutions or other public or (sometimes) private bodies (Beltrame & Mehl, 1997).

According to Professor Mircea Ștefan Minea, „the characteristic of parafiscal taxes is that they are - like taxes - compulsory (being established by law, they are pursued and collected either through tax administrations or directly by legally designated beneficiaries, in whose accounts they are concentrated, and constitute extra-budgetary income of legal persons of public or private law. The techniques and procedure for collecting/collecting parafiscal charges are very similar to those used in tax matters.” (Minea, 2011).

Parafiscal taxes come in a variety of forms, including, in the case of the Romanian tax system, the Clawback Tax. Obviously, from a legal point of view, no problems arise, as these special forms of constituting complementary financial resources at the disposal of public entities (CNAS - National Health Insurance House) are perfectly legal: „Even if they increase the burden placed on taxpayers, those taxes contribute - on the one hand - to the partial relief of the budget (in terms of bearing/covering certain expenses), and - on the other hand - the introduction of such special

(parafiscal) taxes is likely to ensure a fairer distribution of fiscal and non-tax burdens between the various categories of taxpayers, which is fully in line with constitutional principles." (Minea, 2011).

In Romania, the legislator has tried to simplify the parafiscal system, adopting a normative act (RP/Romanian Parliament, 2017) which provides for the elimination of more than 100 taxes paid by citizens, aiming to „reduce waiting times, in front of counters, for their payment, but also to streamline the work of public institutions by simplifying and streamlining internal processes." (RP, 2016). The eliminated taxes had a reduced budgetary impact, counting more on the time saved by citizens, which leads to increased consumption, trust in state institutions, and Romania's climb in the Doing Business world rankings.

Specifically, the changes introduced by the above-mentioned act concern the elimination of the following non-tax taxes (RP, 2016): (i) Radio and TV fees (which will be supported by the state budget, the institutions in question having the possibility to continue to finance themselves from the proceeds of advertising, donations or sponsorships); (ii) Stamp duty for motor vehicles; (iii) Fees charged by the National Office of the Commercial Registry when setting up a company and when registering entries; (iv) Fees for tax records and criminal records, which will be issued to applicants free of charge; (v) Consular fees levied at diplomatic missions and consular offices of Romania abroad; (vi) Fees for the apostille and super-legalisation of official documents, additional fee for the issue of passports; (vii) Fees for the payment of lost or amended documents for publication in the Official Gazette; (viii) Extra-judicial stamp duties; (ix) Fees for the issue of recreational/sports fishing permits.

Given the importance of the Clawback Tax for the financing of the public health system in Romania, the legislative changes in this respect have not been far-reaching. Knowing what taxation and parafiscality mean, including their importance for public budgets (Roş 2005, 2009, 2016; Drosu-Saguna & Tofan, 2010; Bostan, 2008, 2010; Costea, 2021; Costaş, 2019ab; Tofan, 2016), beyond legal considerations, the authors of this paper approach the issue of the Clawback Tax from other angles.

We take into account the circumstances that led to the introduction of this contribution, the effects generated along the way and any changes that may be necessary.

## **2. Theoretical background**

The issue of financing the public health system is a very important one for the state and has been discussed in several specialist papers. The topic is still a current one, even if the specific germs are linked to 2008- 2009, when the Romanian government had high debts to drug suppliers, and „one of the International Monetary Fund's requirements, following Romania's accession to the European area, was the payment of arrears that threatened the state system." (Costache, 2020).

Not many articles and books insist on the parafiscal components designed to provide budgetary resources to that system. Our documentation has identified such works (Petcu et al., 2014; Petrisor, 2020; Radu et al., 2016, 2018; Vladescu et al., 2016), which is why we refer to them, considering them more important.

In addition, we come up with some legislative developments and, on the other hand, we refer to some developments regarding the financial source „Clawback Tax" (for the Single National Health Insurance Fund) following the in-depth study of some reports prepared by prestigious institutions - the Court of Accounts of Romania, CNAS, MS, as well as by organizations that have researched similar issues, with remarkable results.

## **3. Research methodology focusing on the adoption of the Clawback Tax in Romania**

Entering into the Clawback Tax substrata certainly involves a twofold approach: one legal and one economic (fiscal-budgetary). Obviously in the context of the desire to ensure an efficient and sustainable public health protection system, but without affecting the legitimate interests of Pharma Sector.

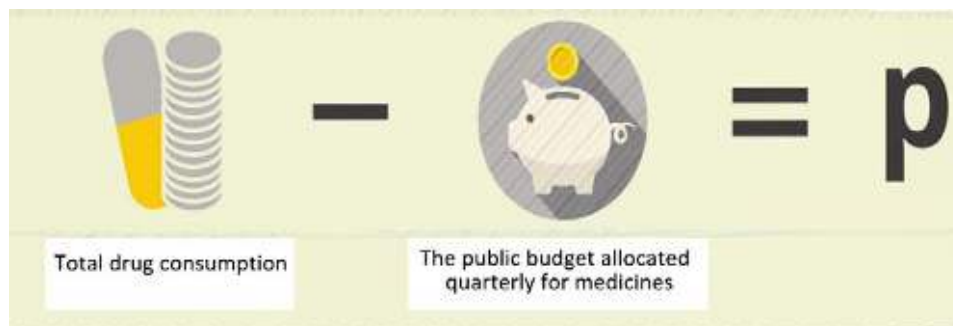
The Romanian State established this compulsory contribution in 2009 (the mechanism is found in (RG/Romanian Government, 2009), representing in fact a tax applied in the pharmaceutical industry. Thus, all drug manufacturers contribute (through quarterly payments) to the financing of



the public health system with a share of the profit made from the sales of compensated medicines exceeding the amount allocated to them from the Single National Health Insurance Fund (FC/Fiscal Council, 2021).

In other words, these manufacturers bear the Clawback Tax based on a percentage „p” reflecting the difference between the total cost of the compensated medicines and the cost borne by the public budget each quarter (Figure no. 1).

Figure no. 1 Determination of the percentage „p” on which the Clawback Tax is based



Source: [https://apmgr.org/wp-content/uploads/2019/11/Infografic\\_RO1.pdf](https://apmgr.org/wp-content/uploads/2019/11/Infografic_RO1.pdf)

Although adopted in the context of a major crisis (RG, 2011), this tax is also applied in years of economic growth, due to the advantages in terms of ensuring the financing of health systems and the predictability of costs, knowing that there are risks related to the low availability of medicines, against the background of insufficient attractiveness of the market for local producers.

We therefore observe a remarkable continuity in the public health financing system, which has existed since 2011, for the quarterly contribution - calculated according to Article 3 of Government Emergency Ordinance No. 77/2011 (Clawback Tax) - there is an obligation to pay it quarterly by the holders of marketing authorizations for medicines. The obligation covers (RG, 2019): (i) those medicines included in the national health programmes; (ii) medicines with or without personal contribution, used in outpatient treatment on prescription through open circuit pharmacies; (iii) medicines used in hospital treatment; (iv) medicines used in medical services provided through dialysis centres, supported by the Single National Health Insurance Fund and the Ministry of Health budget.

At the European level, „most countries have implemented some form of clawback/payback, including the five largest markets for medicines in Europe, averaging 8.6% of the value borne by health systems. In terms of value, Germany ranks first, with €5.5 billion in rebates and payback (13.3% of total healthcare expenditure on medicines), while Greece has the highest percentage level of clawback, 27.3%.” (RP, 2022).

In Hungary a similar (solidarity) tax has recently been introduced, but it is a maximum of 8% and only for very high turnover. In Romania, holders of marketing authorisations for medicines pay a disproportionately high 15% clawback tax (the highest in the EU), which prevents the Romanian medicines industry from progressing. As Romania is 80% dependent on imports, the effects are problems in the supply of season-specific medicines (PRIMER, 2023).

Compared to the original form of the law that adopted the Clawback Tax in Romania, a new law (RP, 2020) introduces several new features starting with the first quarter of 2020. For example, the quarterly contribution is calculated and due differentiated for type I, II, and III medicines (also regulating how to classify medicines by the three types).

The list of „type I, type II and type III medicines” is approved quarterly by order of the Minister of Health, by the 25th of the month following the end of a quarter, the contributions being calculated as follows: for „type I medicines”, the quarterly contribution is calculated by applying 25% to the value of their centralized consumption, communicated by the National Health Insurance House, after subtracting TVA; for „type II medicines”, the quarterly contribution is calculated by applying 15% to the base determined under the same conditions as above, and for „type III medicines”, 20%.

However, even if these measures have beneficial emphases, in the sense of capping and differentiated application of the percentage of the contribution due according to the classification of the medicines (innovative, generic/biosimilar/innovative off-patent, locally manufactured) - innovative medicines 25%, imported generics and biosimilars as well as off-patent innovators - 20% and locally manufactured medicines - 15%, the Association of Romanian Generic Medicines Manufacturers claims that the clawback tax is at a very high level (APMGR, 2022). According to the source mentioned, „In the case of generic drugs with full reimbursement, a 28% tax is paid according to Law 53/2020 for a drug priced between 5 and 50 Lei, with the mention that more than 2/3 of the generic drugs on the market in Romania belong to this category. In reality, the clawback tax is 28% because it is calculated on the retail price and thus includes the addition of distributors and pharmacies.” (APMGR, 2022). The table below (Table no. 1) is illustrative in this respect.

Table no. 1 - Price - Clawback Tax correlation under the application of Law 53/2020

	Manufacturer price [RON]	Wholesale price [RON]	Retail price [RON]	Clawback Producer [RON]	Clawback Retail [28.28%]
<b>Price 1</b>	5	5.7	7.07	1.41	28%
<b>Price 2</b>	10	11.4	14.14	2.83	28%
<b>Price 3</b>	25	28.5	35.34	7.07	28%
<b>Price 4</b>	50	57	70.68	14.14	28%
<b>Price 5</b>	100	112	129.92	25.98	26%
<b>Price 6</b>	300	330	369.6	73.92	25%
<b>Price 7</b>	3,000.00	3,030.00	3,065.00	613.00	20%
<b>Price 8</b>	10,000.00	10,030.00	10,065.00	2,013.00	20%

Source: <https://apmgr.org/wp-content/uploads/2022/10/APMGR-white-paper-2022-web.pdf>

## 4. Findings

### 4.1. Size and evolution of the financial source for the Single National Health Insurance Fund (FNUASS), based on the collection of the Clawback Tax

The Single National Health Insurance Fund (FNUASS), administered by the National Health Insurance House (CNAS), comprises revenues (54.85 billion lei in 2022, 10% higher than in 2021) made up of: (i) health insurance contributions (CASS) paid by employees and other insured persons who pay CASS; (ii) budget subsidies; (iii) clawback tax, paid by the subjects mentioned and under the conditions indicated above.

Regarding the clawback tax alone, CNAS collected 3.73 billion Lei in 2022, more than 4% more than in 2021 (Somanescu, 2023).

In previous years, there has been a fluctuating evolution of receipts from the trimonthly contribution (Clawback tax), increasing from the amount of 1,811 million lei recorded in 2012 to the amount of 2,129 million lei in 2019 (Figure no. 2).

Figure no. 2 Evolution of receipts from the trimonthly contribution (Clawback tax, million lei/year, 2012-2019)



Source: Romanian Court of Accounts, 2020

[https://www.rfi.ro/sites/default/files/sinteza\\_raport\\_ap\\_cnas\\_cu\\_coperta\\_03092020.pdf](https://www.rfi.ro/sites/default/files/sinteza_raport_ap_cnas_cu_coperta_03092020.pdf)

On the other hand, CNAS expenditure (54.85 billion Lei in 2022) is intended to cover payments to hospitals for salary increases for medical and auxiliary staff, payments to doctors and other health service providers who have contracts with the Territorial Health Insurance Houses, payments for medical services, medicines and medical devices for patients.

The longer-term study on the dynamics of the share of the „subsidies” and „Clawback Tax” sources in the UNFSAF revenue shows that since 2019 „the two sources of funding have exchanged both places and in terms of volume of participation.” (Petrisor, 2020). The consequence of the Clawback Tax moving to the second place (moving up from the third place instead of subsidies) is that there is „a decrease in pressure on the state budget, but for the holders of marketing authorisations for medicines it means a worrying doubling of contributions from the clawback tax.” (Petrisor, 2020).

The risks that may arise are related to the quality of medicines (as production costs increase in this way too) or we may even have to deal with discontinuation of the supply of certain medicines that do not bear the kind of taxation referred to in this paper.

However, we cannot imagine that the Clawback Tax will be excluded for a period of 3-5 years, especially as it is mentioned in official reports (CCR, 2020) as a „strong point” of the management system of the Single National Health Insurance Fund.

#### 4.2. Adapting the regulatory framework on Clawback Tax to the requirements of the Treaty on the Functioning of the European Union

For reasons of European legislation, i.e. in order to eliminate the risk of an unfavourable ruling for Romania, it is considered necessary to amend and supplement the Emergency Ordinance No. 77/2011 on the establishment of certain contributions to finance certain health expenditure.

The European Commission's request concerns two issues, found in GEO No. 77/2011 (RP, 2023): (a) the compatibility of Art. 3<sup>7</sup> para. (2)(b) and of the percentage applied to this category, provided for in Art. (4) - being that it would favour the type II medicine (the one produced in Romania), regardless of whether by the way of authorisation it can be classified as a type I or a type III medicine - , with art. 110 of Treaty on the Functioning of the European Union; (b) the obligation for non-resident holders of marketing authorisations for such products to appoint a fiscal representative resident in Romania.

The draft law proposes to amend and supplement the Emergency Ordinance No. 77/2011 on the establishment of certain contributions to finance certain expenditure in the field of health, approved by Law No. 184/2015, with subsequent amendments and additions (RP, 2023), in order to eliminate

category III of medicines (medicines produced on a manufacturing line in Romania) for which a 15% contribution is due.

More specifically, starting with the third quarter of 2023, it is proposed to regulate a differentiated quarterly contribution for type I and II drugs, by applying fixed percentages of 25% (type I drugs) and 15% (type II drugs) respectively. The impact on the revenues collected to the UNFASS budget from the quarterly contribution, compared to the current formula, will be approximately -46.73 thousand lei/quarter.

Certainly, the new rule - as drafted - responds to the criticism made by the European Commission, establishing a uniform regime (15% for generic medicines and 25% for innovative medicines), regardless of whether the products are manufactured in Romania or come from other EU countries.

## 5. Conclusions

The Clawback Tax is an important element of parafiscality in Romania, and it appears in the public health financing system to be characterized by a remarkable continuity, which has existed since 2011. The legislative regulatory formula currently applied, to which we have briefly referred, gives functionality to the mechanism in place.

However, by the level of the tax and the way of calculation adopted, it is estimated in the studies and articles investigated by us that in Romania the tax is at the highest level in the European Union. Moreover, given that Romania is 80% dependent on imports, drug manufacturers claim that the clawback tax has blocked the domestic Pharma industry, not increasing for at least a decade.

This could lead to certain risks, related to the quality of medicines (as production costs increase in this way) or even to the discontinuation of certain medicines that do not bear the kind of taxation we have referred to in this paper.

Regarding the *limitations of the research*, even if we refer to the adaptation of the regulatory framework on Clawback Tax to the requirements of the Treaty on the Functioning of the European Union, we believe that the study should have included more elements (possibly parafiscal) of the public health financing systems found in the Member States of the European Union.

That is why we believe that this is the area to which *our future research* should be directed in relation to the theme dealt with in these pages.

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## Orientation of Public Audit Missions to the IT Activity Carried Out within the State Authorities/Entities

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### Abstract

*The exercise of public audit in Romania is the responsibility of the Supreme Audit Institution (the Court of Accounts, which exercises external public audit) and the special internal audit structures found in central and local public authorities/entities. With the present paper we bring to the reader's attention some aspects derived from the orientation of the public audit activity on the IT-related activity carried out by these authorities/entities. The authors refer to the information from the activity reports of the internal audit structures at the level of central and local public authorities/entities, submitted to the Supreme Audit Institution, as well as to some of its own findings, resulting from the assessment of the managerial internal control systems (including internal audit) carried out in the framework of the audit actions carried out at public authorities/entities.*

**Key words:** public audit, public authorities, audit structures, IT area, audit findings

**J.E.L. classification:** D73, H83, H89, M42, M48

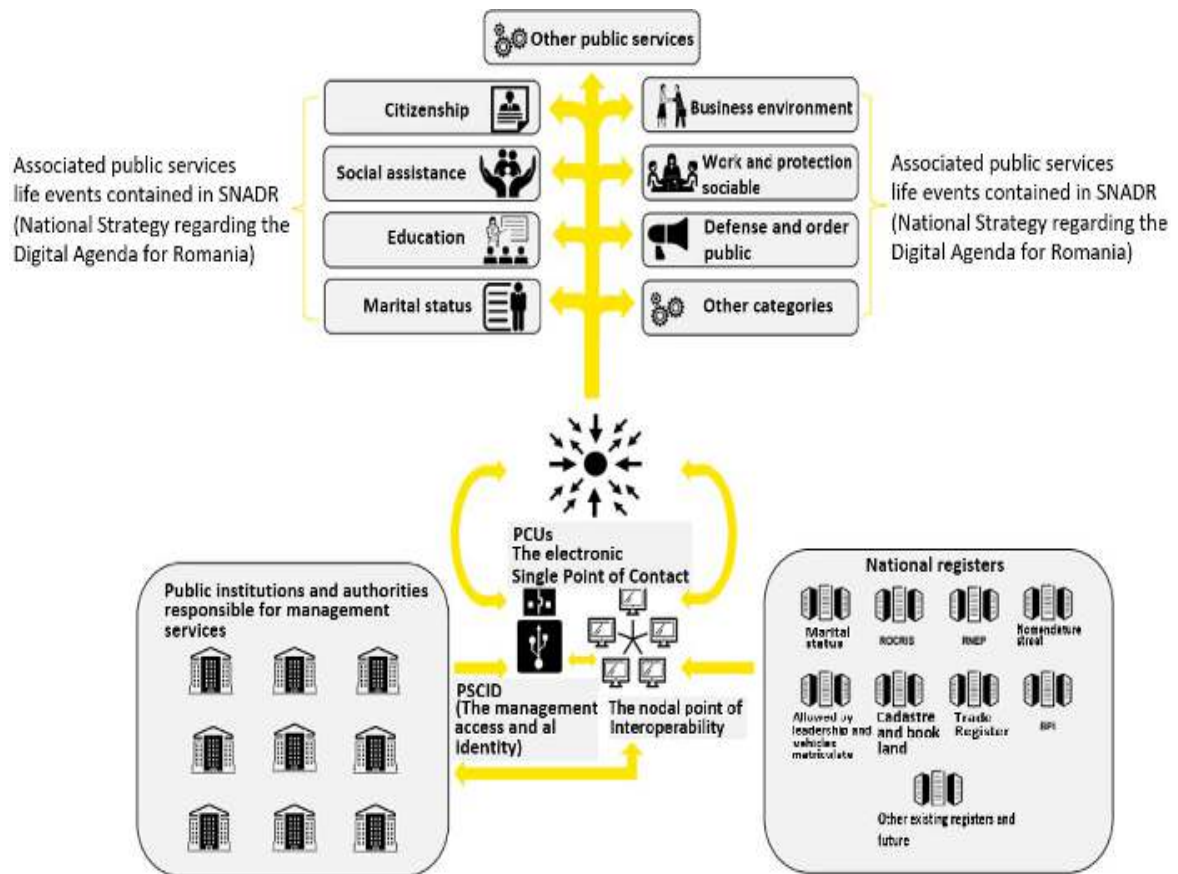
### 1. Introduction

A guiding principle of Romania's Digital Agenda (2020), which has an important effect on all areas and lines of action, is the promotion of citizen - and business - centred initiatives. According to it, every initiative or project of public institutions in the state administration should take into account that its ultimate goal is the provision of quality services with added value for citizens and economic agents. Therefore, „Every institution providing a public service should identify and meet the needs of its customers. These institutions should include in the process of optimising the services they offer both customer requests and the newest and most innovative existing practices, so as to provide public services with real benefits. Public institutions should make it easier for their customers to find, access and use public services in the most efficient and transparent way.” (MSI, 2015).

In the same context, it is equally important to promote legislative projects that support ICT initiatives, especially as „legislative gaps” are often identified in the use, operation or maintenance of IT systems. Moreover, the challenge of creating the right climate for change requires a legislative framework that defines as clearly as possible the transition to the new IT-centric paradigm.

The need to increase the transparency of public administration acts, through the computerisation of public services, and to get closer to what is meant by efficient public administration (lowering the costs of public administration) has led the state administrative institutions to set up and develop their own IT departments. Obviously, the situation is in a continuous dynamic and things are by no means simple (Figure no. 1).

Figure no. 1. The link between electronic public services, IT systems and stakeholders



Source: (SGG, 2020)

Their work, due to the budgetary effort involved (logistics, human resources, etc.), is a priority objective of public audit. Therefore, our paper addresses the issue of public audit orientation (internal and external) on IT-related activity in state institutions. More specifically, we focus on some aspects recently found by the Supreme Audit Institution of Romania in relation to internal public audit assignments - separately: the work of internal public audit structures at the level of central and local public administration authorities - which focused on IT sector activity.

## 2. Theoretical background

Most of the published works on public auditing in Romania include topics related to history, norms, institutions, standards or techniques/procedures for performing specific assignments. Important works by recognized scholars adequately address the issue of internal public audit (Dascălu & Nicolae, 2006; Munteanu, 2010; Ionescu & Nica, 2021) and - separately - that of external public audit (Ispir, 2008; JRC, 2017; Trincu-Drăgușin & Ștefănescu, 2020). Such themes have also been addressed by us in previous years (Bostan, 2010; Bostan et al., 2021). Of course, studies on the boundaries between public internal audit and financial audit or comparative analysis between these forms of audit, as well as on specific procedures related to the general framework for conducting public audit, are important, but the authors of this paper take a different approach. Specifically, they develop the issues arising from the recent orientation of public audit engagements towards IT activity carried out within state authorities/entities - local and central - in view of present-day imperatives. In particular, „full integration into the information society” is frequently brought up, recognising that this is also a „weighty” imperative for central and local public administration authorities in Romania.

We consider the above-mentioned work to be of the utmost importance, but our view is further justified by the fact that it has become essential to „rethink and adapt approaches to IT, both in terms of equipping staff with reliable and well-performing IT systems and in terms of reviewing staff perceptions of the need for and effects of widespread use of IT” (JRC, 2019). It is precisely for this reason that we believe that public audit is intended to contribute constructively to the integration of Romanian public administration authorities into the information society to the greatest extent possible.

### **3. Research methodology**

The research around the present topic („Orientation of Public Audit Missions to the IT Activity Carried out within the State Authorities/Entities”), involves the investigation of several works in the field of public, internal and external audit, highlighting consequently a number of elements specific to the descriptive method.

We base our documentation on the regulatory framework in force, applicable to public audit (internal and external) within state institutions, in particular: Law no.672/2002, republished, on internal public audit; Romanian Government Decision (HGR) no. 1086/2013 for the approval of the General Rules on the exercise of internal public audit activity; Romanian Government Ordinance no. 29/2022 for the amendment and completion of Law no. 672/2002 on internal public audit. We also refer to the reports of certain prestigious institutions, which contain relevant and valuable data in support of what is presented here, in order to give full credibility to the aspects we present in the paper. In particular, we consider some reports of the Supreme Audit Institution (Court of Accounts of Romania) and the Ministry of Finance (UCAAPI/Central Harmonisation Unit for Public Audit), as well as documents on the development/implementation of audit policies/programmes/strategies for the government sector.

### **4. Findings**

#### **4.1. The framework for internal public audit**

Auditing cannot - by any means - be an end in itself, but is in fact „an indispensable part of a regulatory system designed to detect deviations from accepted standards and breaches of the principles of legality, efficiency, economy and effectiveness of financial management early enough to make it possible to take corrective action in individual cases, to hold those responsible to account, to obtain redress or to take preventive measures so that such deviations do not happen again.” (INTOSAI, 1977).

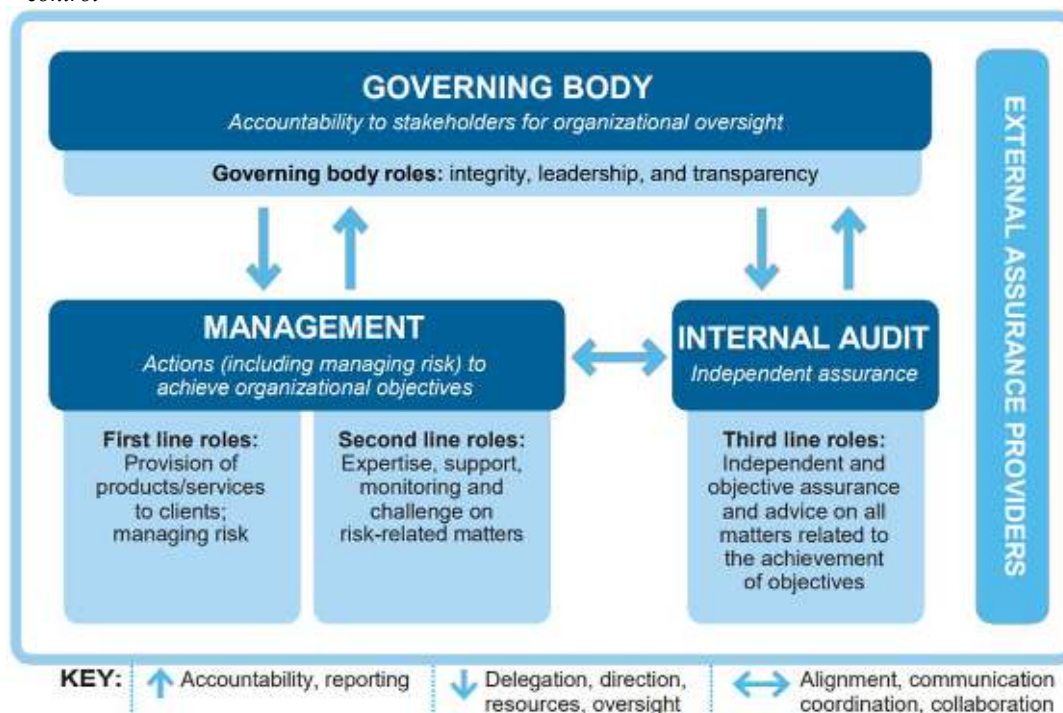
Public internal audit work organised and carried out in all public entities is designed to anticipate and prevent errors and omissions, fraud and irregularities at an early stage (RP, 2002; RG, 2003, 2012, 2013, 2014).

The scope of public internal audit encompasses all activities carried out in public entities - at least once every 4 years (RG, 2022) to achieve their objectives, including the assessment of the system of managerial internal control. The figure below (2) is suggestive for representing a model of the „three lines of defence” for the effective functioning of risk management and managerial internal control.

Done properly, this activity (functionally independent and objective, designed to add value and support public entities in achieving their objectives, with the main aim of improving their management through assurance and advisory activities) can generate optimal and efficient use of external public audit resources.



Figure no. 2. The „three lines of defence” model for effective risk management and management internal control



Source: <https://www.iaa.org.uk/resources/corporate-governance-basic-overview/application-of-the-three-lines-model>

The necessary framework for the development of internal audit activity in the public sector in Romania is provided by the Central Harmonisation Unit for Public Internal Audit, organised at directorate level within the Ministry of Finance (MF, 2017). It methodologically guides, coordinates and supervises the implementation and uniform conduct of internal audit in the public sector.

#### 4.2. Deficiency issues identified by the Supreme Audit Institution of Romania on public internal audit missions focused on IT activity. Insufficient/non-relevant objectives and formal findings

Law no. 94/1992 on the organisation and functioning of the Court of Accounts stipulates, among other duties, that the institution in question evaluates the own financial control and internal audit activity of the audited entities, having the obligation to request and use the reports of the other bodies with financial, fiscal, internal audit and banking inspection duties. According to the above-mentioned law, public entities subject to the control of the Court of Accounts are obliged to submit to it, by the end of the first quarter of the previous year, the report on the conduct and implementation of the internal audit programme.

This explains why this institution assesses the internal management control system (IMS) at the level of auditees in order to analyse the ability of the IMS (including internal audit) to prevent, detect and correct possible errors/misconduct.

This assessment is based on reports submitted to the Court of Auditors by the audited public entities - central and local. Central public entities (1,675) have the following structure: 20 ministries; 1,438 units subordinated to ministries; 45 autonomous administrative authorities (including those with special format reports); 172 units subordinated to autonomous administrative authorities (MF, 2022a). Of the 1,675 central public entities, 1,538 structures have established an internal public audit function, which represents a 92% establishment rate of internal public audit.

Trends in the establishment of public internal audit in central government are shown in Table no. 1.

Table no. 1. Trends in the establishment of public internal audit in central government

	2019	2020	2021	Average growth annually
Number of institutions public who have compulsory the establishment of the function of internal public audit	1.441	1.584	1.675	+7,83%
Number of institutions public who have established the position of internal public audit	1.284	1.392	1.538	+9,45%
Number of institutions public who have established the position of internal public audit by structure Own	792	792	798	+0,19%
Number of institutions public who have established the position of internal public audit through the organ hierarchically superior	492	600	740	+22,64%

Source: <https://mfinante.gov.ro/documents/35673/5090618/Anexa1.pdf>

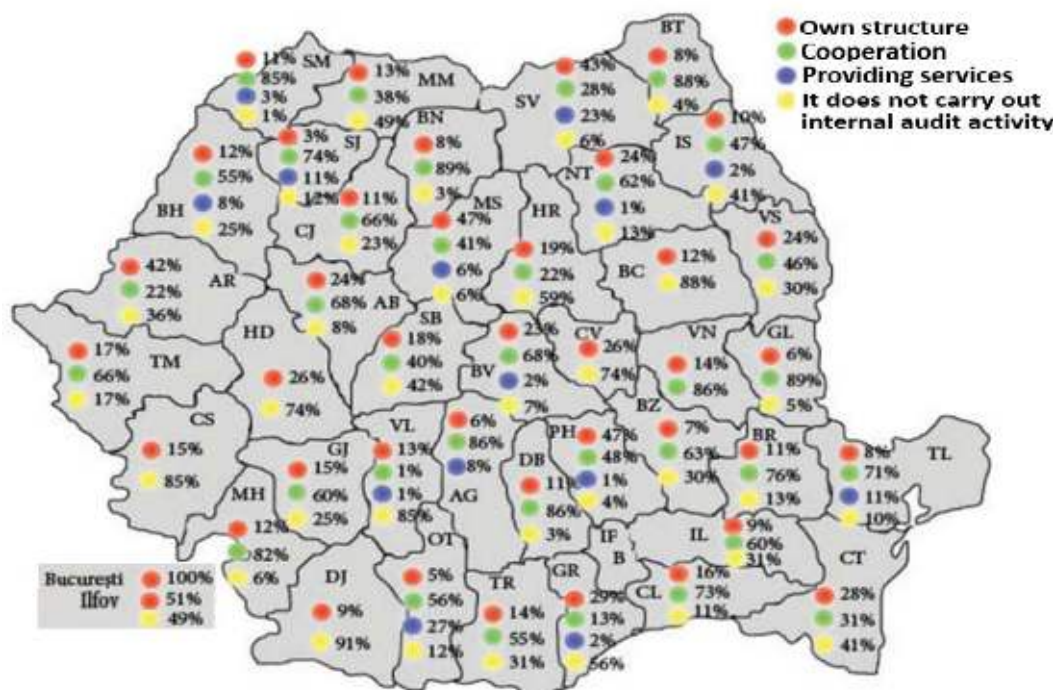
Of the 798 internal public audit structures at central government level (2021), about 85% (683) have established departments. In this organisational formula, no management posts can be foreseen, which leads to shortcomings in the exercise of the internal public audit function, as well as difficulties in implementing the methodology for carrying out missions.

As regards the organisation of internal public audit in the administrative-territorial units, we show that the situation is much worse here, as there are still public entities where internal public audit is not organised (942 of the main authorising officers of local budgets, i.e. 29%) (Figure no. 3).

At local government level, regardless of the type of authorising officer (main or subordinate entity), there are a total of 12,083 institutions that are obliged to set up the internal public audit function; of these, the internal public audit function has been set up in 10,784 structures (89%). The establishment of internal audit has been achieved as follows (MF, 2022b): (a) 836 entities have set up internal audit through their own internal public audit structures. In total there are 894 internal audit structures, to the 836 adding 58 internal audit structures in cooperation system; (b) 4,764 entities where internal audit is provided by the superior hierarchical body; 5,184 entities have established internal audit through cooperation system. It should be noted that 7 entities have established internal audit through service contracts (illegal situation) (MF, 2022b).

The activities audited by the internal audit structures - central and local - were grouped by areas: budgetary, financial-accounting, public procurement, human resources, IT, legal, European funds and entity-specific functions.

Figure no. 3. Organisation of internal public audit in administrative-territorial units, by county



<ul style="list-style-type: none"> <li>• Organisation, implementation, administration/maintenance of the IT system: infrastructure; software adequacy; e-mail; website; transparency, etc.</li> <li>• How IT-specific internal procedures are developed and implemented, including procedures for ensuring IT security</li> </ul>	<ul style="list-style-type: none"> <li>• Absence of contractual clauses transferring ownership, after a certain contractual period, of IT systems software purchased from specialised firms - to ensure business continuity</li> <li>• Ensuring specific IT activity at a minimum level, on the basis of service contracts with specialised economic operators (outsourcing), thus not achieving all the tasks/objectives set out in the ROF for the IT department</li> <li>• Non-compliance concerning the web pages: they do not contain all the information and documents required by the applicable legal regulations on free access to information of public interest; they are unclear and incomplete in content; difficult to access, etc.</li> <li>• Non-existence/inconsistency/non-implementation of operational procedures for the online receipt of petitions on the website, with the system automatically generating a reply to the petitioner indicating the registration number and the deadline for resolution and response</li> <li>• The use of software in the internal work of public entities without holding licences</li> </ul>
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*Source:* Prepared by the authors based on information (JRC, 2018)

The findings of the public internal audit structures at central government level, in relation to the objectives set, cover a whole range of issues. These range from the lack of operational procedures, incomplete development, communication and implementation of IT strategies and policies, to severe dysfunctions in the organisation and functioning of IT departments, including the lack of disaster recovery plans (JRC, 2018).

Difficulties have arisen in human resources management due to shortages of specialist staff, staff turnover, and recruitment affected by budgetary restrictions. The organisational documents of the IT departments often do not fully and adequately define the tasks, responsibilities and scope of the posts, and there is often a lack of training/upgrading plans for IT staff, or their content is incomplete or inadequate, or they are not implemented due to lack of funds.

The above-mentioned report also refers to certain aspects of non-compliance with regard to the organisation, implementation, administration/maintenance of the IT system, while noting the quasi-absence of internal operational procedures for IT activity, including procedures for ensuring IT security.

To a considerable extent, IT equipment is insufficient and morally/physically worn, non-performing and not adapted to the objectives and needs of the entities and internal users (as well as software), and server space is inadequate. Another shortcoming is that there are incompatibilities between some operating systems and the applications used, as well as situations where IT equipment does not ensure the recovery of information in case of risks.

#### **4.4. Deficiencies reported by the internal public audit structures of local government authorities**

A report by the Supreme Audit Institution of Romania revealed that internal public audit missions carried out at the level of local public administration authorities were unsatisfactorily addressed, with IT occupying the last place (2%) in the total number of areas audited (JRC, 2019).

The objectives of these IT missions included issues related to ensuring organisational, technical, material and personnel conditions. Emphasis was also placed on the development of and compliance with the specific internal procedural framework - procedures for ensuring IT security, IT system maintenance, business continuity and the website.

As regards the IT-related weaknesses reported by the internal public audit structures of local government authorities, we refer to only some of them. Thus, according to the aforementioned document, the main findings are related to the lack of elaboration of strategies for the computerization of the entities, the lack of procedural framework for the IT domain, the poor organization and functioning of the IT departments, deficiencies related to the organization, implementation and administration of IT systems, the lack of an internal information security policy/strategy. Table 3 details these findings.

*Table no. 3. Breakdown of internal public audit findings related to IT at local government level*

<b>Deficiencies</b>	<b>Details</b>
(1) Regarding the strategies for the computerisation of entities	<ul style="list-style-type: none"> <li>• Failure to develop strategies for the computerisation of entities</li> <li>• Existence of strategic planning documents with incomplete content or non-implementation</li> </ul>
(2) On the internal procedural level	<ul style="list-style-type: none"> <li>• Lack of a procedural framework for the IT domain for carrying out specific activities and for updating the related operational procedures; incomplete content of these procedures</li> <li>• Failure to formally designate the person responsible for identifying and managing risks to IT activity</li> <li>• Failure to identify associated risk areas or incomplete identification and non- inclusion in the risk register</li> </ul>
(3) Organisation and functioning of IT departments	<ul style="list-style-type: none"> <li>• The existence of IT tasks and responsibilities not included in the job descriptions, such as drafting and updating procedures, updating the list of specific regulations, monitoring the implementation of IT security policy and the protection of personal data processing</li> <li>• Failure to maintain a balance of tasks, skills and responsibilities in IT-specific posts</li> <li>• Failure to ensure conditions for the continuity of IT activities in situations unforeseen</li> <li>• Lack of procedural framework and specific equipment for data recovery in cases of risk</li> <li>• IT equipment that does not ensure information retrieval in cases of risk</li> </ul>
(4) Organisation, implementation and IT systems administration	<ul style="list-style-type: none"> <li>• Undersized IT systems, equipment and applications inadequate, non-performing, morally worn out and not adapted to the needs of the entities and staff</li> <li>• The existence of unsuitable premises for servers and other IT equipment, in terms of size, air conditioning, burglar and fire alarms</li> <li>• Failure to develop a map of the existing IT network with the location of the servers, the desktop systems, routers, access points and printers</li> <li>• Absence of maintenance contracts for IT systems, and of records related to its implementation</li> <li>• No website or not updated</li> <li>• Failure to publish or update all information concerning free access to information of public interest, as well as information of general interest specific to certain areas and activities falling within the competence of administrative-territorial units</li> </ul>
(5) Information security	<ul style="list-style-type: none"> <li>• Absence of an internal information security policy/strategy</li> <li>• Failure to develop, implement or enforce procedures to ensure IT security - Poor management of usernames and passwords</li> </ul>

*Source:* Authors' elaboration based on information (CCR, 2019).

## 5. Conclusions and recommendations

IT has been relatively neglected as a real focus of internal public audit. Beyond the low number of assignments that have targeted it, its approaches have focused on organisational elements, to the detriment of the essential ones. To a lesser extent, in-depth approaches have been included related to management involvement in supporting and developing IT systems, determining the impact of IT on the achievement of objectives, the quality of services and the relationship with the citizen, the performance of IT systems and the compatibility of applications used at central government level. Even so, the shortcomings found by the Internal Audit Capability were significant and numerous: from a lack of operational procedures, incomplete development, communication and implementation of IT strategies and policies, to severe dysfunctions in the organisation and functioning of specialised departments.



In addition, there are multiple situations in local public administration authorities related to undersized IT systems, insufficient, non-performing, morally worn-out and inadequate IT equipment and applications, which are not adapted to the needs of the entities and staff. Often, in the case of the same authorities, it has been found that there are unsuitable premises for servers and other IT equipment, in terms of size, air conditioning, burglar and fire alarms. The audit recommendations have been taken on board by the heads of public entities, but their implementation depends on the level of resources allocated.

The Supreme Audit Institution of Romania suggests that in the future, the IT area in central and local government should be regularly addressed in internal audit actions. At the same time, it is recommended that the objectives should include aspects relating to the justification of the types and performance of the IT systems purchased, taking into account the need for interconnection between operating systems or between the applications involved, and not forgetting to consider the opportunity, economy, efficiency and effectiveness of outsourcing the specific IT activity on the basis of a service contract with specialised economic operators.

Regarding the *limitations of the research* - the relatively descriptive nature of the *research*, as well as the fact that the authors' references refer to a period known as one of multiple and overlapping crises, starting from all this we aim to come up with updated results, possibly in reference intervals not marked by economic crisis.

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## The Dilemma of Financial Autonomy in the Management of Public Finances at the Level of Local Governments

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### Abstract

*This research analyzes a group of municipalities in Algeria from the perspective of financial autonomy in the management of public finances at the level of local administrations. Local public finances in Algeria have not been as severely impacted as the State's during the global health crisis 2020, but this is more concerning than reassuring. Ironically, the reason for this is the same as what made the municipality the "driving force" of local development, a sub-national entity heavily reliant on state aid: financial constraints. As a result, this study aims to reflect on the reality of the local government's financial management through a survey conducted in Annaba's wilaya and, more specifically, in the municipality of Annaba, El-Bouni, Berrahal, El-Hadjar, and Sidi Amar. As a result, it was necessary to inquire about the obstacles that needed to be overcome to lay the groundwork for more effective local financial management and the local community's aspirations.*

**Key words:** local governments, local finance, financial autonomy, decentralization, local taxation

**J.E.L. classification:** H71, R51, R58

### 1. Introduction

Decentralization has been recognized as a critical issue in governments' political and institutional agendas for several decades. Both internal and external pressures have forced many developing countries to expand the administrative, budgetary, fiscal, and even political power granted to sub-national levels of government, namely local governments; as a result, the rise of local authorities has piqued the interest of peers and researchers (Krisztina & Bambang, 2014). Furthermore, the success of foreign states' territorial policies urgently invites us to analyze ours from the regulatory, political, management, and especially the financial and decision-making dimensions because states that excel in local management are those whose local governments have convincing and significant financial and decision-making autonomy.

This independence is a two-edged sword. On the one hand, it allows local authorities to have free administration; on the other hand, it is a heavy burden for those unprepared to deal with their territory's local dynamics. This is not the only feature of financial autonomy; it has been identified in several studies as ambiguous, polysemous, and complex, given the many factors that mobilize it, such as resource and expenditure choices, local taxation, State control, and forms of decentralization. To understand and diagnose the management of local government finances in Algeria, we must first investigate the network of relationships, procedures, legal texts, and issues that govern it to distinguish the network's convergences and divergences.



Algerian local governments are distinct legal entities under public Law from the State, with legal and financial autonomy. In exchange, they are entrusted with various responsibilities, including local economic development, environmental protection, education, and health care for their citizens. As a result, these responsibilities are split between two levels: wilaya (department) and municipality (commune). Algeria has 48 regions, 535 districts, and 1541 municipalities, all of which are subject to the same communal status, according to the territorial reorganization 1984 (Clergerie, 1991). Then, on December 11, 2019, Law n° 19-12 relating to the country's territorial organization was adopted, giving rise to a new territorial organization consisting of 58 wilayas and 1541 municipalities (Official Journal of Algeria N° 78, 2019). For the Minister of the Interior, Local Authorities, and Territorial Planning, this decision is part of President Tebboune's commitment to bring the administration closer to the citizen and to consider the latter's needs (Beldjoud, 2021).

## 2. Literature review

According to Greffe X (1992), any transfer of competencies must be accompanied by a proportionate level of resources to allow local authorities to manage the local public affairs delegated to them (Telaidjia, 2016). Furthermore, to carry out the prerogatives delegated to local authorities by the State, the latter requires a set of funding resources that vary from country to country and are constantly the subject of criticism and peer analysis. These financing sources for Algerian wilayas and municipalities are tax revenues and state subsidies. Furthermore, these resources are not limited to borrowing but include income from local public services, rent from private property, and remuneration from a public domain occupation agreement (Wasserman, 2016). However, these final examples of local resources account for a tiny portion of local budgets.

Local taxation is a defensive strategy for local governments (Guengant & Uhaldeborde, 2003). Indeed, when these communities support the development of their territory by implementing investment and housing projects, they have the right to request tax revenue to help finance the means, equipment, and infrastructure needed to complete this development independently and efficiently (Delpech & Navarre, 2018). Furthermore, local taxation comprises various taxes and levies, the proceeds of which are either paid in full to the local authorities (so-called own-source taxation) or shared among the local authorities, the State, and the CFLA or The Common Fund for Local Authorities (Conseil des prélèvements obligatoires, 2010).

The State must assist local budgets through external resources, mainly State subsidies and those of the Local Government Solidarity and Guarantee Fund "LGSGF", to achieve regional balance and horizontal equalization. These grants can directly finance the municipal budget's operating or capital and investment sections: exceptional balancing grants and those related to catastrophic or unforeseeable events. The equipment and investment section primarily comprises (nearly 90%) of CFLA or state budget subsidies through communal development plans (Makhmouch, Achouche, & Meziani, 2017).

It should be noted that there is no such thing as a local government without subsidies or endowments, and these authorities are not deprived of the authority to decide on subsidies. In other words, the rationale for a subsidy cannot be limited to an act of bad faith that seeks to limit or eliminate the latter's decision-making autonomy over their expenditures (Hastings-Marchadier, 2017). In contrast, once ostensibly exceptional endowments or subsidies become systematic (Boumoula, 2010), one must be wary of an automatic recentralization of decision-making power, which leads to an imbalance in the local system and a tangle of competencies between the government and local authorities.

According to Eric Olivia (2017), financial autonomy does not imply financial independence, but it could be interpreted as such in the extreme, at least theoretically. In this case, financial independence would imply acknowledging that local governments are sovereign authorities, which is incompatible with the theory of the unitary State but could be conceived within the framework of federalism, which recognizes federated states' internal sovereignty, expressed legally through the existence of a formal constitution. Financial autonomy is a particularly elusive concept; even the term "autonomy" varies depending on context. This is based on the twofold observation that it is a multifaceted and shape-shifting concept at the heart of decentralization. It serves as the fulcrum for

all forms of autonomy. When determining the degree of financial autonomy of local governments, several criteria can be used, the most basic of which are:

- Financial autonomy can only be effective through a true concretization of fiscal autonomy (Hernu, 2018).
- Financial autonomy is assured once elected bodies freely administer local authorities (Olivia, 2017).

According to Article 1 of Law 62/157 of 31/12/1962 on the renewal of French regulations, Algeria decided to maintain the French legal systems except in its provisions contrary to national sovereignty (Official Journal of Algeria N° 02, 1963), thus respecting the characteristics of the territorial administrative organization founded by the colonial power. However, the colonial-era systems had failed in several areas, and it was time for Algeria to define its administrative, political, and social choices by establishing its own constitution. Table 1 lists the four constitutions of independent Algeria, attempting to identify the stages at which the current decentralized territorial model was designed.

*Table no. 1 Modification of the concept of decentralization in the Algerian constitution*

<b>Year of constitution</b>	<b>The beginnings of decentralization</b>	<b>Analysis</b>
1963	Article 9 stipulates that the Republic comprises administrative communities whose scope and Law determine powers. The primary territorial, administrative, economic, and social community is the municipality (commune)	This article is certainly not sufficient or instead could be considered a modest initiative since decentralization and administrative reforms were not priority issues in the face of such sensitive political and economic problems for such a young government.
1976	Article 7 of this constitution states that the People's Assembly is the primary institution of the State. It is the framework within which the people's will is expressed, and democracy is realized. It is the fundamental basis for decentralization and the participation of the people in the management of public affairs at all levels. Article 35 also states, "Decentralization is based on a judicious distribution of powers and tasks that correspond to a rational division of responsibility within the framework of the unity of the State. It aims to give local authorities the human and material resources and the responsibility to promote the development of their region themselves, in addition to the efforts undertaken by the nation.	Article 7 expressed a fundamental interest in decentralization and participatory democracy, reinforcing them with Articles 8 and 9, especially Article 35, which enriched the role of the local authorities in a wide range of areas by holding them responsible for local development.
1989	Articles 14 and 16 of this constitution reaffirm that the elected Assembly is the foundation of decentralization and the framework in which the people's will is expressed, thus participating in the management of public affairs. Article 15 confirms that the territorial authorities of the State are the municipality and the wilaya. The municipality is the basic collectivity.	The 1989 constitution can be considered the only one subjected to the principle of decentralization, approving the elected Council as the basis. However, it remains insufficient as it does not explain the real meaning or exact definition of decentralization, nor does it give the latter's pillars. This point was explicitly stated in the neglect of the independence of the local authorities.
1996	According to Article 118, two-thirds of the Council of the Nation members are elected by indirect and secret suffrage from among and by the members of the communal	With the revision of the constitution in 1996, local governments became involved in composing the National Assembly, which

	people's assemblies (CPA) and the members of the people's assemblies of the regions / wilayas (PAW).	allowed them to promote their participation in the construction of national institutions.
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Source: Authors adaptation of "Constitution of the People's Democratic Republic of Algeria"

It should also be noted that the Algerian constitution has used decentralization to concretize the principle of local democracy and respond to citizens' needs more effectively. Simultaneously, the government strengthened territorial organization by calling for a code specific to local government management. This code has been in effect for approximately ten years. However, the validity of these regulations, particularly their applicability, relevance, and impact on exploiting local resources, must be questioned.

### 3. Research methodology

Considering this a dilemma, our work focuses on the following issue: *Has the Algerian State taken the necessary and adequate measures to optimize the management of local public finances?* This problem is divided into two additional research questions to shed light on and provide a better understanding of the phenomenon being studied:

- *How has the legal framework governing the management of local finances in Algeria evolved?*
- *What about issues affecting the financial independence of local governments?*

To answer these questions, we put forward the following two hypotheses:

*H1: Algeria's legislative framework for local governments promotes efficiency and autonomy in managing local finances.*

*H2: The financial autonomy of local Algerian governments is relatively sufficient.*

The current study uses a mixed methods methodology that includes qualitative and quantitative data. On the one hand, it was a matter of accurately representing Algeria's territorial organization and emphasizing its unique features through a description and analysis of the legal acts, Laws, and codes that govern territorial action. As a result, a questionnaire-based research study seemed necessary to validate the two previously mentioned hypotheses.

The questionnaire was chosen as the data collection method for our study. The questionnaire is the primary data collection method most developed in quantitative research, according to Thietart (2003). It is divided into three stages: selecting measurement scales, constructing the questionnaire and pre-tests to ensure the measurement instrument's validity and reliability, and the questionnaire's final administration.

To confirm or refute our study's hypotheses, we created a questionnaire for local actors, including Senior public officers and local elected representatives from the five municipalities of Annaba, El-Bouni, Berrahal, El-Hadjar, and Sidi Amar (Table 2).

Table no. 2 Overview of the study area

Municipality	Annaba	El-Bouni	Berrahal	EL-Hadjar	Sidi-Amar
Region/Wilaya	Annaba				
Location	The region of Annaba is located northeast of Algeria, on the southern bank of the Algerian-Provençal basin, the northeastern end of its wilaya. It is 600 km from Algiers's capital and 106 km from the Tunisian border. The city rises at the bottom of a bay open to the east on the Gulf of Annaba. It is dominated in the west by the mountain chain of Edough (1 008 m of altitude).				
Districts/Daïra	Annaba	El-Bouni	Berrahal	EL-Hadjar	EL-Hadjar
Area (km <sup>2</sup> )	50	95,18	174,14	64,74	110
Total population (inhabitants)	270.227	142.803	28.288	41.853	97.408
Sectors Carriers	Agriculture, Fishing, Tourism, Industry and Mining.				

Source: Authors' research

Several questions arose during our review of the literature, which aided us in developing the study questionnaire, which is divided into three sections:

- The first section comprises six questions about the respondents' socio-demographic and firm information.
- The second section comprises 12 items dealing with the first dimension, "The importance of local financial management efficiency and autonomy in Algerian legislation".
- The third section comprises 9 items dealing with the second dimension, "Overview of the financial autonomy of local governments in Algeria".

We used closed questions in the first section and the Likert scale with 5 degrees in the last two sections to determine the score of the variables with reliability (Ben M'Barek; 1983).

Over 100 questionnaires were distributed as a result. However, only 92 viable questionnaires conformed to the analysis methods used by the SPSS v22 data analysis software were retrieved.

#### 4. Findings

The central limit theorem of Pierre-Simon de Laplace (1810) states that when the sample size is large ( $n > 30$ ), the distribution of the sample mean will be approximately normal. Because the sample size in our study is sufficiently large ( $n=92 > 30$ ), we can note that this distribution follows a normal distribution.

The internal consistency coefficient "Cronbach's Alpha" must be calculated to verify the measurement instrument's reliability. Its value is less than or equal to one, generally regarded as "acceptable" from 0,7. (George & Mallery, 2008). The overall Cronbach's Alpha coefficient is 0,886 (Table 3), indicating that the measurement scale used for all variables has good internal consistency and will not be changed.

Table no. 3 Cronbach's Alpha result

Number of items	Cronbach's Alpha on standardized items	Degree of stability of the scale
21	0,886	88,6 %

Source: Authors' results obtained from SPSSv22 software

The socio-demographic and firmographic characteristics chosen for this study are gender, age, level of education, function, municipality, and experience (Table 4).

Table no. 4 Socio-demographic and firmographic data

Variables	Frequency (n)	Proportion (%)
<b>Gender</b>		
Male	60	65,2
Female	32	34,8
<b>Age</b>		
20 to 30 years old	16	17,4
30 to 40 years old	28	30,4
40 to 50 years old	22	23,9
50 years old and more	26	28,3
<b>Level of study</b>		
Elementary	4	4,3
Middle school	10	10,9
High school	22	23,9
College/University	56	60,9
<b>Function</b>		
Public officer	15	16,3
Senior public officer	34	37,0
CPA's President	5	5,4
Local elected representatives	38	41,3
<b>Municipality</b>		
Annaba	11	12,0
El-Bouni	19	20,7

Berrahal	24	26,1
El-Hadjar	17	18,5
Sidi Amar	21	22,8
<b>Experience</b>		
Less than one year	8	8,7
From 1 to 5 years	12	13,0
From 5 to 10 years	48	52,2
10 years old and more	24	26,1

Source: Authors' results obtained from SPSSv22 software

The study sample is composed of a majority of males, with (65,2%) compared to (34,8%) of females. Furthermore, more than half of the respondents (60,9%) have a university degree, 23,9% have a high school diploma, and only a small percentage (15,2% or 14 respondents) have an elementary or middle school education. This sample's predominant age category ranges from 30 to 40 years old, implying that 30,4% of the respondents are essentially young men and/or women. Furthermore, we note that Senior public officers and local elected representatives paid particular attention to our questionnaire, accounting for 37% and 41,3% of all respondents, respectively. In terms of experience, a small majority of respondents (52,2%) have sufficient experience (from 5 to 10 years), followed by 26,1% with +10 years of experience, 13% with 1 to 5 years of experience, and only 8,7% (eight respondents) with a minimum experience that does not exceed one year.

Table 5 shows that the total mean of items for the first dimension of our questionnaire, "The importance of local financial management efficiency and autonomy in Algerian legislation", is 2,4466, indicating that a large proportion of respondents disagree with the proposals of this dimension. Furthermore, the standard deviation of this first dimension is 0,70241, resulting in a coefficient of variation of 28,70%. As a result, the responses are moderately homogeneous. It is worth noting that 12% and 47,8% of respondents, respectively, "Strongly disagree" and "disagree" on the second proposition (Item 2), which has a mean of 2,6413 and states that the legislative framework governing local management does not ensure the strengthening of transparency, public participation, and budgetary control for effective local public finance management. Furthermore, "44%" and "14%" of respondents "agree" and "Strongly agree" on the 11th proposition (Item 11), whose mean is 3,3478, and acknowledge the existence of an equalization system designed to rebalance resources among local governments.

Table no. 5 Descriptive statistics for the two dimensions of the study

Descriptive statistics												
Dimension 1: The importance of local financial management efficiency and autonomy in Algerian legislation												
Mean	I <sub>1</sub>	I <sub>2</sub>	I <sub>3</sub>	I <sub>4</sub>	I <sub>5</sub>	I <sub>6</sub>	I <sub>7</sub>	I <sub>8</sub>	I <sub>9</sub>	I <sub>10</sub>	I <sub>11</sub>	I <sub>12</sub>
	2,3370	2,6413	2,1522	2,2717	2,6196	2,4239	2,6957	2,3804	1,8913	2,4130	3,3478	2,1848
Standard deviation	0,9524	1,1151	0,7694	1,3595	1,5251	1,0917	1,2020	1,2477	0,7331	1,2766	1,2617	0,9009
Total Mean		2,4466	Total standard deviation			0,7024	Coefficient of variation				28,70 %	
Dimension 2: Overview of the financial autonomy of local governments in Algeria												
Mean	I <sub>1</sub>	I <sub>2</sub>	I <sub>3</sub>	I <sub>4</sub>		I <sub>5</sub>	I <sub>6</sub>	I <sub>7</sub>	I <sub>8</sub>		I <sub>9</sub>	
	2,7717	2,9130	2,8478	3,3043		2,1087	3,3043	3,8261	2,2391		3,1522	
Standard deviation	1,0904	0,8600	1,1284	1,0663		0,7908	1,2730	1,297	0,6690		1,1477	
Total Mean		3,0447	Total standard deviation			0,9083	Coefficient of variation				29,83 %	

Source: Authors' results obtained from SPSSv22 software

The second part of Table 5 concerns the second dimension, "Overview of the financial autonomy of local governments in Algeria". It shows that the total mean of the items is 3,0447, indicating that most respondents somewhat disagree with the proposals for this dimension. As a result, the standard deviation of this first dimension is 0,9083, resulting in a coefficient of variation of 29,83%. Therefore, the second-dimension answers are also moderately homogeneous. However, they mostly disagree when it comes to the fifth proposition (Item 5) stating that: sometimes the State sees itself as obliged to help you through grants, and in this case, one has full power to allocate these grants, with 70% of the responses in the direction of "Strongly disagree". Finally, 44% and 30% of respondents "agree" and "Strongly agree" on the seventh proposition (Item 7), with a mean of 3,8261, and confirm that the challenges they face when making decisions about their municipality's expenditures are related to the municipality's budget deficit in particular.

We used the one-sample T-test to test our research hypotheses, rejecting the null hypothesis and accepting the alternative hypothesis if the calculated T-value of the statistic is greater than the theoretical T-value at the 5% significance level.

**Hypothesis 1:** Algeria's legislative framework for local governments promotes efficiency and autonomy in managing local finances.

*H<sub>0</sub>: Algeria's legislative framework for local governments does not promote efficiency and autonomy in managing local finances.*

*H<sub>1</sub>: Algeria's legislative framework for local governments promotes efficiency and autonomy in managing local finances.*

According to the data in Table 6, The calculated T-value (  $-7.558$  ) is greater than the theoretical value (0.861) obtained using the student's table at the 0.05 threshold (5%) with 91 degrees of freedom, indicating that the null hypothesis is rejected. We also accept the alternative hypothesis that Algeria's legislative framework promotes efficiency and autonomy in managing local finances.

Table no. 6 One-sample T-test result (Dimension 1)

Dimension 1	T calculated	T theoretical	Degrees of freedom (Df)	Sig
The importance of local financial management efficiency and autonomy in Algerian legislation	-7.558	0.861	91	0.000

Source: Authors' results obtained from SPSSv22 software

**Hypothesis 2:** The financial autonomy of local Algerian governments is relatively sufficient

*H<sub>0</sub>: The financial autonomy of local Algerian governments remains insufficient.*

*H<sub>1</sub>: The financial autonomy of local Algerian governments is relatively sufficient*

According to the data in Table 7, the calculated T (0.472) is less than the theoretical value (0.861), which was also obtained using the student's table at the 0.05 (5%) threshold with 91 degrees of freedom, so the alternative hypothesis is rejected. We also accept the null hypothesis, which indicates that local Algerian governments' financial autonomy remains insufficient.

Table no. 7 One-sample T-test result (Dimension 2)

Dimension 2	T calculated	T theoretical	Degrees of freedom (Df)	Sig
Overview of the financial autonomy of local governments in Algeria	0.472	0.861	91	0.638

Source: Authors' results obtained from SPSSv22 software

## 5. Discussion

At first glance, it should be noted that while statistical processing and testing accepted our study's first hypothesis, respondents objected to several fundamental elements related to it, such as:

*I<sub>1</sub>: The evolution of the legal framework governing the management of local finances in Algeria over the last 20 years has been increasingly positive.*

*I<sub>2</sub>: The Algerian legislature ensures that transparency, public participation, and budgetary control are strengthened to ensure efficient management of local public finances.*

*I<sub>5</sub>: Competency transfers are defined in consultation with and based on dialogue with local authorities.*

Indeed, the management of local finances in Algeria has always been problematic and has been at the center of conflicts between "centralization" and "decentralization" of decision-making, "state subsidies" and "financial handicaps," with the almost total absence of clear and useful financial information for community citizens and, as a result, their concrete participation in the management of affairs that concern them. Furthermore, the laws governing local finance management failed to ensure the application of several other principles, which is why the second hypothesis was rejected.

Indeed, the financial autonomy of local Algerian governments remains insufficient, which can be justified by the absence or presence of fiscal autonomy and the level of free administration. In terms of fiscal autonomy, the Algerian State has unbounded fiscal power. It also possesses fiscal sovereignty, which encompasses both areas of fiscal autonomy (Maherezi, 2013):

- **A normative area**, as the State has unrestricted power in creating and developing taxes that finance its budget, proof of its intervention in the various sectors.

- **A budgetary area**, as the State can use and allocate the taxes collected in the actions it deems priority, is necessary and appropriate to its government's political and economic orientations.

Furthermore, Articles 196 and 197 of Law N° 11-10 of June 22, 2011, state that the municipality is only authorized to collect the taxes, contributions, fees, and charges set by the legislation and regulations in effect. The communal people's Assembly shall vote on the taxes and fees the municipality is authorized to collect to fund its budget within the Law's limits (Law No 11-10, 2011). Subject to the exceptions specified by Law, no one may proceed with collecting a duty or tax on the municipality's territory without the prior deliberate agreement of the communal people's Assembly (Law No 11-10, 2011).

As a result, the municipality lacks normative fiscal power, and the wilaya cannot intervene in tax matters, according to Article 111 of Law No. 12-07 of February 21, 2012, for the wilaya's role. The mayor animates, coordinates, and controls the activity of the decentralized State services in charge of the various sectors of activity in the wilaya, excluding educational action, tax assessment, and collection (Law No 12-07, 2012). In other words, the State is the sole possessor of taxing authority. Only the State can create taxes, set their rates, and scope, and determine the share of taxes paid to local government budgets, and the only competence recognized to the latter in this area is the right to vote on rates through local assemblies.

Regarding "budgetary power" and "free administration", local actors, particularly local elected representatives, are dissatisfied with their degree of freedom and believe it is vulnerable and not guaranteed. They do not have the legal or financial means to govern themselves freely, nor do they have the authority to collect their own revenues. Indeed, according to Article 204 of Law No 11-10, it is the responsibility of the public treasury to manage revenue collection and to grant advances on tax revenues (Law No 11-10, 2011). Thus, once again, it is up to the agents designated by the State (Treasury) to ensure the collection of tax revenues.

## 6. Conclusions

According to studies conducted both within and outside the country, local governments have set themselves the mission of local development of their territory and enhancing the various resources they contain. However, shortcomings in legal, organizational, and managerial structures and a lack of local financial resources have been identified as barriers to implementing a so-called "autonomous" development strategy. The code of local authorities is one of the first constraints at the root of this quandary. This "stereotypical" code gives the wilaya and, more specifically, the municipality several prerogatives as "the lever of all public action," but in practice, it is the State that decides which projects to carry out, the expenses to be charged to them, and the local government that will benefit from them. As a result, the Algerian government should significantly improve the legislative framework governing public finance management at the local authority level and general local management.

A second constraint revealed by our research is that a lack of financial resources has resulted in the central State's decision taking precedence over that of local elected representatives, owing to its financial power in the form of grants. This second so-called "financial" constraint alone can cause a slew of dialectical issues affecting the pillars of local management, most notably financial autonomy, which we have confirmed remains insufficient despite all efforts.

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## Accounting and Tax Specifics Regarding Cryptocurrency Trading at National and European Level

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### Abstract

*The purpose of the work is to analyze the main fiscal and accounting aspects of the cryptocurrency transaction. The main objectives considered were the theoretical presentation of the cryptocurrency concept, their treatment, the presentation of the most used cryptocurrencies. It continues with the presentation from the fiscal point of view of the aspects regarding the taxation of these types of transactions. Accounting for cryptocurrency operations is the next issue addressed.*

**Key words:** cryptocurrency, blockchain, accounting, tax

**J.E.L. classification:** M41, Q40, Q56

### 1. Introduction

The topic deals with the issue of cryptocurrencies from the point of view of accounting and taxation. From an accounting point, we highlighted the accounting treatments applicable and the main accounting monographs regarding the registration of these operations in the accounting of economic operators. The tax treatment highlights the issues related to the taxation of cryptocurrencies at the national and European level.

The main purpose of this article is to highlight the accounting and tax aspects regarding cryptocurrency transaction from both accounting and tax point of view.

The objectives of the work are:

- presentation of the cryptocurrency concept
- identification of the most traded cryptocurrencies
- the tax rates at the level of EU member countries
- presentation of the accounting record of operations resulting from cryptocurrency trading.

Both accounting and fiscal aspects presented on the basis of national and European legislation in the field.

### 2. Theoretical background

According to the Explanatory Dictionary of the Romanian language the word transaction, represents an agreement between two or more parties, through which certain rights are transferred, a commercial exchange is made, etc(dexonline.ro). For example, a transaction takes place between a party providing a service, and a second party providing payment for the service. To make a payment, the buyer must transfer a certain amount to the seller using a certain payment instrument. The transfer of money through payment instruments is usually validated by a holographic or electronic signature, or by various online authorization algorithms.

Economies today are all monetary economies because all economies have accepted some currency (money) as a medium of exchange. Money supply causes both inflation and deflation through its excess supply and contraction of money supply, so the currencies of different countries are regulated by the government to combat inflation or deflation situations. Now, many countries in the world are focusing on digital currencies and transactions (Mubarak et al, 2021, p.435).

Decentralized blockchain technology simplifies complex mediation processes and automates all existing trading processes enabling fast transactions.

Blockchain technology was first implemented in 2009 as a core platform designed to solve the problem for Bitcoin (ie, how to transfer digital value without relying on a trusted third party). However, the attributes that make blockchain technology essential to Bitcoin can be used to solve a variety of other problems.

A blockchain is: A digital register that represents a history of transactions; It is distributed across computers operated by different participants; This allows participants to enter cryptographically protected records that are validated and immutable (unchangeable) (Rohith, 2019, p.17).

Cryptocurrencies are not regulated by any authority and are a decentralized form of currency. They are created using cryptography, which makes them even more secure. In addition, there are no middlemen, so they can be transferred directly to the receiver in their digital wallet (Mubarak et al, 2021, p. 440).

Some critics argue that cryptocurrency could, if widely adopted, reduce the ability of national governments to regulate their economies through monetary policy. Others expressed concerns about the security of cryptocurrency wallets and exchanges or pointed to the high volatility in value that most virtual currencies have experienced (United States Department of Justice, 2020).

Blockchain – a peer-to-peer network that sits on top of the internet—was introduced in October 2008 as part of a proposal for bitcoin, a virtual currency system that eschewed a central authority for issuing currency, transferring ownership, and confirming transactions. Bitcoin is the first application of blockchain technology (Iansiti et al, 2017, p.4).

Blockchain is considered by many to be a disruptive core technology. Although many researchers have realized the importance of blockchain, the research of blockchain is still in its infancy (Min Xu et al, 2019, p.5).

A *blockchain* is a way of creating a robust, secure, transparent distributed *ledger*. This revolutionary new technology is also an unusual technology in that while manifestly an information and computation technology (an ICT)—as a software protocol based on cryptography, a blockchain is a new technology for public databases (of digital information)—it is actually better understood as an institutional or social technology for coordinating people (Sinclair, ssrn.com).

At the end of 2022, there were 10397 cryptocurrencies worldwide, the top 10 most traded are:

*Table no.1 Ranking by market capitalization of the top 10 cryptocurrencies*

<b>Current Number</b>	<b>Cryptocurrency name</b>	<b>Market capitalization (USD)</b>	<b>Unit price (USD)</b>
1	Bitcoin	372,748,767,884	19544,672
2	Ethereum	127,767,446,949	1053,914
2	Tether	68,103,052,039	0,999
3	USD Coin	55,896,055,569	1,000
5	Binance Coin	33,734,818,255	206,611
6	Binance USD	17,229,287,408	1,003
7	Cardano	15,732,955,528	0,464
8	XRP	15,286,916,199	0,316
9	Solana	11,127,764,680	32,501
10	Dogecoin	7,651,176,135	0,058

Source: <https://coin.dance/stats>

### 3. Research methodology

The scientific approach is based on the national literature, as well as from the practical documentation made through the case study presented. In the elaboration of the works we chose to combine quantitative and qualitative research to obtain the most expected. Following the research undertaken, the research tools are: literature review, comparison, descriptive analysis, case study method, data interpretation.

In carrying out the case study, I presented the way of recording in the accounting some operations regarding trading with cryptocurrencies. The treatment of the topic from a fiscal point of view was approached by presenting the way of taxation of cryptocurrencies at the European level.

## **4. Findings**

### **4.1. General information on cryptocurrency trading in Romania**

Cryptocurrencies are decentralized, not being issued by a government or an institution, but given the fact that they represent a source of income, it is necessary to identify the fiscal obligations regarding obtaining income from the trading of these instruments, but also to identify possible aspects and accounting monographs.

In Romania, we identify merchants from different fields of activity, who accept virtual currency as a form of payment (eg: Electronics and electrical appliance retailer PC Garage, Vola travel agency, Caro hotel in Oradea, etc.), and even the "Lucian Blaga" University from Sibiu accepts as a method of paying the university fee, the Elrond virtual currency, the only 100% Romanian currency, which is in circulation on the global cryptocurrency market, being the first state institution in Romania to accept this form of decentralized payment and which does not have a solid legal basis, until the date of writing this article, in Romania (Mates, 2022, p.148-159).

A 100% Romanian virtual currency was developed in Romania, which is called Elrond and which was born in 2017 in Sibiu, and in the spring of 2020 it became known worldwide when it benefited from an increase of over 5000% of values.

At the level of Romania, the first regulation that refers to such instruments dates from 2019, approximately 10 years after the creation of the first official cryptocurrency, made concrete by the appearance of law no. 30/2019 for the approval of GEO no. 25/2018 regarding the amendment and completion of some normative acts, approval of some fiscal-budgetary measures, which introduces for the first time the tax for the income from virtual currency transfers, for natural persons, included in the category of income from other sources, being taxable with 10% applied to the profit obtained.

The obligation to calculate the tax and declare the income rests with the natural person, through the single declaration. This being the only law that regulates the fiscal regime of the trading of cryptocurrencies that only applies to natural persons, there being a clearly specified regime of taxation and declaration of income from such transactions from the perspective of legal entities.

The second regulation regarding these instruments, which appeared due to the numerous changes to the European Union directives regarding trading with virtual currencies, as well as the increasingly frequent use of cryptocurrencies for money laundering, the Romanian Government was forced to adopt the "Emergency Ordinance no. 111 of July 1, 2020 regarding the amendment and completion of Law no. 129/2019.

Were introduced in the field of money laundering prevention for those companies that offer exchange services involving virtual currencies and suppliers of digital wallets that must identify suspicious transactions made through them and report them to the authorities (Ungurianu et al, 2020).

### **4.2. Accounting treatment of cryptocurrency**

Cryptocurrency is an intangible digital token that is recorded using an infrastructure called blockchain.

The authors propose the introduction new accounts the modification of the chart of accounts from Order no. 1802/2014 such as:

204 "Cryptocurrencies "

372 "Stocks in the nature of cryptocurrencies": 3721 "Stocks of the nature of cryptocurrencies held for investment purposes"; 3723 "Stocks of the nature of cryptocurrencies - other than those held for investment purposes".

They could work against the following expense and income accounts that should also be entered in the chart of accounts:

653 "Cryptocurrency Expenses": 6531 "Expenses regarding cryptocurrencies held for investment purposes"; 6532 "Cryptocurrency fair value expenses"; 6533 "Expenses regarding cryptocurrencies - other than those held for investment purposes".

753 "Income from cryptocurrencies":

-7531 "Income from cryptocurrencies held for investment purposes";

-7532 "Earnings from the fair value of cryptocurrencies";

- 7533 "Income from cryptocurrencies - other than those held for investment purposes"(Păunescu Mirela, et al, 2020).

#### 4.3. Accounting monograph for the purchase of cryptocurrencies by a trading company (for investment purposes)

A company purchased 300 Arwave (AR) virtual coins from the Binance.com platform in May at the price of 11 Euros/piece, with a 0.1% purchase commission incurred at acquisition. THE BNR exchange rate was 4.95 Ron/Euro.

Recording of transactions was done using the accounts proposed in the article above.

- Purchase cost =  $300 \times 11 \times 4.95 = 16335$  Ron

- Purchase commission =  $16335 \times 0.1\% = 16.34$  Ron

-Arwave purchase registration

<b>3721</b> „Cryptocurrency stocks held for investment purposes”	=	<b>462</b> „Various creditors”	16335 Ron
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- Registration of the purchase commission

<b>628</b> „Other expenses with services performed by third parties”	=	<b>462</b> „Various creditors”	16.34 Ron
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At the beginning of June, the unit price of the cryptocurrency increases to 13 Euro/piece, and the BNR exchange rate changes to 5 Roni/Euro, and the conversion fee is 0.1%.

-Current value =  $300 \times 13 \times 5 = 19500$  lei

-Conversion commission =  $19500 \times 0.1\% = 19.5$  Ron

- Fair value =  $19500 - 19.5 = 19480.5$  Ron

Profit from the variation in the fair value of cryptocurrencies =  $19480.5 - 16335 = 3145.5$  Ron

-Recording the increase in the value of the cryptocurrency

<b>3721</b> „Cryptocurrency stocks held for investment purposes”	=	<b>7532</b> „Earnings from the fair value of cryptocurrencies”	3145.5 Ron
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At the end of June, the company sells the 300 cryptocurrencies in Euro at a quote of 15 Euro/piece, commission 0.1%, BNR rate= 4.95 Ron/Euro.

- Selling price of cryptocurrencies =  $300 \times 15 \times 4.95 = 22275$  Ron

-Trading commission =  $22275 \times 0.1\% = 22.28$  Ron

-Cryptocurrency exchange registration

<b>5124</b> „Bank accounts in foreign currency”	=	<b>3721</b> „Cryptocurrency stocks held for investment purposes”	22275 Ron
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- Cryptocurrency Discharge Registration

<b>6531</b> „Expenses regarding cryptocurrencies held for investment purposes”	=	<b>3721</b> „Cryptocurrency stocks held for investment purposes”	19480.5 Ron
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-Commission registration

**628** „ Other expenses with  
services performed by third  
parties”

=

**5124** „Bank accounts in  
foreign currency”

22.28 Ron

#### 4.4. Fiscal treatment of cryptocurrencies

The Fiscal Code, Law no. 227/2015, in article 114 paragraph (2), letter m), income from the transfer of virtual currency, and in article 115 the following clarifications are made: Income tax is calculated by withholding at the source at the time of granting the income by the income payers, by applying the quota of 10% on gross income. Thus, natural persons who obtain profit from virtual currency must pay 10% of the profit. This is the average of the buy price and the sell price.

Law no. 210/2019 on the activity of issuing electronic money regulates the conditions of access to the activity of issuing electronic money and of carrying out this activity, the conditions of carrying out the activity of providing payment services by institutions issuing electronic money, the prudential supervision of institutions issuing electronic money, as well as the regime regarding the redemption of electronic money.

Any entity that intends to issue electronic money on the territory of Romania as an institution issuing electronic money must have an authorization, and the BNR can grant said authorization only to a Romanian legal entity established on the basis of Companies Law no. 31/1990, which has its real headquarters on the territory of Romania and which issues at least part of the electronic currency on the territory of Romania. According to art. 19, institutions issuing electronic money must issue electronic money without delay, upon receiving the funds in exchange for which it is issued, they having the right to open and maintain payment accounts for their customers, intended exclusively for the execution of payment operations.

Considering the decentralized nature of cryptocurrencies, not issued by any financial institution, it is important to know how the jurisprudence of different states regards these instruments. The position towards cryptocurrencies in the jurisprudence of the most 12 states of the European Union and the United Kingdom can be seen below (Mateş, 2022, p.9):

**Austria:** Does not constitute legal tender within the meaning of the legislation; They are classified as intangible assets; Income taxation is carried out by applying the tax rate of 27.5%.

**Belgium:** They have no legal tender and have warned against the various risks posed by their use; Fiscally income/gains from the sale of cryptocurrency are considered as "miscellaneous income" subject to taxation.

**Bulgaria:** It does not constitute a legal course in the sense of the legislation. Since 2014, the Bulgarian tax authorities have issued rulings requiring individuals to pay taxes on the gains from the sale of virtual currencies, similar to the tax regime for the sale of financial assets.

**Denmark:** Parties involved in the cryptocurrency transaction must determine whether their asset is classified as a form of payment (currency), a capital asset (investment) or a financial service to determine whether the transaction is subject to regulation by the Danish authorities; Their taxation is determined according to the classification of cryptocurrencies, and losses from these instruments will not be deducted from taxes as business losses.

**France:** There is a law on virtual currency providers that entered into force on May 1, 2019. The first French regulation of cryptocurrency came in January 2014, the Authority for Prudential Supervision and Resolution, the French banking and insurance regulator, stated that entities that receive legal tender on behalf of clients in connection with the purchase or sale of cryptocurrencies were required to obtain a license to provide payment services.

**Germany:** It qualifies virtual currencies as units of account and therefore they are considered financial instruments, but there is no specific legislation.

**Greece:** Virtual currencies are not recognized as a legal means/instrument of payment on the territory of Greece;

**Italy:** there is no specific and detailed legislation regulating blockchain technology and/or virtual currencies

**Slovenia:** they are neither financial instruments nor monetary assets; taxation of cryptocurrency depends on factors such as merchant status, type of transaction and other individual circumstances.

**Spain:** there is no Spanish legislation specifically addressing cryptocurrency offerings.

**Sweden:** are subject to capital gains taxes by applying the single tax rate of 30%. losses resulting from cryptocurrency trading are deductible up to 70%.

**Hungary:** there are no laws specifically regulating the use of cryptocurrency, and no cryptocurrency is recognized as legal tender.

## 5. Conclusions

Cryptocurrency trading is an attractive activity for investors, but it is very risky due to the lack of regulation of this sector of activity, as well as the high risk of fraud. Not being a regulated activity, there have been a number of frauds in this area, some even from within the companies that manage clients' cryptocurrencies, but even from the creators of certain cryptocurrencies. A very good business is the brokerage of cryptocurrency trading, which brings commissions on every transaction, deposit and cash withdrawal. Some trading platforms have their own cryptocurrencies, such as Binance Coin, symbol BNB, created by the Binance trading platform. If you still decide to trade cryptocurrencies as a long-term investment, I recommend trading some of the top 20 cryptocurrencies in terms of market value, and especially those that have real utility, being accepted as payment for a wide range of goods and services. Bitcoin is a good example, although it has lost more than 50% of its value in the last year, the decline cannot be compared to other cryptocurrencies, which have lost more than 200% of their value, or even more. A good example of cryptocurrencies that could be traded with some safety are those that can be exchanged directly into Bitcoin, as Bitcoin does not allow direct conversion on trading platforms to cryptocurrencies that have a high degree of volatility or whose price can be slightly manipulated for the purpose of purchasing Bitcoin at a better rate.

## 6. Acknowledgement

The article is made with financial support from the funds for scientific research of the "1<sup>st</sup> of December 1918" University of Alba Iulia.

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## Transfer Prices Report. Case Study in Romania

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### Abstract

*The current paperwork comprises information about transfer pricing practices in Romania and documentation of the transfer pricing report. It consists of a step by step functional and economic analysis of a transaction carried out between two affiliated parties that activate within building materials sector. To conduct such analysis, commercial databases were used which offered information on comparable transactions.*

**Key words:** transfer pricing, functions, risks, operating profit margin

**J.E.L. classification:** H25

### 1. Introduction

According to the law, the transfer pricing report is the necessary document for documenting compliance with the market value principle of transfer prices charged in transactions with related persons. (Order no.442/2016, 2016, p.1)

It was introduced in the tax legislation in 2008, and since 2016, depending on certain thresholds, large taxpayers are required to prepare an annual transfer pricing report, while SME taxpayers prepare such reports only by request of tax inspectors.

The importance of the transfer pricing report has increased as the super-transparency directives came into force in 2018, country-by-country reporting "CbC" (EU Directive 2016/881, 2016, p.3), and starting with 2020, reporting of reportable cross-border arrangements – DAC6 (European Parliament, 2018, Article 3(b) 18). Basically, the tax administration has now direct access to a detailed package of information that allows to query the taxpayer on intra-group/inter-affiliate transactions in a targeted manner. And the relevant taxpayer (European Parliament, 2018, Article 3(b) 22) will have to respond with even more substantiated, documented explanations. This response refers to transfer pricing report.

Since 2021, direct tax inspections not only verify the correct allocation of profit through transfer pricing, but also the correct reporting of tax transactions/arrangements leading to this allocation. Where the relevant taxpayer/intermediary believes that reporting would not be required, the national authorities will want to satisfy themselves that reporting was not indeed required. This is not necessarily worse news for taxpayers who already knew that their transactions with affiliates were and inevitably will be taken very seriously.

In short, an incomplete or not thoroughly substantiated transfer pricing file will be an invitation for the tax inspector not only to adjust transfer prices, not only to penalize non-reporting, but even to question the entire business model of the company/group.

### 2. Theoretical background

Transfer prices are considered regulated prices: related parties can only enter a transaction (no matter the type - transfer of goods, services, intellectual property rights, etc.) if the "arm's length principle" is respected (OECD, 2018, p.29). Hence, sales or purchases of goods or services between



subunits of a company can be measured by using their transfer price as an instrument (Cools, 2014, p.14). This means that prices agreed between affiliates must be like prices at which similar transactions are concluded between independent persons. This means comparability (benchmarking), the centre piece of the transfer prices case, as they only apply to controlled transactions (Kramarova, 2021, p.4).

Tax administrations now have specialised (and increasingly informed) transfer pricing "tracking" departments, which are guided by a simple principle: when a company has not provided conclusive evidence that the price of a transaction with a related party is market-based, the tax inspector has reservations that company's financial result (profit/loss) is the "real" one. In this case, price adjustments will be made, which will lead to a change in the financial result and thus a change in the company's tax position. Hence, companies in such cases use tax avoidance practices, which are considered to be higher in cases where related party transactions are numerous (Park, 2018, p.2; Hieranti et al., 2019, p.373).

This can lead undesirable situations where trading groups have the same taxed profit in two different jurisdictions where the group operates. This is known as double taxation and is the classic subject of transfer pricing disputes.

But transfer pricing affects not only profitability and therefore the tax due, but also the cash flow, the group's investment decisions, the business model, the performance indicators of the company concerned. Division managers of multinational companies can guide their decisions to maximise profits by using models which can offer information about the optimal transfer prices (Gao et al., 2015, p.349). That is why the necessity to reevaluate and redesign group's transfer prices policies arises, as they can better reflect intra-group transactions (Munteanu et al., 2019, p.4).

Moreover, transfer pricing can also have a significant impact on the customs value of goods. When transfer prices have been determined by applying a method not accepted by the customs authorities, a new customs value is calculated and the importer must pay additional customs duties, together with interest and penalties.

In Romania, first law regulating transfer prices was adopted in 2002 (Ignat I, 2029, p.756). Large taxpayers are required to prepare an annual transfer pricing file if they carry out annual transactions with all related persons in an amount greater than or equal to any of the following materiality thresholds, excluding VAT (Order no.442/2016, 2016, p.1):

- ✓ EUR 200,000 in the case of interest received/paid for financial services;
- ✓ EUR 250,000 in the case of services received/provided;
- ✓ EUR 350,000 excluding VAT in the case of transactions relating to purchases/sales of tangible or intangible goods.

The report must be prepared only at the request of the tax authorities, by large taxpayers who do not fall into the above category and small and medium-sized taxpayers who carry out transactions with related persons annually in an amount greater than or equal to any of the following thresholds, excluding VAT (Order no.442/2016, 2016, p.2):

- ✓ EUR 50,000 in the case of interest received/paid for financial services;
- ✓ EUR 50,000 in the case of services received/provided;
- ✓ EUR 100,000 in the case of transactions relating to purchases/sales of tangible or intangible goods.

Taxpayers who do not fall into any of the above categories are not required to prepare a transfer pricing report - they document compliance with the market value principle during a tax inspection, in accordance with the general rules laid down by the financial accounting and tax regulations in force.

The transfer pricing report is not requested to taxpayer/payer beneficiary of an advance pricing agreement, for transactions and periods covered by the advance pricing agreement issued by the Romanian National Tax Administration Agency or for transactions for which a decision on adjustment/estimate of income or expenditure of one of the related persons has been issued.

There are four main steps to complete a report:

1. drawing up the descriptive sections - general information about the group and the local company (financial information, main customers and competitors, business strategy, legal structure, etc.);

2. preparation of the functional analysis - identification of the functions the company performs, the risks it takes and the assets it uses as part of its operational activity;
3. description of all types of transactions between the company and related persons - value, contractual terms, economic context, etc.
4. economic analysis - the specific part of a transfer pricing report, involving the selection of the most appropriate pricing method according to the specifics of each transaction and the application of this method to test compliance with the market value principle. This stage also involves, with few exceptions, the preparation of comparability/benchmarking studies using specialised databases (Amadeus, TP Catalyst, Orbis, RoyaltyStat, etc.).

### 3. Research methodology

Assume that company XYZ and company ABC are affiliated companies and during 2019-2021 the company XYZ sold deliverables to the company XYZ. This transaction being one between affiliated companies should be included in the transfer pricing report.

During 2019-2021 ABC sold deliverables (resulting from the production process) to the affiliated company XYZ.

ABC sold to affiliated companies various deliverables such as wire, welded mesh, and metal pipes. Total sales of deliverables are shown in Table no.1.

Table no. 1 Transaction value of sales of deliverables between 2019-2021

Company name	Transaction value		
	2021	2020	2019
XYZ	109.700.000	77.000.000	70.460.000

Source: Own design based on calculations.

The pricing methodology, the functions performed, the risks assumed, and the assets used in this transaction are presented in section 4.

The intra-group transaction under analysis generally concerns the sale of deliverables, obtained by ABC from its production activity to XYZ, which resells the purchased products to independent customers.

As mentioned above, functional analysis is generally defined as a process of identifying the components of a transaction that contribute to revenue.

In the case of agreements between two independent companies, remuneration is paid for the functions performed, the assets used, and the risks assumed by each company. Therefore, to determine whether transactions between two related companies are comparable to transactions between two independent trading companies, or whether related companies or independent trading companies are comparable, a comparison of the functions performed, risks assumed, and assets used by each participating company in intra-group transactions is required.

In the following, the functions performed are presented, the risks assumed as well as the assets used by ABC in its relationship with the affiliated company in the process of selling goods.

To identify these functions and risks, we looked at the entire trade flow, starting from the purchase of raw materials, their use in the production process alongside other raw materials, and then the sale of deliverables to affiliated companies.

Consequently, we conducted an initial search for all companies with specific CAEN codes, as table no.2 shows. Hence, we first filtered our search. This filter is essential for the relevance of our study and to identify companies as close as possible to the functional profile of ABC. We used TP Catalyst and Amadeus commercial databases.

Table no. 000000000000000002 Accepted NACE codes

NACE Rev. 2 code	Description NACE Rev. 2 code
2433	Production of cold-formed profiles
2593	Manufacture of articles of metal wire; manufacture of chains and springs

Source: Own design

Following the application of various selection criteria, we obtained a set of six generally comparable independent companies. Table no.3 below provides information on the companies accepted for analysis. Selection criteria refers to:

- ✓ only active companies;
- ✓ only companies located in Romania;
- ✓ only companies that do not prepare consolidated financial statements;
- ✓ only independent companies (using Bvd independence indicator provided by Amadeus);
- ✓ only companies that own less than 25% of share capital in subsidiaries;
- ✓ only companies that registered profit in the observed period.

Table no. 3 Description of the activity of accepted companies.

Company name	NACE Code	Location	Activity description
Comp_1	2433	BRAȘOV	The company manufactures various products such as roofing sheets, rainwater systems, etc.
Comp_2	2593	BECLEAN	The company manufactures galvanized edged fence panels, galvanized wire mesh, galvanized welded mesh, hexagonal mesh wire mesh, etc.
Comp_3	2593	GALATI	The company produces wire mesh.
Comp_4	2433	BUFTEA	The company produces various metal sheets and profiles.
Comp_5	2593	SANMARG HITA	The company produces braided netting, welded galvanized wire mesh, edged fence panels, barbed wire, fence posts and other wire products.
Comp_6	2593	VALEA ADANCA	The company processes wire and various ferrous materials

Source: Own design

## 4. Findings

### 4.1. Functions performed and risks assumed

The functions performed by ABC and XYZ, to which ferrous materials were sold, include:

- Negotiation function;
- Production function
- Storage function;
- Selling function;
- Transport function;

We detail below the functions performed by ABC in transactions with affiliated companies.

#### ➤ Negotiation function

The negotiation function is part of the whole production process, involving the responsibility of the procurement officer to negotiate payment terms and contract conditions.

Thus, this function consists of direct contact with suppliers of materials and goods as well as with the company's customers and potential customers, and the continuous maintenance of a good commercial relationship with them. ABC is responsible for negotiating contractual conditions and concluding contracts for the purchase of various products and raw materials/sales of deliverables.

Therefore, the negotiating function carried out by ABC plays a very important role, since the policy followed by the company is aimed at finding the best price, under the most favourable conditions, which will allow the company to achieve its proposed sales objectives. As such, it can be interpreted that this function is performed to a large extent by ABC and to a lesser extent by XYZ (which in turn applies the same negotiation policy - best price on the market).

#### ➤ Production function

The production function is the link between the combination of resources used and the level of output that can be achieved using a particular type of technological process. In the case of ABC company, production is carried out with the help of specialised machinery and human resources responsible for performing specific tasks. Thus, ABC is responsible for this function.

➤ *Storage function*

ABC orders the quantity of raw material according to its production estimates, orders, and the evolution of certain consumption indices on the Romanian market.

Production and storage are carried out in several specially designed and equipped warehouses. The goods, once prepared for delivery/dispatch, are stored in specially equipped storage areas or in the company's inner yard. Both the warehouses and the rest of the company's property are supervised by security guards employed by ABC and by the surveillance cameras provided. As such, it can be interpreted that this function is performed to a significant extent by ABC.

➤ *Sales function*

ABC oversees finding customers and managing its sales (its orders to the group are thus influenced by the existing economic situation and market demand). This function is carried out in the sales department by two sales agents, who are responsible for searching the market for customers and maintaining a commercial relationship with them.

➤ *Transport function*

The transport of the goods to the buyer is carried out either by third parties or with the help of six trucks owned by ABC. Regardless of who performs the shipment, the delivery condition is generally ExWorks. Thus, the cost of transport is borne equally by the buying and selling company. At the same time, the costs associated with insurance are borne by the carrier.

*The risks assumed by ABC in transactions with affiliated companies are described below.*

Given that ABC is directly and indirectly in charge of finding customers and managing sales, it can be interpreted that, for the sale of deliverables, the *market risk* is borne to a significant extent by ABC and to a limited extent by XYZ.

For manufactured goods, ABC is responsible for stock management, handling, and storage. As such, it can be interpreted that it also bears the *inventory risk*.

ABC, as a production facility, assumes all risks related to the full utilisation of its production capacities. So, it bears the *capacity risk*.

*Transport risk* is the risk that the goods transported will be damaged or stolen during transport. This risk is borne equally by both the company buying the goods and the company selling them.

*Dependence on external suppliers and/or subcontractors* is another risk that ABC faces. This risk involves the fact that ABC may be adversely affected because of the inability of affiliated companies to deliver the ordered goods in accordance with the buyer's expectations or requirements (on time, in the required quantity, etc.).

As ABC is constantly in contact with several alternative/secondary suppliers, we could consider this risk to be limited. However, it is fully assumed by ABC, as it is dependent on its suppliers to be able to further distribute goods on the Romanian market. As mentioned above, during the period under review, ABC sold products obtained from its production activity to affiliated companies of the XYZ group.

In the following, we analyse the reasonableness of the prices charged by ABC in relation to producing and selling deliverables to its affiliated companies during the period analysed by applying the net margin method - cost plus method applied to operating costs (TNMM).

#### **4.2. Results of applying the net margin/cost-plus method to the cost/operating margin level**

To verify compliance with the market value principle regarding production and sale of deliverables by ABC to XYZ, we searched the Romanian market for generally comparable independent companies with a similar functional profile to that of ABC in its role as a producer of various ferrous materials, sheet metal, wire, metal fittings, etc.

Thus, we used the cost-plus method applied to the level of operational costs, the result being comparable with that obtained by applying the TNMM method on operating profit margin (called NCP) and we proceeded to compare:

- the operating profit margin obtained by ABC from manufacturing and selling deliverables to affiliated companies, with

- the operating profit margin indicator obtained from generally comparable independent companies in Romania with similar activities and similar functional profile to ABC.

The profit margin obtained by ABC from selling deliverables to affiliated companies during the period under review is shown in the table below - Table no.4.

Table no. 4. Profit margins achieved.

Transaction type	NCP (%)		
	2021	2020	2019
Sale of deliverables to affiliated companies	9.00%	5.50%	7.15%

Source: Own design based on calculations

As previously mentioned, after applying various selection criteria, we obtained a set of six generally comparable independent companies whose profitability indicators are presented in the table below - Table no.5.

Table no. 5 NCP resulted from sales of deliverables from the production process.

Company name	2021	2020	2019
Comp_1	31.19%	16.89%	12.97%
Comp_2	8.20%	12.11%	8.41%
Comp_3	7.37%	8.62%	-1.02%
Comp_4	9.70%	10.39%	3.32%
Comp_5	2.26%	7.25%	3.98%
Comp_6	4.39%	3.46%	0.79%

Source: Own processing

Consequently, we designed the interquartile range calculated for these six comparable independent companies. These results made comparisons possible. The minimum, median and maximum values of NCP are presented in Table no.6.

Table no. 6 Interquartile range for sales of deliverables

Description	2021	2020	2019
Minimum	2,26%	3,46%	-1,02%
Quartile 1	5,13%	2,00%	1,42%
<b>Median</b>	<b>7,79%</b>	<b>9,51%</b>	<b>3,65%</b>
Quartile 3	9,33%	11,68%	7,31%
Maximum	31,19%	16,89%	12,97%

Source: Own design based on calculations

The profit margin obtained by ABC from selling deliverables to affiliated companies during the period under review (2019 – 2021) is shown in the table below – Table no.7. As observed, highest NCP was registered in 2021, whilst lowest NCP was registered in 2020. Based on these calculations, we conclude that prices charged by ABC in relation with XYZ are generally in line with the transfer pricing principles applicable in Romania.

Table no. 7 Profit margins obtained by ABC

Transaction type	2021	2020	2019
Sales of deliverables to affiliated companies	9,00%	5,50%	7,15%

Source: Own design based on calculations

Our findings are based on the following results:

- For 2021, the interquartile range varies between 5.13% (quartile 1) and 9.33% (quartile 3), with a median of 7.79%. The operating profit margin (NCP) obtained in 2021 by ABC from selling deliverables to affiliated companies is 9.00%, which falls within the above-mentioned range.
- For 2020, the interquartile range varies between 2.00% (quartile 1) and 11.68% (quartile 3), with a median of 9.51%. The operating profit margin (NCP) obtained in 2020 by ABC from selling deliverables to affiliated companies is 5.50%, which falls within the above-mentioned range.
- For 2019, the interquartile range varies between 1.42% (quartile 1) and 7.31% (quartile 3), with a median of 3.65%. The operating profit margin (NCP) obtained in 2019 by ABC from selling deliverables to affiliated companies is 7.15%, which falls within the above-mentioned range.

## 5. Conclusions

To carry out an effective economic analysis, all risks, functions, and assets used in a transaction must be carefully analysed to properly categorise the companies involved into functional categories and to find the most relevant comparable. There have been cases in practice where tax authorities have re-focused companies functionally and rejected the comparable presented in the economic analysis.

A full transfer pricing report should be prepared annually by large taxpayers and particular attention should be paid to "artificial" services (e.g., management services) as these are usually challenged for deductibility by the tax authorities.

In view of the above, present paper offers a step by step functional and economic analysis of a transaction carried out between two affiliated parties that activate within building materials sector. Given our findings, the prices practiced by the analysed company in relation to sales of deliverables to its affiliated party are generally in line with the transfer pricing principles applicable in Romania.

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## The Stability of the Revenues to the Budget of the European Union

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### Abstract

*A new European Union own resource based on non-recycled plastic packaging has been introduced. Each Member State must contribute on a national level in proportion to the amount of "plastic packaging waste" that is not recycled. This new policy raises several issues from a political, monetary, and legal perspective.*

*The purpose of the paper is to study the sustainability of this revenue to the budget of the European Union taking into account that it's still unclear if this "EU plastic contribution" is a budgetary tool with an environmental spin or the other way around. While the fiscal and environmental goals might initially seem to be complementary.*

**Key words:** European Union, revenues, plastic contribution, budget, economic recovery

**J.E.L. classification:** F64, H23, H61

### 1. Introduction

The European Union's (EU) overall budget has always been a very politically sensitive subject. Political leaders of the various Member States have had to negotiate agreements about the funding of the Community and its new supranational institutions ever since the "European Coal and Steel Community" (ECSC) was established in 1951, marking the beginning of European cooperation.

The European Union has made major changes to how financial resources are made available to the EU budget over the years.

To account for the growth of European integration from the initial six Member States in 1951 to the current members, several budgetary adjustments have been implemented.

Though the new multiyear structure may offer long-term stability, it goes against an important tenet of parliamentary democracy, annual budgets. The EU's pursuit of an equitable and open budgetary system has not yet fully materialized.

The purpose of the paper is to study the sustainability of the revenues to the budget of the EU, focusing on the development of the EU's "own resources" based on the amount of plastic waste, that was introduced relatively recently in 2021.

A contribution without a fiscal component, the new EU's resource. Given the challenges associated with the approval of new tax policies at the EU level, this is not surprising. The fact that this new measure will result in Member States contributing less to the EU budget strengthens the motivation for them to take action to decrease plastic waste.

It is important to note that Member States are not obligated to enact a tax to comply with the new Own Resources Decision.

The EU is being forced to reevaluate its resource system and find new sources of finance as a result of the financial and environmental crises brought on by Covid-19.



Each Member State must contribute on a national level in proportion to the amount of "plastic packaging waste" that is not recycled. This new policy raises several issues from a political, financial, and legal perspective.

## 2. Literature review

The determination of the EU's resources is a matter reserved for the Council, which decides unanimously with a simple consultation of the Parliament, except for the adoption of implementing measures. In terms of spending, Parliament's powers have increased over time, and it is now placed (or almost) on an equal footing with the Council when it comes to setting the EU's multiannual financial framework and annual budget. (European Commission, 2022)

The first decision regarding its resources dates back to 1970, and before 2020, no major changes were made to the 1980s system (with the addition of the VNB's resource).

The current system provides for four main sources of revenues: (1) traditional own resources, (2) an own resource based on value added tax, (3) an own resource based on gross national income, and from 2021, (4) a plastic contribution, whose real impact remains to be determined. (Traversa, 2022)

Since the packaging industry accounts for the majority of the demand for plastics in Europe, the EU has introduced several measures to address the reduction of plastic packaging waste as a result of growing environmental awareness of the effects of plastic waste.

The EU approved a new tax on non-recycled plastic packaging trash in July 2020 as a component of the EU budget, which would fund the Covid-19 recovery package at a tax rate of 800 EUR/t.

According to Leschka and Nadja member states are allowed to choose how to enact this tax, and the majority of them, have stated that they would fund it from their national budgets. One potential EU tax implementation is to impose a national tax on plastic packaging made of virgin materials, keeping in mind the goal to reduce plastic packaging waste by promoting recycling and reducing overall plastic packaging consumption.

The justification for this new EU resource, which is based on non-recycled plastic packaging, emphasizes that it is a hybrid financial and regulatory tool.

On the one hand, this contribution tries to provide the European budget resources. On the other hand, the "plastic contribution" is distinguished by a regulatory aim, unlike other own resources like VAT or GNI-based payments. (Ezcurra and Bisogno, 2022)

But it's still unclear if this "EU plastic contribution" is a budgetary tool with an environmental spin or the other way around. While the fiscal and environmental goals might initially seem to be complementary.

## 3. Research methodology

For the introduction of new EU own resources, the European Commission stressed the need to take into account the following values and criteria: transparency, simplicity, and stability; by the Union's policy objectives: effects on competitiveness and sustainable growth, equitable distribution among Member States.

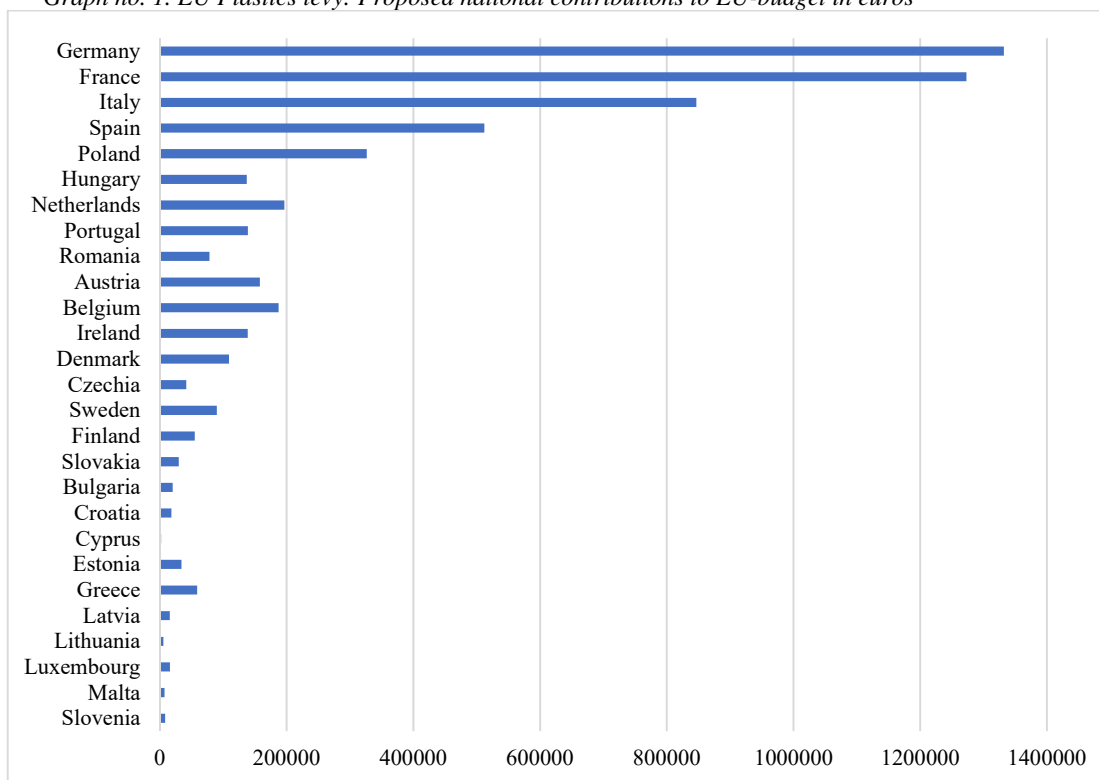
In this paper, we aim to find out if the new 'plastic contribution' complies with these requirements. To achieve this objective, we will design a descriptive and explanatory study to characterize the phenomena, their causes, and their impacts.

## 4. Findings

The Plastics Tax is expected to cost Member States a total of 6 to 8 billion euros annually, based on the most recent Eurostat statistics. The two nations that contribute the most are Germany and France, both of which committed to increasing their annual payments to the EU budget by at least one billion euros as a result of the plastics tax. However, a rebate mechanism will be advantageous to some member states.

Contributions from Member States with a GNI per capita below the EU average should be subject to an annual lump sum decrease. The contributions by each country are listed in the following graph:

Graph no. 1. EU Plastics levy: Proposed national contributions to EU-budget in euros



Source: Own processing based on Eurostat data

However, concerns are raised about the measure's stability. If ecologically sound, less plastic would end up in the garbage stream, making its revenue less steady over time. This begs the question of whether the increased payment will be a long-term source of funding for the EU budget.

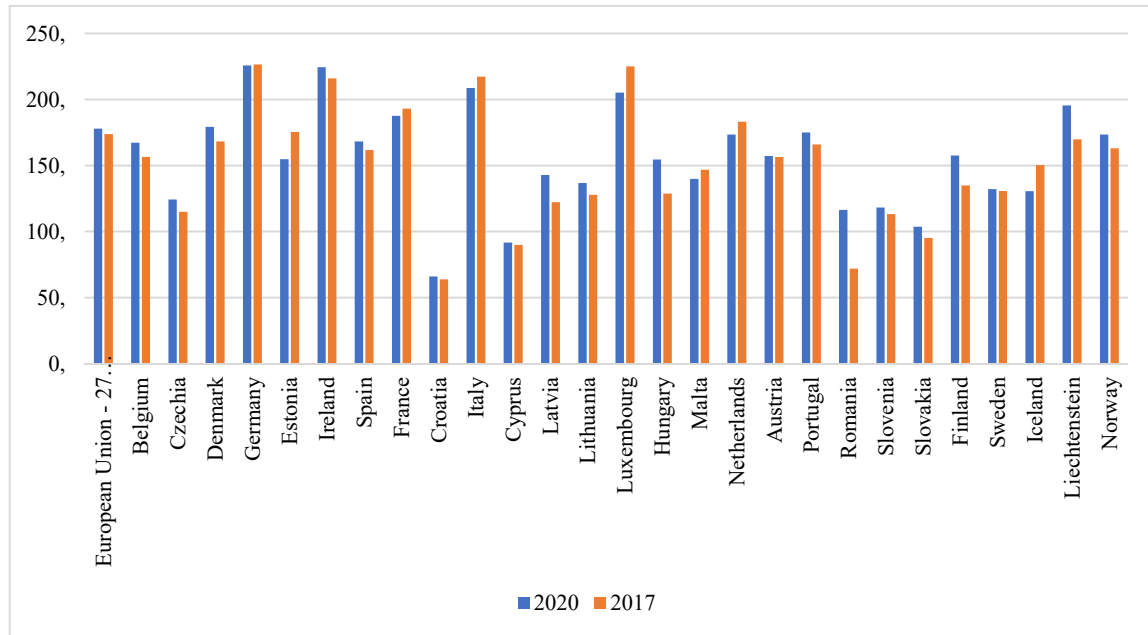
It is increasingly likely that raising money quickly will be necessary to pay off obligations incurred as a result of the financial and environmental disaster brought on by the epidemic.

In any case, if we extend the timeline, it appears that this strategy is ineffective in accomplishing the dual goals of effectively promoting plastic recycling and producing reliable supplies. As can be seen in graph no. 2. the amount of plastic waste decreased from 2017 to 2020 in most countries.

According to European Commission, France, Germany, Ireland, Luxembourg, and Slovakia are among the countries that have decided to pay the expenses of the EU Packaging Levy through their national budgets for the time being while planning for future levies to be entirely or largely paid by the private sector.

Also, Spain intends to impose an extra packaging tax on single-use plastics, with a tax rate of 0.45 euros/kg applied to non-recyclable plastics produced or imported into Spain.

Graph no. 2. Packaging waste by waste management operations



Source: Own processing based on Eurostat data

## 5. Conclusions

We will need to wait a few years to fully grasp how the new "plastic contribution" will operate in practice, analyze its impact on competitiveness and sustainable growth, and determine if it is consistent with an equal distribution across Member States. We applaud the establishment of a new EU own resource, the first since 1988, notwithstanding its flaws. However, have three last remarks to make.

First, it is undeniably true that one of the top priorities on the European political agenda is environmental preservation. Additionally, decreasing the contribution of plastic is consistent with European interests (such as climate change and the circular economy). However, it's crucial to remember that this does not imply that it will always be successful in preserving the environment. The measure's ex-post evaluation will be crucial.

Second, the risk is to 'greenwash' the EU budget simply because a new 'green' contribution is now more acceptable even if it is not effective in reducing plastic pollution.

Third, given the EU's fundamental goals and the current environment of economic recovery, the European internal resource system should be substantially improved.

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## Analysis of the Sustainable Development of the Eastern European Countries from the Perspective of the Transition to the Green Economy

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### Abstract

*The current geopolitical context has accentuated the energy crisis that has once again motivated the need for the transition to the green economy. In this context, the objectives of the European Agenda require greater attention to sustainable development about the transition to a green economy. Eastern European countries face major economic disadvantages that slow down the implementation of this objective in the region. We intend to develop an econometric representation of sustainable development from the perspective of the green economy in eastern European countries. The methods used are empirical (literature analysis) and analytical, respectively the design of a sustainable development model from the perspective of the transition to the green economy of the Eastern European countries. The results of the study highlight the differences in the development of Eastern European countries compared to the European average and identify the possibilities of their recovery in relation to the difficulties observed.*

**Key words:** green energy, sustainable development, transition, econometric model, South East Europe

**J.E.L. classification:** E17, F63

### 1. Introduction

The current context has created significant challenges for sustainable development. A global feature is the increase in inequalities between countries with significant disparities in opportunities, population health and economic development.

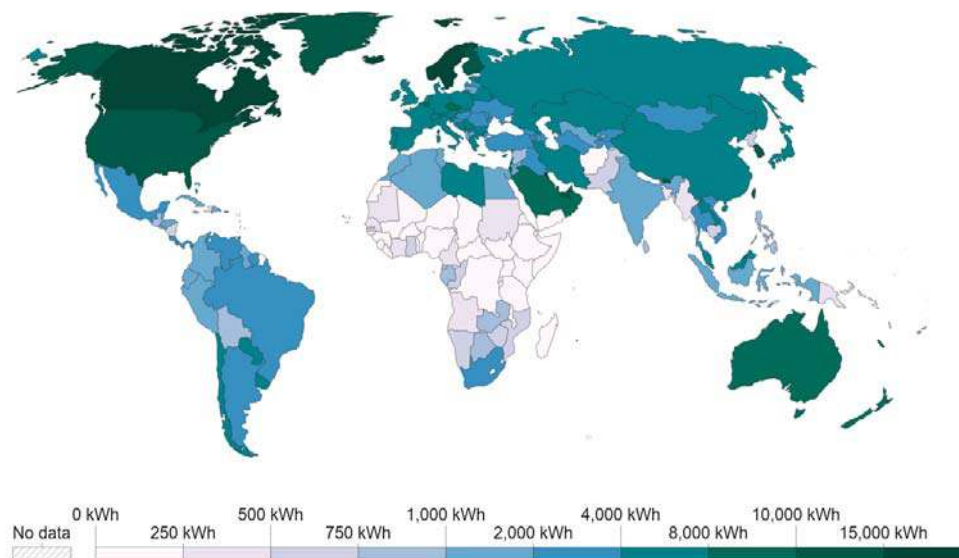
Other challenges include the depletion of natural resources, environmental degradation including desertification, land degradation, depletion of drinking water sources and reduction of biodiversity. Climate change is evident and is producing adverse effects that may reduce the capacity of countries around the world to achieve sustainable development targets.

These global threats need to be monitored and mitigated in terms of impact through globally owned sustainable development goals that take advantage of the following opportunities: unprecedented technological progress, increased access to education, high rates of information transfer of communications and technology, global interconnections that can accelerate human progress, develop the knowledge society, and foster innovation in areas such as medicine and energy.

The Sustainable Development Goals are permanently monitored through monitoring indicators, structured by topics and chapters of interest structured within each objective, the trend being that these indicators are reported by each member country of the United Nations in order to consolidate global statistics and adjust sustainable development policies.

Access to electricity in 2022 was for most continents one in the parameters of 90 and 100%, in exchange for the African continent, in countries such as South Sudan only 7.24% of the population had access to electricity(Ritchie, Roser, Mispy, 2022). In other states of Central Saharan Africa, Burkina Faso, Niger, Mali, Chad, Burundi, the Central African Republic and the Democratic Republic of the Congo, no more than 20% of the population had access to a source of electricity(Ritchie, Roser, Mispy, 2022).

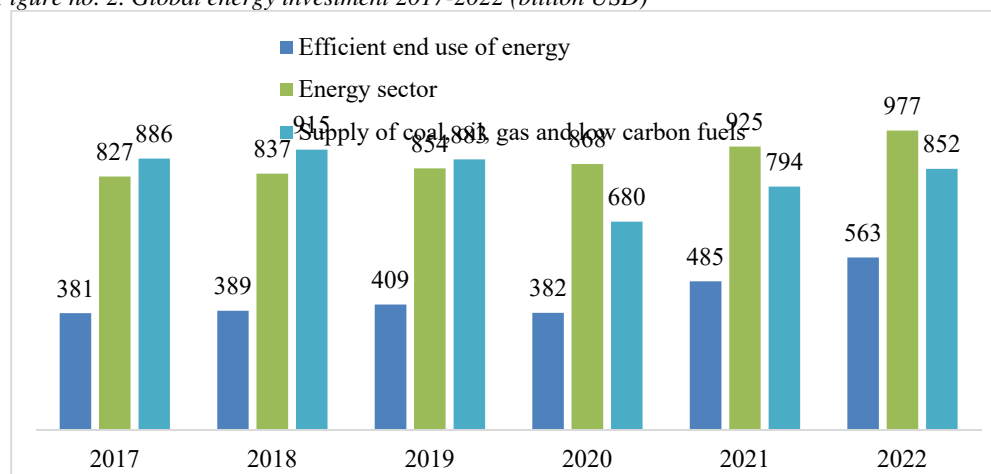
Figure no. 1. Per capita electricity generation,2022



Source: <https://ourworldindata.org/grapher/per-capita-electricity-generation>

Investment in energy is more necessary as the international economic climate becomes more vulnerable amidst economic uncertainty, energy security concerns and climate change. Thus, a total investment of 2.4 trillion dollars has been estimated for 2022, mainly for energy efficiency(IEA, 2022).

Figure no. 2. Global energy investment 2017-2022 (billion USD)



Source: Elaborated by the authors according to IEA data available at(IEA, 2022)

Investments in low-carbon fuels are on an upward trend, this aspect was generated by the uncertain political climate that has led companies to behave prudently regarding capital investments in the field.



transition to renewable energy consumption, digitisation of the energy sector and energy security.

Thus, some authors have focused in the study of energy efficiency on strategic development with a 2030 horizon, proposing new economic models for growth and digitalization of the industry(Yu et al., 2021).The proposed models aim at the distributive economy, increasing prosumers (personal carbon footprint), reducing social disparities and energy poverty and increasing the rate of investment in green energy. Another study proposes a framework for optimizing the hybrid energy system based on the key characteristics of SDG 7, namely affordability, reliability, sustainability and timeliness (Kumar et al., 2020). The authors use indicators such as biological capacity, ecological footprint, energy consumption, Gini and financial development indices and the impact of trade in goods on economic growth for their Nexus analysis of environmental, social and economic factors.The research focus area is South Asia(Bansal et al., 2021).Motivated by the Sustainable Development Goals (SDGs) and their impact by 2030, examine the relationship between energy consumption (SDG 7), climate (SDG 13), economic growth and population growth in Kenya, Senegal and Eswatini.The authors used Kernel least squares (KRLS) automation technique and econometric methods such as dynamic ordinary least squares (DOLS) and mean group estimation (PMG) models. The econometric techniques confirm the Environmental Kuznets Curve (EKC) hypothesis between income levels and CO2 emissions, while the machine learning method confirms the scale effect hypothesis(Sarkodie et al., 2020).The authors find that while CO2 emissions, population growth and income levels drive energy demand and use, economic growth is driven by energy consumption and population dynamics. This demonstrates that income, population growth, energy and CO2 emissions are inseparable, but require a collective participatory decision in achieving the SDGs(Sarkodie et al., 2020).

Another important aspect is the transition to the green sector of car manufacturing, the creation of electric vehicle power grids. The energy sector is, in the researchers' view, conducive to environmentally, economically and socially sustainable development, in the same way that technologies will complement efforts to achieve SDG7 targets, compatible with action to combat climate change. The complexity of the interlinkages between SDG7 and the other sustainable development goals motivates the development of scenarios for shifting energy consumption towards consumption from renewable energy sources and halting carbon emissions associated with the energy industry.

### 3. Research methodology

The methodological research aims to develop an econometric model to anticipate regional differences in the perspective of transition to the green economy based on sustainable development indicators monitored by Eurostat through SDG 7 target (Table no.1).

*Table no. 1 Model variables and descriptive statistics*

INDICATORS MONITORED FOR EASTERN EUROPEAN COUNTRIES 2000-2021	MEAN	STD. DEVIATION	N
SDG7_ PACCTG Population with access to clean fuels and cooking technology (%)	82.759	7.2837	22
SD Demographic surplus (%2000)	92.7850	4.12603	22
SDGI SDG Index score (%)	71.677	2.3003	22
SDGI7 SDG Index score for Goal 7 (%)	68.882	3.7032	22
SDG7_ECO2 CO <sub>2</sub> emissions from fuel combustion on total electricity generation (MtCO <sub>2</sub> /TWh)	82.159	1.6317	22

*Source:* Authors' calculations using SPSS v 25



The model based on sustainability variables shows that carbon emission reductions are in direct dependence (over 96%) on the variation of the predictor variables in the sustainable development spectrum related to Goal 7. Statistical tests show that there is a slight asymmetry for the Eastern European region in terms of homogeneity of data, with the asymmetry on the left side according to the Durbin-Watson test results being less than 2.

Table no. 2 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson Statistic	
					R Square Change	F Change	df1	df2	Sig. F Change	Country (Selected)	Country (Unselected)
1	0.983a	0.966	0.958	1.4909	0.966	121.053	4	17	0.000	1.668	0.127
a. Predictors: (Constant), sdg7_ECO2, SDG Index score (%), Demographic surplus (%2000), SDG Index score for Goal 7 (%)											
b. Unless noted otherwise, statistics are based only on cases for which Country = 1.00.											
c. Dependent Variable: sdg7_PACCTG											

Source: Authors' calculations using SPSS v 25

The results of the proposed model were statistically validated by the one-sided critical likelihood test, the null hypothesis was rejected, and the alternative hypothesis was retained, the range of errors being less than the chosen significance threshold  $\alpha = 0.05$ .

The number of degrees of freedom of the regression is 17 out of 21 possible.

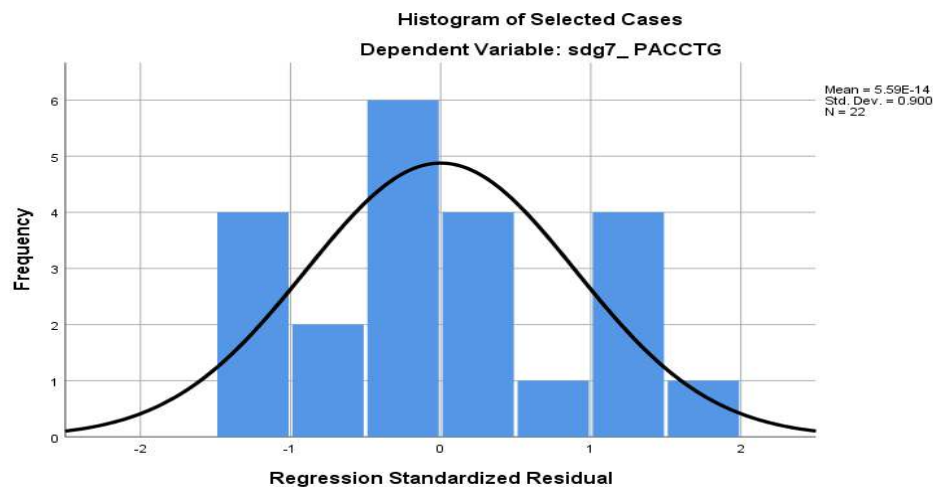
Table no. 3 ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1					
Regression	1076.306	4	269.076	121.053	.000c
Residual	37.788	17	2.223		
Total	1114.093	21			
a. Dependent Variable: sdg7_PACCTG					
b. Selecting only cases for which Country = 1.00					
c. Predictors: (Constant), sdg7_ECO2, SDG Index score (%), Demographic surplus (%2000), SDG Index score for Goal 7 (%)					

Source: Authors' calculations using SPSS v 25

The histogram representation of the regression variable shows high variability with respect to the trend curve, with errors on both the upward slope of the graph and the downward slope of the graph.

Figure no. 4. Histogram of the model



Source: Authors' calculations using SPSS v 25

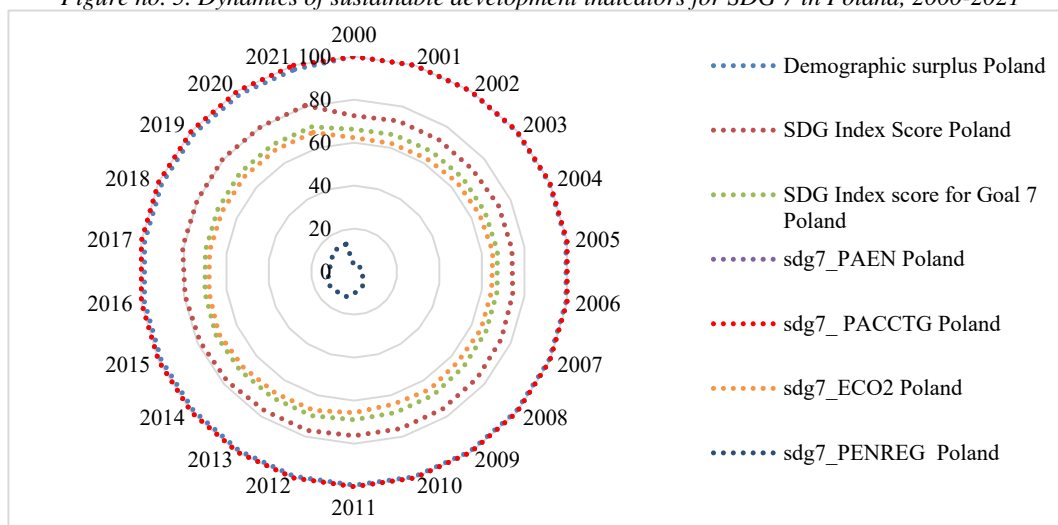


The errors are assimilated to a dispersion of the SDGs in the South-East European region, which leads us to the conclusion that the SDG7 targets in the context of the new geopolitical challenges have emphases in relation to the level of development of each country, the most significant vulnerabilities being observed for Bulgaria.

#### 4. Findings

The SDG Index score for Poland's Goal 7 shows that on average it recorded a value of 68.5%, with the highest value recorded in 2015 (70.7%), and the minimum threshold for the lowest index score for Poland's Goal 7 was reached in 2000 (66.2%).

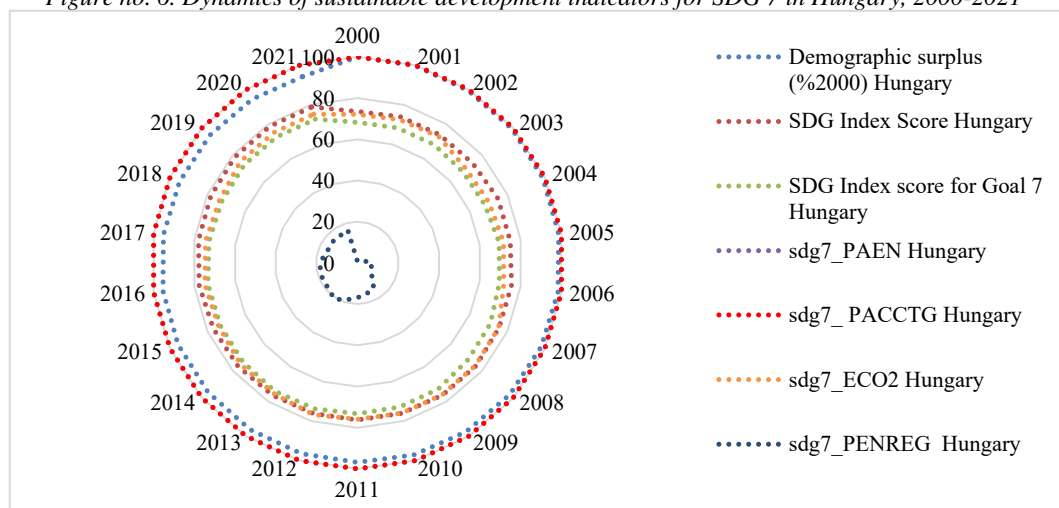
Figure no. 5. Dynamics of sustainable development indicators for SDG 7 in Poland, 2000-2021



Source: Elaborated by the authors according to(Cambridge University, 2022)

As regards the analysis of the SDG Index score for Hungary's Goal 7, it shows that, on average, it recorded a value of 71.4%, which is equivalent to a sub-unit development score, the maximum value being recorded in 2013 (74.1%). The minimum threshold for the lowest index score for Objective 7 Hungary is reached in 2003 (67.7%).

Figure no. 6. Dynamics of sustainable development indicators for SDG 7 in Hungary, 2000-2021

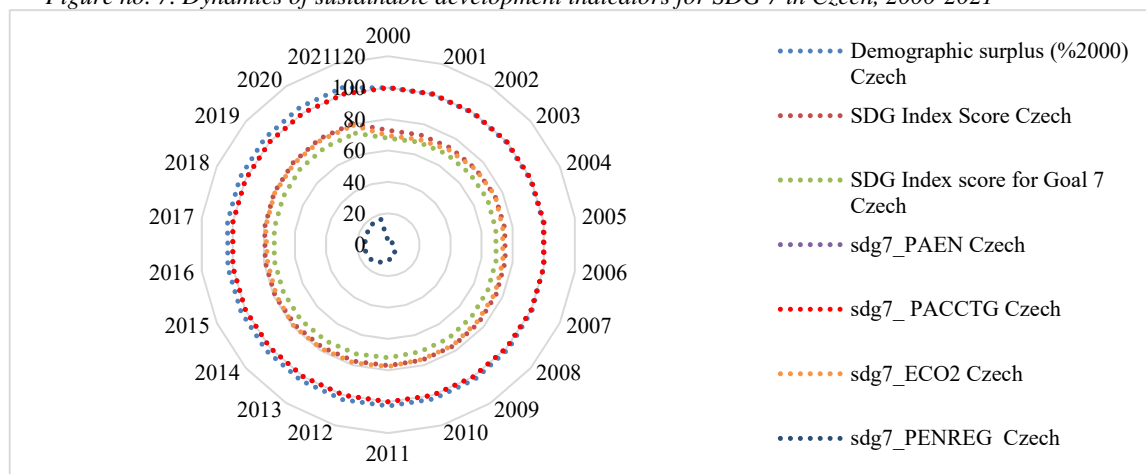


Source: Elaborated by the authors according to(Cambridge University, 2022)

The analysis of the achievements of SDG7 in Hungary, with reference to the population with access to electricity (%) (sdg7\_PAEN ), reveals that on average it registered 100% throughout the period under review, as well as the population with access to clean fuels and cooking technology (%) (sdg7\_PACCTG ). The analysis of SDG7 achievements with reference to the share of renewable energy in total primary energy supply (%) (sdg7\_PENREG), shows that on average it recorded the value of 11.7%, the maximum value being recorded in 2013 (20.9%). In contrast, the minimum threshold for the lowest score of the indicator is reached in 2000 (0.7%).

The analysis of the Czech SDG Index score shows that the average score is 76.9%, with the maximum value in 2020 (80.4%) and the minimum threshold for the lowest index score in 2000 (72.8%).

Figure no. 7. Dynamics of sustainable development indicators for SDG 7 in Czech, 2000-2021



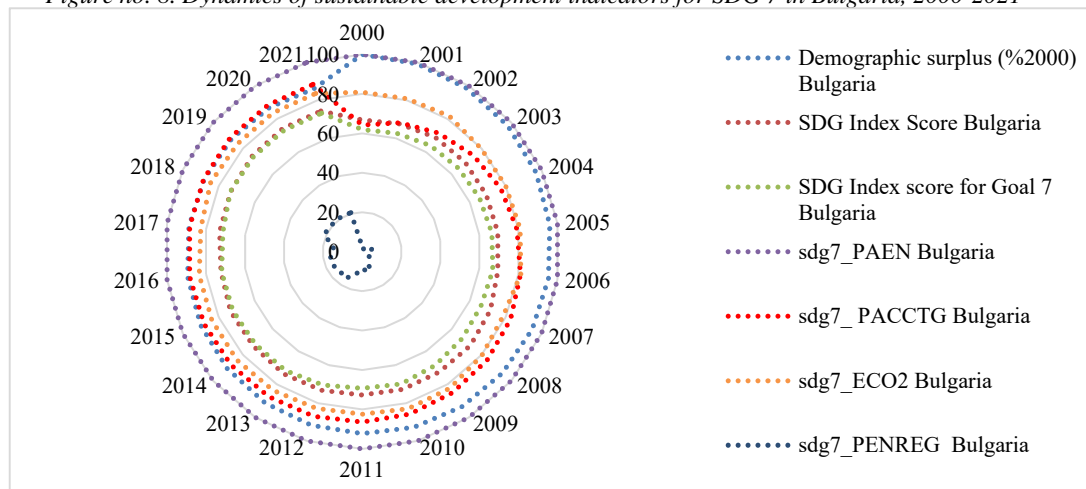
Source: Elaborated by the authors according to(Cambridge University, 2022)

The analysis of the achievements of SDG7 with reference to the population with access to electricity (%) (sdg7\_PAEN), shows that it recorded a value of 100%, throughout the period under review.

The assessment of SDG7 achievements with reference to the share of renewable energy in total primary energy supply (%) (sdg7\_PENREG), shows that on average it recorded a value of 9.3%, the highest value being recorded in 2019 (16.7%) and the minimum threshold for the lowest score of the indicator being reached in 2000 (1.9%).

It is found that the SDG Index score for Bulgaria's target 7, on average it recorded the value of 68.9%, the maximum value being recorded in 2018 (73.5%). On the contrary, the minimum threshold for the lowest score of the index for objective 7 Bulgaria is reached in 2000 (61.9%).

Figure no. 8. Dynamics of sustainable development indicators for SDG 7 in Bulgaria, 2000-2021

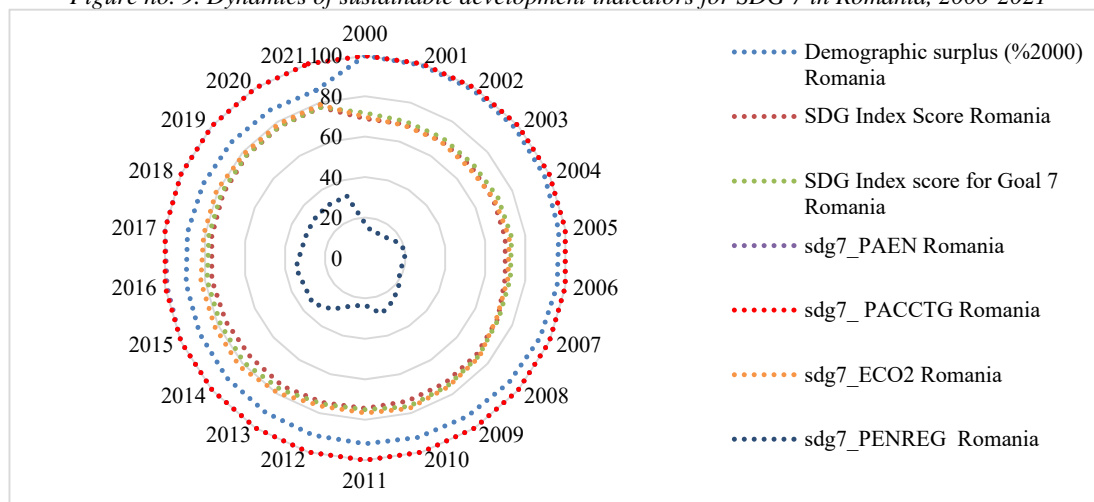


Source: Elaborated by the authors according to(Cambridge University, 2022)

From the analysis of the SDG7 achievements regarding the population with access to electricity (%) (sdg7\_PAEN), it is noted that on average it recorded the value of 100% throughout the period under review (the level of achievement of the sustainable development indicator being in this case 100%). The assessment of the achievements of SDG7 with reference to the population with access to clean fuels and cooking technology (%) (sdg7\_PACCTG), shows that, on average, it recorded the value of 82.8%, assimilated to a sub-unit score of evolution, the maximum value being recorded in 2016 (88.4%).

The evaluation of the SDG Index score for Romania's Goal 7 (Cambridge University, 2022), reveals that, on average, it recorded a value of 75.2%, assimilated to a sub-unit evolution score, the highest value being recorded in 2014 (79.1%). The minimum threshold corresponding to the lowest index score for Goal 7 Poland, is reached in 2001 (70.4%).

Figure no. 9. Dynamics of sustainable development indicators for SDG 7 in Romania, 2000-2021



Source: Elaborated by the authors according to(Cambridge University, 2022)

From the analysis of the achievements of SDG7 about the population with access to electricity (%) (sdg7\_PAEN), it shows that, it recorded the value of 100%, throughout the period under review.

From the analysis of SDG7 achievements on the share of renewable energy in total primary energy supply (%) (sdg7\_PENREG), it can be seen that, on average, it recorded the value of 25%, the highest value being recorded in 2016 (34.6%). At the opposite pole, the minimum threshold for the lowest score of the indicator is reached in 2001 (13.1%).

## 5. Conclusions

In terms of the sustainable development index developed by Cambridge University(Cambridge University, 2022) researcher the highest level of development among the countries analysed is recorded by Poland, which in 2021 ranks 12th out of 163 signatories to the Paris Agreement, with an overall sustainable development index score of 80.5%, an increase of 11.3% compared to 2000, when the calculated index level was 72.5%. The Czech Republic ranks second in terms of sustainable development, 13th out of 163 countries in the Cambridge ranking, with an overall increase in sustainable development between 2000 and 2021 of 10.44%, from 72.8% in 2000 to 80.4% in 2021. In third place is Hungary, which ranks 21st out of 163 signatories to the Paris Agreement. It has the lowest sustainable development growth rate of the five countries analysed, respectively 7.35% from 73.5% in 2000 to 78.9% in 2021. Romania ranks 4th in the ranking of the 5 countries with a sustainable development index of 76.6% in 2021 and a maximum growth rate for the sample analysed of 12.63%. In last place is Bulgaria with an overall index value of 74.3%, giving it 42nd place in the ranking of the 163 countries monitored by Cambridge.

The growth rate of the general index is 11.23% in the period under review, as in the case of Romania, the difference with the other countries being the low score recorded for objective 9, respectively 58.8%, the increase being 258.54% compared to the index level in 2000.

The paper is set in a broad context of global uncertainty amid the onset of multiple economic, health, environmental, energy and political crises. During our research we found that this topic is intensely debated in the literature, especially in terms of sustainable development models. The research aimed to develop and improve current concepts of sustainable development by adding summary components resulting from the process of objective assessment of the phenomenon. The research is focused on the assessment of the current situation regarding the implementation of the Sustainable Development Goals (SDGs) in general and the most topical SDGs in particular, this usefulness being determined by the need to implement the various SDGs in relation to the conditions of uncertainty triggered in the global economy by the multiple crises and the unstable geopolitical context, made vulnerable by the outbreak of war in Ukraine.

## 6. Acknowledgement

This research was conducted within the internal research grant RF 1821/31.03.2023 provided by "Dunarea de Jos" University of Galati.

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## NEETs' Perception on Financing an Entrepreneurial Endeavour

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### Abstract

*Young people aged between 15 and 29, who are not in education or employment, known as NEETs, are a concern within the framework of European Union policies. To support them, projects are being implemented to develop skills in various fields and to provide financial support to those who want to set up businesses.*

*The objective of the research we carried out was to identify how NEETs relate to the issue of financing an entrepreneurial endeavor. For this purpose, we applied a questionnaire to a group of NEETs from the Constanta region, who expressed interest in starting a business.*

*After processing the obtained data, we concluded that there is an inclination of these young people for non-reimbursable financing of their entrepreneurial initiatives, associated with an estimation of the risks related to each source, but also that there are several factors that influence the preferences for certain sources of funding.*

**Key words:** NEETs, entrepreneurship, financing sources, non-reimbursable funds, entrepreneurial knowledge

**J.E.L. classification:** J11, L26

### 1. Introduction

The term NEETs (young people neither in employment nor in education or training) has its origins in the UK in the early 1980s, when it was used to define young people aged 16 to 17 who were not in any form of education and not in employment (Mascherini, 2019). Over time, the term was taken up by other countries and its meaning expanded, now referring to young people aged 15 to 24 or 15 to 29. There are also differences related to the categories of young people that fall within the scope of the definition. Some of these definitions are contained in European Commission and OECD studies, from which it emerges that, depending on the country referred to, the notion of NEET can include both young people who have completed their studies and are looking for a job, as well as young people who drop out of school, or those who leave school or work to take care of their families (Walther and Pohl 2005; Carcillo et al. 2015).

At present, Eurostat uses two criteria to identify people who are included in the NEET category: they are not employed (unemployed or inactive according to the definition of the International Labor Organization) and they have not received any formal or non-formal education or training in the four weeks preceding the survey (Eurostat, 2022).

At EU level, in the last decade (between 2012 and 2022) the percentage of NEETs has decreased by 4.3%, but there are large disparities between countries. Among the countries with the lowest percentage of young people in this category are Ireland, Norway, and Sweden, while Greece, Italy, and Romania are at the opposite end of the spectrum. The target proposed by EU policies is for member countries to reduce the percentage of NEETs to 9% by 2030. At the moment, Romania is far from reaching this target, with 19.8% in 2022, the highest in the EU.

In this context, we believe that policies and programs are needed to support young people in this category, and entrepreneurial education and grants that finance start-ups by young people have a particularly important role to play in this regard.

The research that we propose to develop next aims to assess the perception of young NEETs on the issue of financing a business. The objective of the research is to determine on the one hand which are the preferred sources of finance for these young people when they consider starting a business and how they evaluate the risks related to each source of finance, and on the other hand to identify the factors that influence these preferences.

To this end, we applied a questionnaire on a group of NEETs from Constanta County, the methodology used, and the results of the data processing being presented in full below, after a concise review of the literature specific to the field.

## **2. Literature review**

As numerous studies conducted over time show, young people are most often endowed with entrepreneurial qualities, which vary according to their background or experience in the field (Harris and Gibson, 2008; Zampetakis et al. 2009). Entrepreneurship education supports the development of these qualities and can be an opportunity especially for young people in vulnerable groups, such as NEETs (Fayolle and Gailly, 2015).

Identifying the appropriate sources of finance for a business is one of the most important decisions an entrepreneur must make. Studies highlight the importance of human and financial capital for the success of an entrepreneurial initiative (Cooper et al., 1994). Experts' opinions converge on the idea that there is a positive relationship between the amount of initial capital a business can raise and its performance, the more finance a business has, the easier it will be for it to survive and outlive the period needed for the entrepreneur to adjust to the business environment (Cooper and Gimeno-Gascon, 1992).

Among the sources identified in the literature as most often used for business start-ups are non-reimbursable grants, bank loans and entrepreneurs' wage income from previous jobs (Elston and Audretsch, 2011). The same source mentions the importance of the existence of own funds held by the entrepreneur when starting the business for its success. Other authors (Chang et al., 2009) stress the role of family and entourage in supporting entrepreneurial initiatives.

Another important issue present in the literature related to access to finance is that of inequality of perception between women and men. Articles on this topic conclude that women perceive the existence of more barriers in obtaining finance than men (Kwong et.al, 2012; Sena et al, 2012).

The above-mentioned studies reflect the importance of finding the right financing sources for the development of a new business, underlining that the choice of these sources can positively influence the performance of future businesses.

## **3. Research methodology**

To assess how young people from the NEETs category perceive the opportunities and problems specific to financing a business idea, we applied a questionnaire between August and November 2022 to a group of participants in an entrepreneurial training course held in the Constanta region. The group consisted of 60 young people from the NEET category and 54 valid answers were collected after the distribution of the questionnaire.

The questionnaire included a section of demographic questions, a section designed to assess the participants' perception of entrepreneurship and entrepreneurship education and a section dedicated to the issue of financing a business. In the latter section, only participants who had a business idea at the time of completing the questionnaire were invited to respond. Thus, out of the 54 questionnaires, 43 responses were selected.

The distribution of the questionnaire was done via e-mail or WhatsApp at the end of the training period of the course.

Based on the collected responses, we first conducted descriptive analysis of the sample and their preferences towards the sources of financing for entrepreneurial initiatives as well as their perception of the risks associated with each source. Afterwards we tried to determine how certain factors influence the choice of a source of financing, using a multiple linear regression model. The five independent variables that we considered were: business domain (representing the field of activity in which one wants to start a business), entrepreneurial knowledge (self-assessed level of

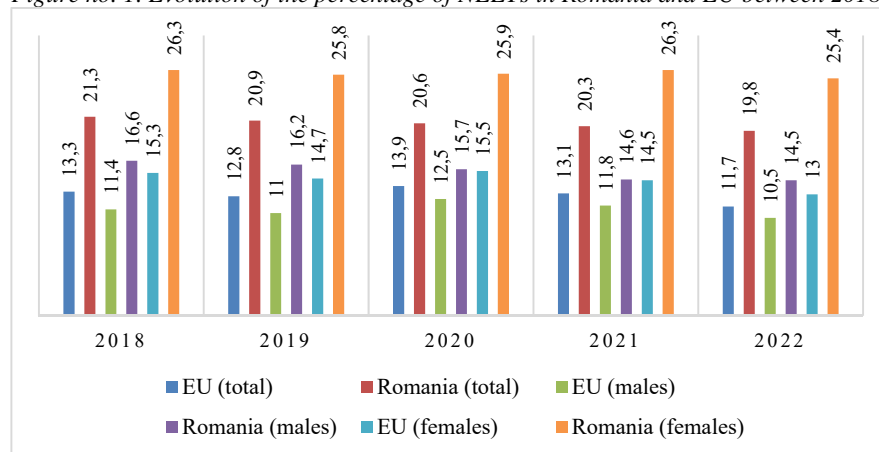
entrepreneurial knowledge), insufficient level of financing (perception of the impossibility of finding sufficient financing for the desired business), reimbursement difficulties (perception of the difficulties in returning the loaned amounts), requirements of the financing institutions (perception of the requirements imposed by the financiers).

Statistical processing of the data was done using SPSS software version 26, and the results are presented in the next section.

#### 4. Findings

Romania has one of the highest rates of young people between 15 and 29 who are neither in education nor employed within the European Union. Compared to the EU average, in the last five years the percentage of NEETs in Romania has almost doubled, the difference being even greater for women. (Figure 1).

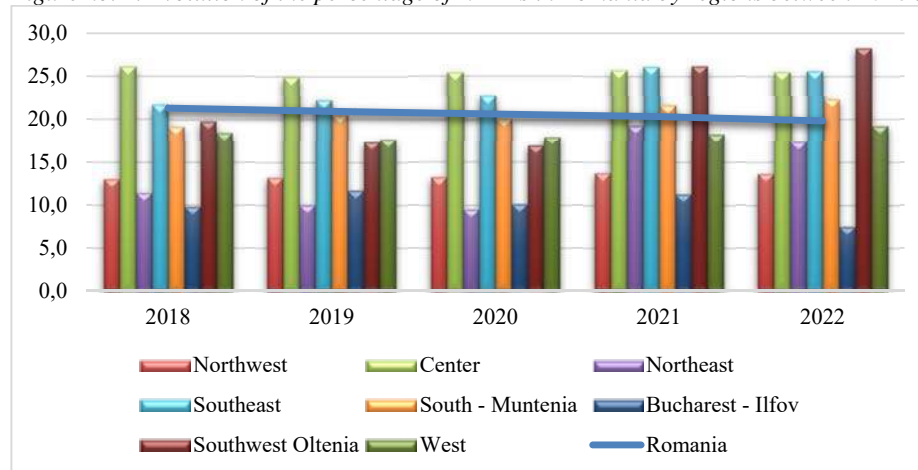
Figure no. 1. Evolution of the percentage of NEETs in Romania and EU between 2018 and 2022



Source: Authors' representation of data from Eurostat

At the regional level, disparities between the regions of Romania can be noticed, with much lower values compared to the national average in the Bucharest-Ilfov region and in the North-West region and much higher in the South-West Oltenia and South-East regions (Figure 2).

Figure no. 2. Evolution of the percentage of NEETs in Romania by regions between 2018 and 2022



Source: Authors' representation of data from Eurostat

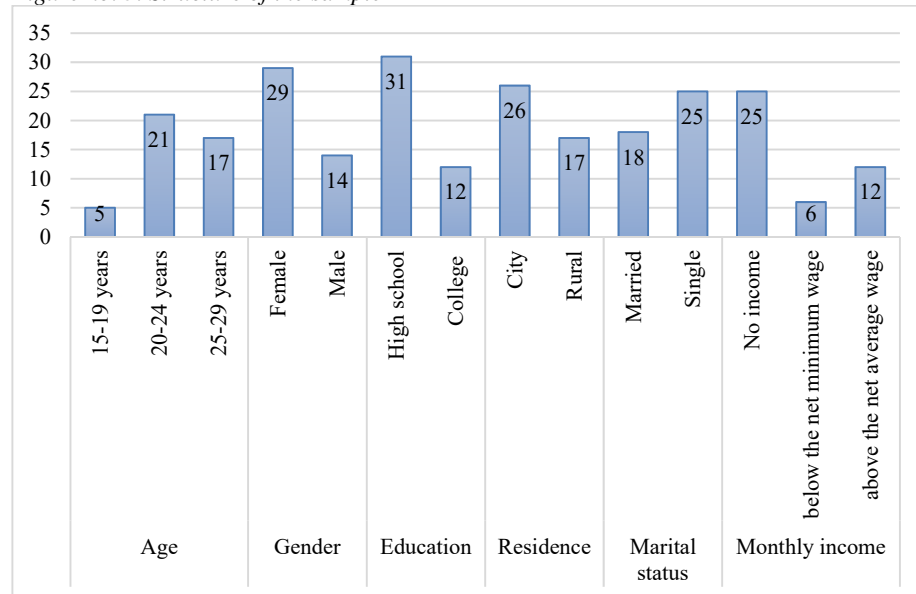


We believe that these data justify a research on the perceptions of young NEETs in Constanta County (part of the South-East region) regarding the opportunities and risks involved in financing an entrepreneurial endeavor.

The participants in our research were 54 NEETs, enlisted in an entrepreneurial skills training course. In a previous research conducted on the same group of young people (Antohi I, Ghita-Mitrescu S., 2022) we found that about 80% of them had a business idea at the time of enrolment in the entrepreneurial training course, which implies that they were also concerned to some extent with the issue of financing such an initiative. For this reason, we have selected only this subgroup for the present research.

Thus, 43 participants answered the questions related to business financing, distributed as follows (Figure 3):

Figure no. 3. Structure of the sample



Source: Authors' calculations

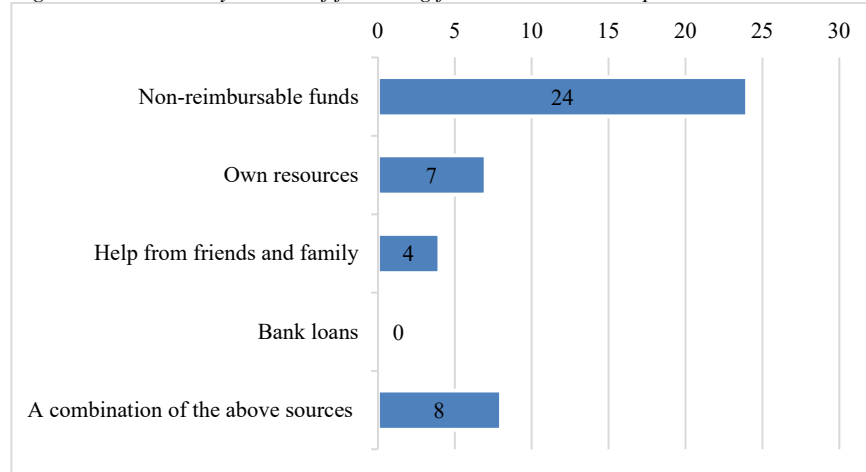
The group was made up of 67.44% women. Of these, 17.24% were aged between 15 and 19, 37.93% between 20 and 24, and 44.83% between 25 and 29. The majority of the women participating in the survey (72.41%) had a high school education and lived in the city (62.07%). In terms of income, 65.52% of the women stated that they had no source of income, 27.59% had income above the average net wage, and 6.90% had income below the minimum net wage.

Regarding the men who answered the questionnaire, the predominant age group was between 20 and 24 years old (71.43%), from urban areas (57.14%), with secondary education (57.14%) and without a stable source of income (42.86%).

First, participants were asked to choose the main source of finance they would like to use to open their desired business. Their answers are shown in Figure 4.



Figure no. 4. Primary source of financing for the desired entrepreneurial endeavor



Source: Authors' representation

It is noticeable the preference of more than half of respondents for non-reimbursable funds and the total lack of interest in accessing a bank loan. In the following table we have broken down the responses by categories of participants according to gender, age, residence, education and income (table 1).

Table no. 1. Sources of financing the business idea by demographic category

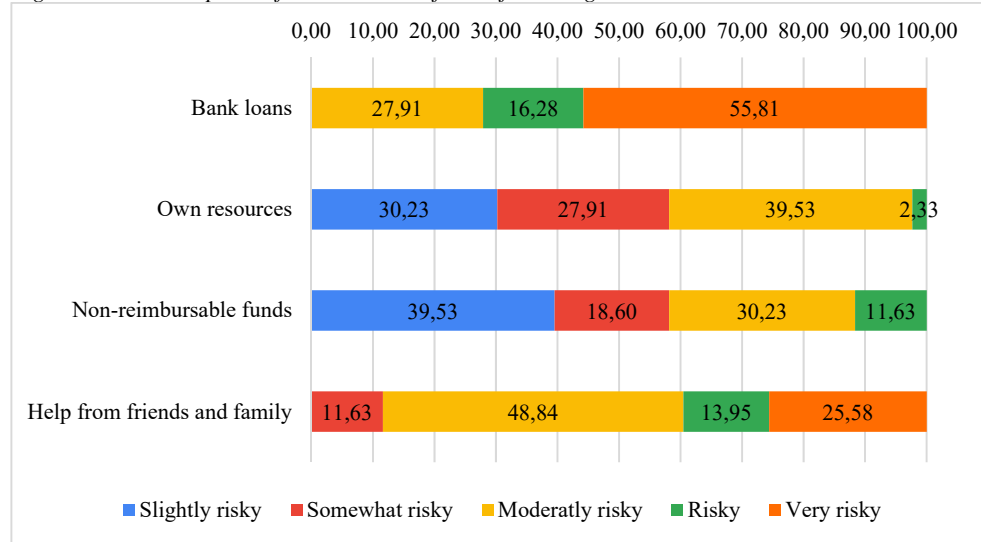
		Non-reimbursable funds	Own resources	Help from friends and family	A combination of sources
Gender	Male	6	4	4	-
	Female	18	3	-	8
Age	15-19 years	-	-	-	5
	20-24 years	14	7	-	-
	25-29 years	10	-	4	3
Education	High school	19	7	-	5
	College	5	-	4	3
Residence	City	15	4	4	3
	Rural	9	3	-	5
Monthly income	No income	14	3	-	8
	Below the net minimum wage	2	-	4	-
	Above the net average wage	8	4	-	-

Source: Authors' representation

Based on the data obtained, we tested for the existence of a statistically significant association between the choice of a particular source of funding and affiliation to one of the above groups, the only such correlation that could be established being between educational level and preference for a particular source of funding. The other correlations were statistically insignificant.

In order to further investigate the group's perception of sources of finance, we asked participants to rate the risks associated with each source of finance using a Likert scale from 1 (slightly risky) to 5 (very risky). The responses are summarized in Figure 5.

Figure no. 5. Perception of the riskiness of each financing source



Source: Authors' representation

Accessing a bank loan was rated as moderately risky to very risky by all participants, which correlates with the fact that none of the participants chose this as their main source of finance. The least risky sources of funding were considered to be non-reimbursable funds and own resources. By correlating the answers to the question regarding the preference for a specific source of financing and the perception of the degree of risk associated with each source, we can conclude that the participants in the study have a level of understanding of the risks specific to each source of financing and that they take these risks into account when choosing how to finance the business they want to start. Thus, the majority of respondents considered that the source they chose fell into the slightly risky to moderately risky risk category, attributing much higher values to the risks associated with the other sources of finance.

In the final stage of the research, we tried to identify the influencing factors on the preference for a given source of funding using a multiple linear regression model:

$$PFS = \alpha + \beta_1 BD + \beta_2 EK + \beta_3 ILF + \beta_4 RD + \beta_5 RFI$$

where:

PFS – preference for a financing source

BD – business domain

EK – entrepreneurial knowledges

ILF – insufficient level of financing

RD – reimbursement difficulties

RFI – requirements of the financing institutions

We ran a multiple regression analysis in SPSS and the results are presented below.

Table no. 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.680 <sup>a</sup>	.462	.390	.95804

a. Predictors: (Constant), BD, EK, ILF, RD, RFI

Source: Authors' representation using SPSS

The multiple correlation coefficient ( $R = 0.680$ ) indicates a good level of prediction, and the coefficient of determination ( $R^2 = 0.462$ ) states that 46.2% of the variation of the preference for a financing source can be explained by the five independent variables taken under consideration.

The next table presents the results of the ANOVA test performed for the variables in question:

Table no. 3. ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.203	5	5.841	6.363	.000 <sup>b</sup>
	Residual	33.960	37	.918		
	Total	63.163	42			

a. Dependent Variable: PFS

b. Predictors: (Constant), BD, EK, ILF, RD, RFI

Source: Authors' representation

As it can be observed from Table 3, the independent variables statistically significantly predict the dependent variable,  $F(5, 37) = 6.363$ ,  $p < .0005$ , therefore the regression model is a good fit of the data.

Based on the coefficients obtained from the multiple regression analysis performed, the regression model presents as follows:

$$PFS = 4.112 + (0.002 \times BD) - (0.503 \times EK) + (0.946 \times ILF) - (1.415 \times RD) + (0.570 \times RFI)$$

The value of the coefficients from the model above allows us to conclude that the business domain, insufficient level of financing and requirements of the financing institutions have a positive influence on the preference for financing sources, while entrepreneurial knowledge and reimbursement difficulties carry a negative influence on the variable.

## 5. Conclusions

For young people in the NEETs category, the transition from school to work can be difficult. This is why the European Union is constantly concerned about the problems of this group, and reducing the proportion of young people who are not in education and employment is one of the Union's strategic objectives. The aim is that through the policies and programmes implemented, the percentage of NEETs will be reduced to 9% in each Member State by 2030. If for some member countries this objective has already been reached or is easily achievable, the same cannot be said for Romania, currently in last place in the EU, with the highest percentage of NEETs among the population aged between 15 and 29. In Romania, at regional level, there are significant differences in the value of the indicator, which is much higher in the South-West and South-East regions, compared to the Bucharest-Ilfov region. It is also noted that the number of women in this category is much higher than that of men, just as the number of people in rural areas significantly exceeds that of people living in cities.

In this context, entrepreneurial education and helping young people to start a business can be an opportunity to decrease the percentage of NEETs, especially as previous studies have shown the inclination of young people towards entrepreneurial initiatives.

It goes without saying that one of the most important issues in starting and developing a business is identifying and accessing the necessary and sufficient sources of finance. That is why we found it useful to carry out a research on NEETs' perception of the sources of finance for an entrepreneurial initiative.

The study was carried out on a group of participants in an entrepreneurial skills training course that took place in the Constanta region between August and November 2022, through the distribution of a questionnaire. Out of the 60 participants in the course, 54 young people answered the questions, out of which we selected for the research the 43 who declared that they have a business idea already formed and that they want to develop.

After analyzing and processing the collected data, we found the preference of most participants for accessing non-reimbursable funds as the main source of business financing, but also a total lack of interest in bank loans. The answers received are in correlation with the assessment that participants made on the degree of risk of each source of financing.

We also established an influence of certain factors on participants' preference for a given source of funding using a multiple linear regression model. The influencing factors considered were the area in which they wanted to open a business, their self-assessed level of entrepreneurial knowledge and their assessment of three issues that may affect financing, namely the insufficient level of available funds, difficulties in repaying the source of financing and the requirements imposed by financing institutions. The statistical analysis showed a positive influence of business domain, insufficient level of financing and requirements of the financing institutions and a negative influence of entrepreneurial knowledge and reimbursement difficulties.

We believe that the results of this study can be a starting point for the development of future research that will analyze other factors influencing the perception of business financing issues and that will be extended to a larger group of participants.

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## Level of Financial Education in South-Eastern Europe

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### Abstract

*Financial literacy refers to a person's knowledge and skills in managing personal finances and making wise financial decisions. Adequate financial education is essential for making informed choices and avoiding financial problems. The purpose of this academic article is to examine and analyse the importance and the impact of financial education in the current economic and social context. The article will explore the factors that influence the level of financial education and the barriers to implementing effective programs. The study aims to analyse the financial knowledge, behaviour and attitudes of people in South East Europe. The research methods provide an overview of the level of financial education in the South-East European regions, based on comparable data and rigorous analysis. The results of the study are the pillar for the developing effective financial education policies and programmes in the regions in order to make better decisions and ensure long-term financial security.*

**Key words:** financial literacy, financial instruments, household saving

**J.E.L. classification:** G53, G23, G51

### 1. Introduction

Financial education is a topic of major interest in the financial and economic field, with a significant impact on the individual and society as a whole. A good understanding of financial concepts and principles is crucial in making informed decisions and managing personal and business finances effectively. In recent decades, financial education has gained increasing attention and has been recognised as an essential tool for economic growth, financial stability and reducing social inequalities.

Previous studies and research have highlighted the benefits of financial education and its impact on individuals' financial behaviour. Individuals with a sound financial education are more likely to save responsibly, plan their budget, invest strategically and avoid excessive debt or risky financial decisions. Financial education has also been associated with increased personal savings, reduced debt, and improved individual financial stability and overall well-being. There is a wide range of financial knowledge and skills, from basic concepts such as managing a budget and saving, to a complex understanding of investments, taxes or long-term financial planning.

In addition, financial education is considered an important factor in developing entrepreneurship and entrepreneurship. People with a solid understanding of personal financial knowledge and debt management are more likely to succeed in starting and growing their own businesses. The ability to make informed decisions about financing, budget planning and cash flow management is crucial to entrepreneurial success and economic growth in general.

However, there are still significant gaps in financial education, both at individual, community and institutional levels. Some social and demographic groups, such as marginalised communities or low-income people, may have limited access to financial education and traditional financial services,

which can expose them to financial risk and exploitation. Thus, a comprehensive approach is needed to develop and implement effective and accessible financial education programmes that are inclusive and address the specific needs of different population groups.

By investigating and further understanding financial education, this article aims to make significant contributions to the development of financial education policy and practice, promoting financial stability, individual well-being and economic progress in society.

## 2. Literature review

Financial education is an essential tool for economic progress as it enables individuals and communities to make informed financial decisions. As Alan Greenspan, former Chairman of the Federal Reserve, noted, "the degree of financial literacy in a society is directly related to the economic success of that society" (Greenspan, A., 2002). Financial education enables individuals to understand and effectively manage their personal finances, including budgeting, saving and investing. It also enables them to make informed decisions when it comes to borrowing, such as taking out loans or using credit cards. By increasing financial literacy, individuals and communities can develop greater financial resilience and stability, which in turn can contribute to overall economic growth and development (Greenspan, A., 2002). Therefore, it is essential that financial literacy education be widely available and accessible, especially to marginalized communities and underserved populations. Improving financial literacy can be achieved through a variety of means, including financial education courses and programmes, specialised reading and online resources, attending seminars or consulting a professional financial planner.

The economic importance of financial education is a topic of growing importance in today's society. Financial education is the ability to understand and effectively manage one's finances, including knowledge of financial concepts and products such as stocks, bonds and insurance. According to a study by Lusardi and Mitchell (2014), there is a significant relationship between financial education and economic outcomes. The study found that people with higher levels of financial literacy are more likely to save, invest and plan for the future. They are also less likely to engage in risky financial behaviours, such as high levels of debt or taking out high-interest loans. Financially educated individuals are more likely to be financially secure in their later years, which is critical given that retirement savings are becoming increasingly important as traditional retirement plans become less common (Lusardi, A., Mitchell, O. S., 2014). The study also found that financial education is positively associated with wealth accumulation, as financially educated individuals are more likely to invest in stocks and other higher-yielding assets (Lusardi, A., Mitchell, O. S., 2014). Overall, the evidence suggests that financial education plays a crucial role in shaping economic outcomes, underscoring the need for more financial education programs to be made available to the general public.

Cupak's (2021) study has important implications for policy makers and educators. The findings suggest that efforts to improve financial education should focus on both individual characteristics, such as education, and institutional factors, such as the availability of financial education programs. Moreover, the study highlights the need for policymakers to consider differences in financial education across countries when designing financial education programmes. By taking into account the unique institutional and individual characteristics of each country, policymakers can design programmes that are better tailored to the needs of their citizens. In conclusion, the study by Cupak (2021) provides valuable insights into the factors that influence financial education in different countries. The authors found that both individual characteristics and institutional factors play an important role in determining financial literacy. The study findings have important implications for policymakers and educators and highlight the need for tailored financial education programs that take into account the unique characteristics of each country. Financial education is an essential component of financial literacy and plays a crucial role in shaping individuals as responsible and informed financial decision-makers.

As the global economy becomes increasingly complex and interconnected, the development of financial skills and knowledge becomes an imperative necessity to ensure individual and collective stability and well-being. The aim of this study is to analyse the level of financial literacy in the South-East European region, with a focus on the financial knowledge, behaviour and attitudes of the

population. By assessing these key issues, we aim to identify gaps and opportunities for improving financial education in the region, with the aim of promoting a healthy and sustainable financial culture. To better frame the importance of our study, it is useful to refer to experts and researchers in the field of financial education: Dr. Lewis Mandell, Professor Emeritus of Economics and Finance, points out that "financial education has a significant impact on the well-being of individuals and society as a whole. Sound financial skills not only help us make informed decisions and avoid financial risks, they also give us the tools we need to achieve our long-term financial goals" (Mandell, L., 2009).

The interplay between financial education, financial inclusion and financial stability has become increasingly important in today's high-tech age. According to Jonker and Kosse (2020), financial education and knowledge are essential for individuals to make informed financial decisions and avoid financial pitfalls. On the other hand, financial inclusion refers to the ability of individuals to access financial services and products. It has been shown that financial inclusion can promote economic growth and reduce poverty (Jonker, N. and Kosse, A., 2022). However, the rise of Big Tech companies in the financial sector has raised concerns about the impact on financial stability. Big Tech companies have the potential to disrupt traditional financial institutions, but also pose a threat to financial stability because of their size and interconnectedness (Jonker, N. and Kosse, A., 2022).

In light of these views and the impact that financial education has on the individual and society, our objectives are: To assess the current level of financial education in the South-East European region by analysing the financial knowledge, behaviour and attitudes of the population. Identify factors influencing the level of financial education and identify specific gaps requiring improvement. Propose directions and recommendations for financial education policies and programmes to support the development of financial skills in the region. By addressing these objectives, we aim to make significant contributions to promoting financial education in the South East Europe region and improving financial stability and individual well-being.

### **3. Research methodology**

The research methodology used in this study involved a secondary source approach. Data were taken from an international survey on financial education, coordinated by the Organisation for Economic Co-operation and Development (OECD) and the International Forum of Financial Education Experts (INFE). The survey involved the participation of 26 countries and economies, including 12 OECD member countries.

The data used in this study were collected through national surveys conducted in each participating country. These surveys used the OECD/INFE 2018 toolkit to ensure data comparability. Survey questions covered different aspects of financial education, including financial knowledge, behaviour and attitudes.

Appropriate statistical and analytical methods were used to analyse the data collected. These methods allowed the identification of differences and similarities in the level of financial education between countries and economies, as well as the assessment of financial knowledge, behaviour and attitudes within the South-East European region.

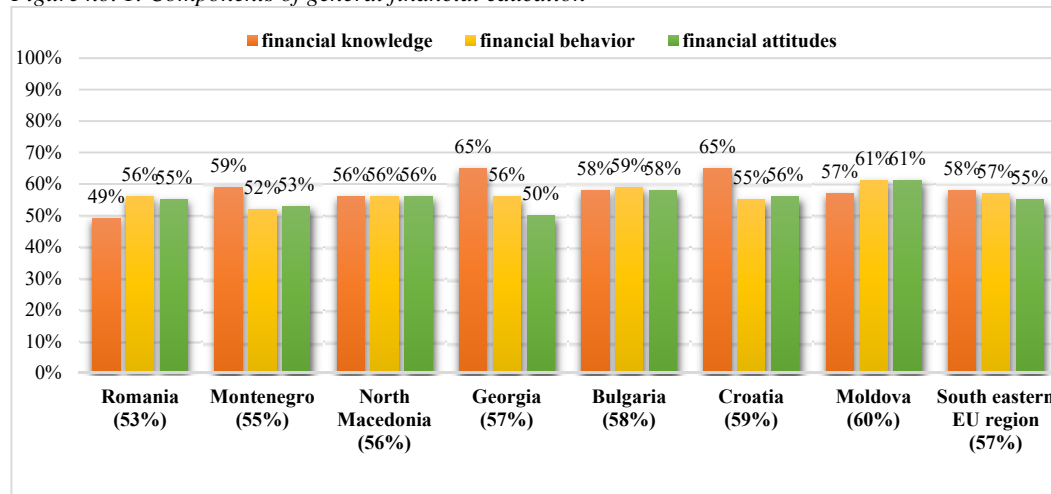
Using this research methodology, the study provided a detailed insight into the level of financial education in the South-East European region, based on comparable data and rigorous analysis. These results can serve as a basis for the development of effective financial education policies and programmes in the region.

### **4. Findings**

Financial literacy is a complex phenomenon, consisting of a combination of knowledge, attitudes and behaviours, as shown in Figure 1.



Figure no. 1. Components of general financial education



Source: (OECD, 2020)

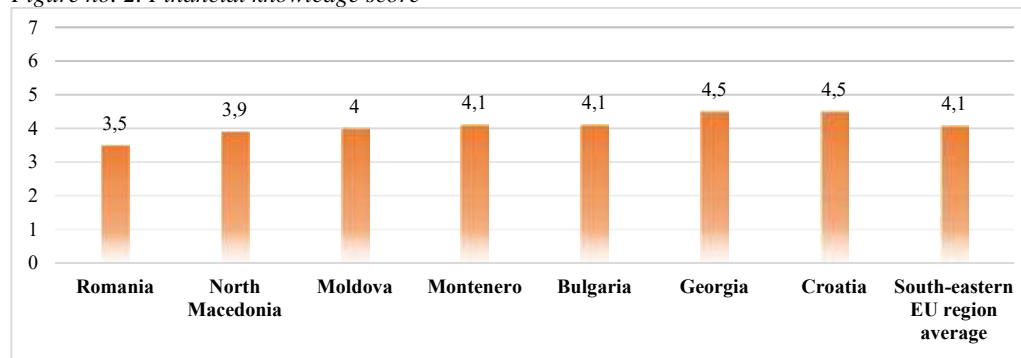
In terms of financial knowledge, Romania stands out with the lowest level, scoring 49%. This indicates the need for more attention to be paid to the provision of financial education in this country. In contrast, Georgia and Croatia score higher on financial knowledge, with 65% each. This suggests that these two countries are better prepared in terms of financial knowledge and could benefit from more advanced financial education programmes.

In terms of financial behaviour, Montenegro stands out for its more positive financial behaviour, scoring 59%. This indicates greater financial responsibility and more effective management of personal finances in this country. Bulgarians and Croatians also score highly on financial behaviour, with both countries scoring 58%. This suggests that people in these countries are adopting healthy financial habits and practices.

In terms of financial attitude, Bulgaria and Croatia show a more favourable financial attitude, both scoring 58%. This may indicate greater confidence in their own financial abilities and a positive attitude towards managing personal finances in these countries. Romania and South-East Europe score similarly on financial attitude, at 55%. This may indicate the need to improve attitudes and mindset towards personal finance management in this region.

This detailed analysis of the components of financial education in the South East Europe region shows that there are significant variations between countries in terms of financial knowledge, financial behaviour and financial attitudes. Thus, for Romania, these percentages represent a call to action to develop and implement effective financial education programmes and policies to improve the level of financial knowledge, behaviour and attitude among the population. By increasing the level of financial education, Romania can promote the financial well-being of individuals and contribute to the development of a more financially stable and resilient society.

Figure no. 2. Financial knowledge score



Source: (OECD, 2020)

Looking at financial literacy scores in the South-East Europe region, we can see significant differences between the countries analysed. Georgia and Croatia stand out with the highest scores in financial knowledge, both scoring 4.5. This suggests that the population in these countries has a more advanced level of preparation and understanding of financial concepts. This result can be attributed to efforts to promote financial education and the involvement of the education sector and government in developing citizens' financial skills.

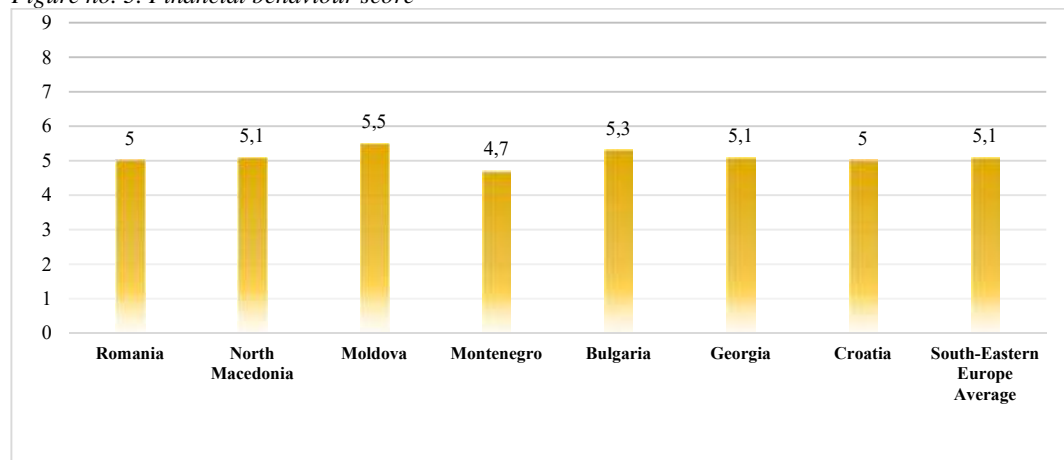
On the other hand, Romania scores lower than 3.5 in financial knowledge, indicating a lower level of financial literacy. This may be the result of a lack of emphasis or resources in financial education in the education system and in Romanian society in general. To improve this situation, more attention needs to be paid to financial education in schools, as well as the development of accessible educational programmes and resources for adults.

Moldova and Montenegro score 4 and 4.1 respectively in financial literacy. This indicates an average level of financial literacy in these countries. Improving these scores can be achieved by increasing accessibility to financial information and educational resources, encouraging participation in financial education programmes and creating an environment conducive to the development of financial skills.

Bulgaria scores 4.1 in financial literacy, indicating an average level of financial literacy in this country. Improving this score may involve implementing more advanced financial education programmes and promoting a culture of financial literacy among the population.

In conclusion, the analysis of financial literacy scores in the South-East European region reveals the need for more attention to financial education in most countries. There are significant variations in the level of financial literacy in this region, with Georgia and Croatia recording the highest scores and Romania the lowest. In order to improve the level of financial education, it is necessary to involve governments, educational institutions, non-governmental organisations and the private sector in the development and implementation of effective financial education programmes and initiatives.

Figure no. 3. Financial behaviour score



Source: (OECD, 2020)

The financial behaviour scores for the countries mentioned (Figure 3.) give an overview of the stage of development and financial behaviour of the population in the South-East European region. Assessment and analysis of these scores can provide insight into the level of understanding of financial concepts and the level of involvement in personal financial management.

Romania, with a score of 5, is in the average of the South-East European region in terms of financial behaviour. This score indicates an average understanding of financial concepts and a moderate level of involvement in managing personal finances. There is still room for improvement and for increasing financial education among the population.

North Macedonia and Georgia, both with scores of 5.1, are at a similar level in terms of financial behaviour. These countries indicate an average understanding of financial concepts and moderate involvement in managing personal finances. There are opportunities to promote financial education and encourage a more proactive and responsible approach to managing personal finances.

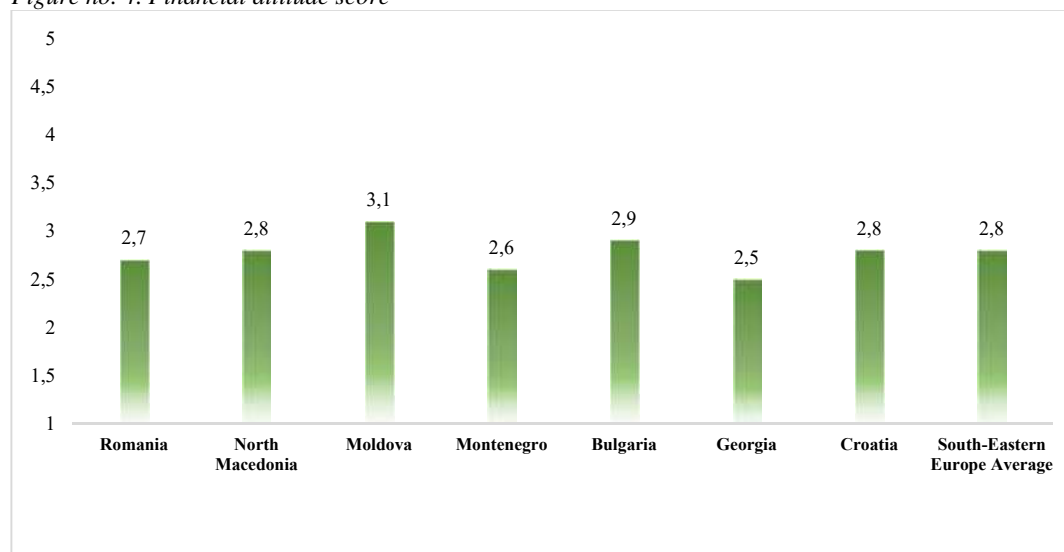
Moldova, with a score of 5.5, and Bulgaria, with a score of 5.3, rank slightly higher in terms of financial behaviour. These scores indicate a relatively higher understanding and involvement in managing personal finances compared to the other countries mentioned. However, there are still needs and opportunities for improvement and for promoting a sound financial culture among the population.

Croatia, with a score of 5, is at the average level of the region in terms of financial behaviour. This score indicates an average understanding of financial concepts and a moderate level of involvement in managing personal finances. There are opportunities for increasing financial literacy and encouraging more responsible and efficient financial behaviour.

Montenegro, with a score of 4.7, scores slightly lower on financial behaviour. This indicates possible needs and challenges in managing personal finances and understanding financial concepts. Financial education and support for the development of financial skills may be key aspects in promoting a healthy financial culture in this country.

Overall, these scores show that there are opportunities for improvement and for the promotion of more robust financial education in the South East Europe region. Developing financial skills and knowledge can contribute to improving people's financial behaviour and better managing their personal finances.

Figure no. 4. Financial attitude score



Source: (OECD, 2020)

The financial attitude scores for countries in the South East Europe region reflect the general level of understanding, involvement and behaviour regarding financial issues.

Assessing these scores can provide insight into the level of understanding, awareness and engagement in managing personal finances and financial decisions.

Romania, with a score of 2.7, and Montenegro, with a score of 2.6, have relatively low levels of financial attitude. These scores may indicate a need to improve understanding and involvement in personal finance management in these countries. Financial education and awareness can play an important role in improving people's financial attitudes.

Northern Macedonia, Croatia and the South-East Europe region score 2.8 on financial attitudes. These scores indicate similar levels of financial literacy, reflecting a general need to increase financial awareness and education in these countries and in the region as a whole.

Moldova, Bulgaria and Georgia, with scores of 3.1, 2.9 and 2.5 respectively, have slightly higher levels of financial attitude than the other countries mentioned. These scores may indicate a higher degree of understanding and involvement in personal finance management in these countries. However, there are still opportunities to improve and promote financial education to strengthen financial attitudes and responsible financial behaviour.

Overall, financial attitude scores in the South-East Europe region indicate the need to increase financial education and awareness to promote positive attitudes and responsible financial behaviour. Developing financial skills and increasing understanding can contribute to improving personal financial situation and better management of financial resources in this region.

## 5. Discussion and conclusions

Analysis of financial literacy scores in the South-East Europe region reveals a significant variation in the level of financial understanding and preparedness among the countries analysed. Georgia and Croatia stand out with the highest scores, indicating an advanced level of financial knowledge and a deep understanding of financial concepts. These results suggest the success of efforts to promote financial education and the involvement of the education sector and government in developing citizens' financial skills. The results of Georgia and Croatia can serve as best practice models for other countries in the region in promoting and implementing effective financial education.

However, Romania has a lower level of financial literacy compared to the best performers. The relatively lower score of 3.5 indicates a need for improvement in the financial understanding and preparation of the Romanian population. This can be attributed to a reduced emphasis on financial education in the education system and in Romanian society in general. To overcome these challenges, a broader and more coherent approach is needed in promoting financial education in schools and through the development of accessible educational programmes and resources for adults.

Romania's results can be compared with the best results achieved by Georgia and Croatia. A significant difference in the level of financial literacy can be observed, with Romania showing a clear deficit in the understanding and application of financial concepts. To improve this, the Romanian authorities need to give higher priority to financial education in the education system, develop and implement effective financial education programmes and promote a culture of financial literacy among the population.

The recommendations in this context aim to develop and strengthen financial education in Romania. First of all, the school curriculum needs to be revised to include specific content in the area of personal finance and responsible money management. It is also necessary to create partnerships between educational institutions, financial organisations and civil society in order to provide quality training programmes and educational resources tailored to the needs of the population.

At the same time, it is crucial to promote and facilitate access to relevant and reliable financial information for the population. Government authorities and financial institutions should work together to develop accessible online tools and platforms that provide practical financial advice and guidance to citizens.

It is also important to raise awareness and promote the benefits of responsible financial management among the population. Organising information and financial education campaigns in communities, in partnership with financial institutions and non-governmental organisations, can help to increase the involvement and responsible financial behaviour of the population.

To achieve these goals, effective coordination is needed between government institutions, educational institutions, financial organisations and civil society. A close and synergistic collaboration between these stakeholders can ensure the development and implementation of a coherent and sustainable financial education strategy in Romania, thus contributing to the improvement of the financial knowledge and behaviour of the population.

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## The Impact of Economic Freedom on the Economic Growth in EU Countries

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### Abstract

*This paper aims to examine the relationship between economic growth and economic freedom in the member states of the European Union (EU) from 2005 to 2020. By employing various statistical approaches, including The Ordinary Least Squares, Random Effect Model, and Fixed Effect Model, we analyze the data to estimate the overall and individual effects of economic freedom on economic growth. The present study concludes that the economic freedom has an impact on the economic growth phenomena and that the freedom economic liberalization contributes to a much better economic wellbeing of the population and determines an increasing tendency of the economy. After we independently evaluated different sub-indicators of economic freedom, we have discovered that the values of the majority of the economic freedom indicators have a significant contribution.*

**Key words:** economic freedom, economic growth, panel data

**J.E.L. classification:** F43, O47

### 1. Introduction

GDP per capita, or income per capita is a macroeconomic indicator that measures the relationship between the level of income of a country and its population. Economic growth is the most powerful mechanism of maintaining a high level of living standards which means a long-term increase of the GDP for every person that lives in that country. Among the achievement of the economic and social objectives of a society, economic growth is one of the primordial problems and government aspirations. (Moroianu and Moroianu, 2012).

Identifying the factors that lead to economic growth is of crucial importance for economic growth and social wellbeing. This thing requires an empirical analysis made by a various number of researchers and a literature review to strengthen the opinions of the economists.

Over the last decade, the economic freedom index and its sub-indexes were studied very much to see their impact on economic growth. Many papers that use statistical methods to establish the connection and respond to the main objectives: What is the relation? It exists? If it exists, then in which way? and What is the main component of the economic freedom that favors the economic growth? were published.

Economic freedom represents a central theme when debating an economic policy and its impact on economic growth. In a world where economies and societies are getting more and more interconnected, analyzing the role of economic freedom in development and nations prosperity is becoming highly important.

A solid and efficient juridic system that protects the rights on the property is essential for economic growth because it encourages innovation and investment (Weede, 2012). The rights over the property ensures that the resources are efficiently allocated and that the companies and individuals can benefit from their labor efforts, therefore stimulating the way to riches and economic development.

A low level of corruption is associated with a healthier economic environment and with faster economic growth. By fighting corruption and promoting transparency, governments can create a propitious environment for investments and economic growth.

Fiscal freedom, that refers to the level and the structure of taxes from a country, can directly influence economic growth. Low and simplified taxes can stimulate economic activity by creating an adequate environment for investment and productivity increase. (Gouider, 2022).

The level and efficiency of the governmental expenses can also have a significant impact on the economic growth. Governmental expenses orientated towards infrastructure investments, education and health can contribute to a long-term economic growth meanwhile a high level of unsustainable expenses can generate macroeconomic unbalances that can put a brake on the economic growth.

A healthy, friendly business environment with reduced regulation and simplified administrative procedures favorize innovation, competitiveness and creates new businesses. This fact can create, in his terms, new working places and an economic growth (Khyareh and Zamani, 2023).

Market flexibility and protection of the employees' rights are important factors in determining economic growth (Cebula, 2016; Bennett, 2016). A flexible labor market can help with economic and technological adjustments stimulating productivity and economic growth. Still, the adequate protection of the workers' rights is necessary to ensure social stability and sustainable development.

Monetary stability, that involves maintaining a low level of inflation and controlling currency risks, is crucial for economic growth (Pourshahabi et al., 2011). In this context, monetary freedom refers to the central bank's capacity to implement efficient and transparent monetary policies to ensure price stability and facilitate economic growth.

An open and competitive investment environment with low regimentation and adequate protection of the investors attracts direct foreign investment (FDI) and stimulates national investment (Singh and Gal, 2020). Those investments can contribute to infrastructure development, productivity and competitiveness growth and can create new working places, thus promoting economic growth (Addi and Abubakar, 2022).

An efficient and liberalized financial system is essential for economic growth (Hussain and Haque, 2016). Financial freedom facilitates access to finance for companies and households, sustaining both investment and consumption and finally contributing to economic growth.

This article aims to examine the influence of economic liberty on the economic growth of European Union (EU) member countries. The research will also examine the impact and relative importance of the sub-indexes of economic freedom (Right to property, Freedom from Corruption Index, Fiscal Freedom Index, Government Spending, Business Freedom Index, Labor Freedom Index, Monetary Freedom Index, Investment Freedom Index, Financial Freedom Index) over the economic growth. This study will determine which of the analyzed components promotes more efficiently the economies of the EU member countries.

In our study, we aim to investigate and provide insights into the following question: What is the impact of economic freedom on economic growth?

Our study analyzes all the EU member countries from 2005-2020. In the second section of the paper, we presented the revised scientific literature review and in section three we have described the data used and the research methodology. The final part of the paper is dedicated to the conclusions.

## **2. Literature review**

Economic freedom, through its various sub-indexes, plays a significant role in economic growth. A free and open economic environment that protects the right to property, limits corruption, promotes fiscal and monetary stability and stimulates investments and innovation can encourage sustainable development and long-term prosperity.

There are various arguments in favor of a direct relation between economic freedom and economic growth. First, economic freedom allows resources to be efficiently allocated depending on offer and demand which will lead to growth in productivity and incomes (Befas, 2019). Also, by reducing market entry barriers and bureaucratic restrictions, economic freedom stimulates innovation, competitiveness and creates new businesses this can create new working places and economic growth.

Another aspect that sustains the relationship between economic freedom and economic growth is the influence over a direct foreign investment (FDI). A free and open economic environment with reduced regulations and an adequate protection over the right to property is attractive for the investors that can bring capital, technology, and expertise in that specific country (Doucouliagos and Ulubasoglu, 2006). This fact can stimulate infrastructure development, productivity and competitiveness growth as well as creating new working places and economic development. De Haan and Sturm (2000) in their empirical analysis have reached the conclusion that more economic freedom favors economic growth, but the freedom level is not related to the growth. In other words, much more economic freedom will bring countries much faster to their balanced economic growth if those countries are below this level, but if the economic growth level is constant then the economic freedom level is not affected. An analysis done by Doucouliagos (2005) shows that a positive, relevant, and statistical significance association exists between economic freedom and economic growth. Regardless of the sample of countries, by the measure of economic freedom, there is a strong observation of a direct positive association between economic freedom and economic growth. The link between those indicators is significant from both a statistical and economic point of view (Duan et al., 2022).

After reviewing the specialized literature two statements are supported: economic freedom can impel high levels of economic growth and it's an important aspect of the performance (e.g., Cebula and Clark, 2014; Hussain and Haque, 2016; Bennet, 2016; Kacprzyk, 2016) or the opinion that promotes the idea that is no relationship between growth and economic freedom (Heckelman, 2000; Justesen, 2008).

Therefore, we can establish the hypotheses of our study:

$H_0$ : Economic freedom has an impact over the economic growth

$H_1$ : Economic freedom has no impact over the economic growth

### 3. Research methodology

A graphic analysis of GDP per capita for the 27 EU countries from the period 2005, 2020 is presented in Figure 1 and Figure 2.

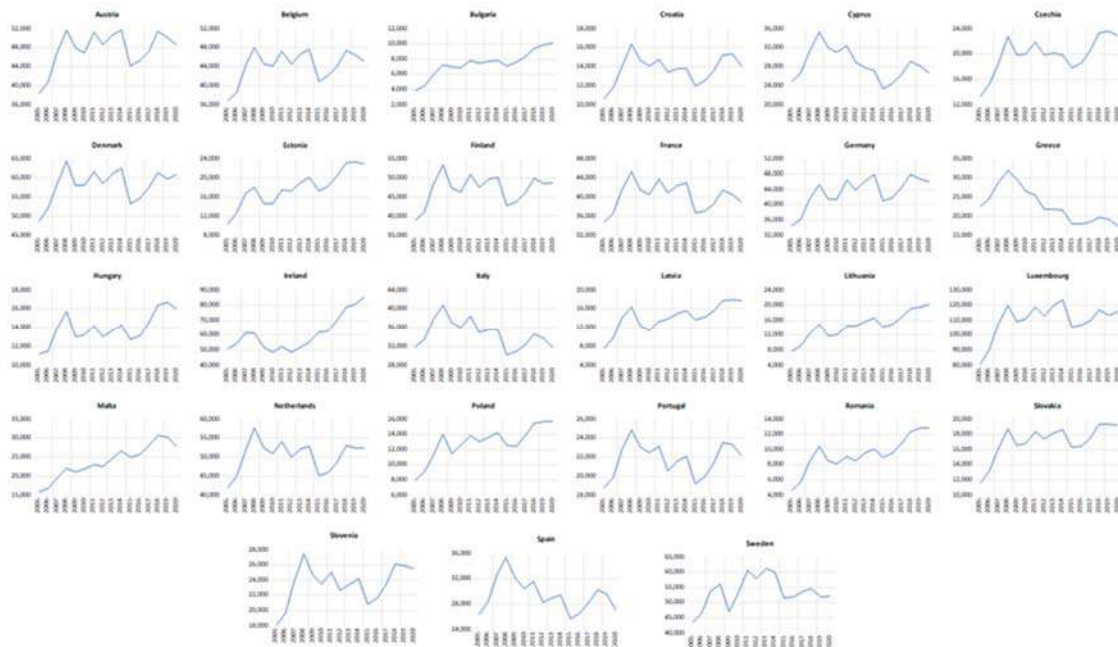
In figure number 1, GDP per capita, we observe that in the years 2008-2009 there is a downward trend in all countries due to financial crisis, which had as origin point the mortgage crisis from USA and shook the entire global economy. After which an increase is observed, and in the years 2014-2015 we observe again a decrease that occurred in the euro zone, due to the conflict from Ukraine, that had limited financial implications over the credit institutions.

After these decreases, the GDP per capita from the entire sample (27 countries) begins to have an upward trend, in 2017 with 6.08% more than in 2016, with a value of \$33,078, and in 2018 with 7.98% more than in 2017, reaching the value of \$35,719. Almost reaches to the maximum levels, but due to the pandemic crisis, this trend hasn't occurred, and it decreased again, in 2019 by 2.12%, and a value of \$34,960 compared to 2018, and in 2020 with 2.95% less than in 2019, the average value being \$33,928.

The dependent variable represents GDP per capita, as a measurement indicator of economic growth in EU countries. The independent variables for this empirical research are represented by the constituents of Index of Economic Freedom by Heritage Foundation (Property Rights, Freedom from Corruption Index, Fiscal Freedom Index, Government Spending, Business Freedom Index, Labor Freedom Index, Monetary Freedom Index, Investment Freedom Index, Financial Freedom Index), and the control variables: Interest rate for business loans, Number of taxes paid by businesses, Economic Globalization Index and Human Development Index.

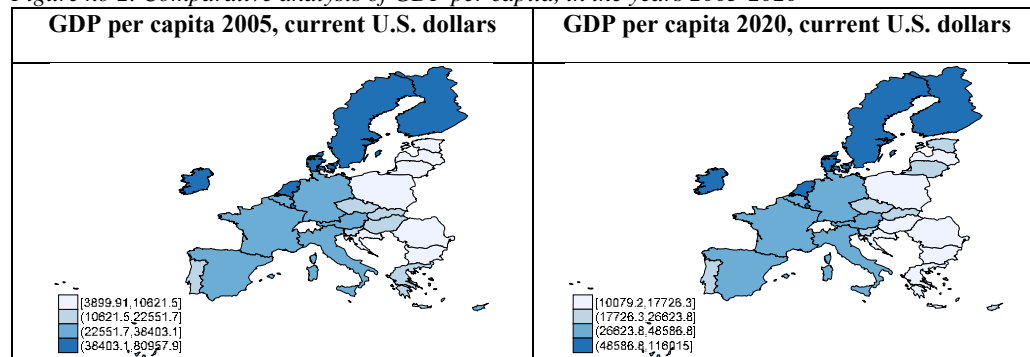


Figure no. 1. GDP per capita evolution in the EU member countries, 2005-2020, USA dollars



Source: processed by the authors based on statistical data from <https://www.theglobaleconomy.com>

Figure no 2. Comparative analysis of GDP per capita, in the years 2005-2020



Source: processed by the authors based on statistical data from <https://www.theglobaleconomy.com>

This study is realized by analyzing the data electronically collected regarding the state of economic freedom and economic growth of the European Union countries. The sample includes all 27 EU member countries. Regarding the timeline, panel data was used, in which we observed the same phenomena - economic freedom and economic growth at different time intervals. Thus, the collected data covers a period of 16 years, from 2005 to 2020. This number of years is considered relevant to carry out the panel study, with the purpose of obtaining relevant and significant results.

In the present study the data's regarding the sub-indexes of economic freedom, economic growth that is measured by GDP per capita, and other indicators used in the paper were collected from the website: [https://www.theglobaleconomy.com/indicators\\_list.php](https://www.theglobaleconomy.com/indicators_list.php).

*Table no.1 Description of dependent and independent variables*

<b>Variable type</b>	<b>Abreivation</b>	<b>Variable name</b>	<b>Definition</b>	<b>Sign</b>
Dependent	<b>GDP/c</b>	<b>GDP per capita</b>	GDP per capita is the GDP divided to the population from the middle of the year. The data is in the actual American dollars.	
Independent	<b>PrRg_In</b>	<b>Property rights index, 0-100</b>	The property rights index assesses the level of legal protection provided to private property rights within a country and the effectiveness of their enforcement. A higher value on the index indicates stronger legal safeguards for property ownership.	+
Independent	<b>FrCorr_In</b>	<b>Freedom from corruption index, 0-100</b>	The Freedom from Corruption Index score serves as a measure of public perception regarding corruption within the public sector, derived mainly from Transparency International's Corruption Perceptions Index. A higher score on this index indicates a lower level of perceived corruption.	+
Independent	<b>FsFr_In</b>	<b>Fiscal freedom index, 0-100</b>	The fiscal freedom index gauges the extent of the fiscal burden imposed by the government, encompassing three quantitative factors: the top marginal tax rate on individual income, the top marginal tax rate on corporate income, and the total fiscal taxes as a percentage of GDP.	+
Independent	<b>GovSp</b>	<b>Government spending as % of GDP</b>	Final consumption expenses of the public administration, encompass all current expenditures made by the government for the procurement of goods and services	-
Independent	<b>BussFr_In</b>	<b>Business freedom index, 0-100</b>	The business freedom index is derived from 10 indicators that utilize data from the World Bank's "Doing Business" study. These indicators include factors such as the procedures, time, cost, and minimum capital required for starting a new business, as well as the procedures, time, and cost associated with obtaining a license. Additionally, the index considers the time, cost, and recovery rate involved in closing a business.	+
Independent	<b>LabFr_In</b>	<b>Labor freedom index, 0-100</b>	The labor freedom index is constructed using six quantitative factors which contribute to the overall assessment of labor freedom within a given context.	+
Independent	<b>MonFr_In</b>	<b>Monetary freedom index, 0-100</b>	The monetary freedom index score is determined by two factors: the weighted average rate of inflation over the past three years and the presence of price controls. A higher index value signifies greater monetary freedom, characterized by price stability and minimal microeconomic intervention.	+
Independent	<b>InvFr_In</b>	<b>Investment freedom index, 0-100</b>	The Investment Freedom Index assesses a range of investment restrictions, including burdensome bureaucracy, limitations on land ownership, expropriation of investments without fair compensation, exchange controls, capital controls, security concerns, and inadequate investment infrastructure. This index provides a comprehensive evaluation of the barriers and challenges faced by investors in a given jurisdiction.	+
Independent	<b>FinFr_In</b>	<b>Financial freedom index (0-100)</b>	The Financial Freedom Index assesses several dimensions, including the extent of	+

			government regulation in financial services, the degree of state intervention through ownership in banks and other financial institutions, the level of financial and capital market development, government influence on credit allocation, and openness to foreign competition. A higher value on this index indicates greater banking efficiency, independence from government control, and reduced interference in the financial sector.	
Control variable	<b>BussCr</b>	<b>Business credit interest rate, %</b>	The business credit interest rate refers to the average interest rate charged by commercial banks on credit products provided to non-financial companies.	-
Control variable	<b>TaxBuss</b>	<b>Number of taxes paid by businesses</b>	Taxes paid by businesses encompass the aggregate amount of taxes paid by businesses.	-
Control variable	<b>HumDev_In</b>	<b>Human Development Index, 0 - 1</b>	The Human Development Index (HDI) quantifies three fundamental dimensions of human development: longevity, education, and standard of living.	+
Control variable	<b>EcGl_In</b>	<b>Economic globalization index, 0-100</b>	Economic globalization encompasses two main dimensions: actual economic flows and trade and capital restrictions.	+

Source: processed by the authors using the data from  
[https://www.theglobaleconomy.com/indicators\\_list.php](https://www.theglobaleconomy.com/indicators_list.php)

#### 4. Findings

Linear regression analysis (Table 2), commonly conducted using the method of least squares, is a widely employed statistical modeling technique. Multiple regression, a term introduced by Pearson in 1908, aims to demonstrate the relationship between a dependent variable (GDP per capita) and a collection of independent variables (explanatory, factorial, exogenous variables): Property rights, Freedom Index to Corruption, Fiscal Freedom Index, Government Expenditure, Business Freedom Index, Labor Freedom Index, Monetary Freedom Index, Investment Freedom Index, Financial Freedom Index, Interest Rate on Business Credits, Number of Taxes Paid by enterprises, the Economic Globalization Index and the Human Development Index. The primary objective is to understand how the set of independent variables influences the dependent variable.

The empirical function is represented:

$$\text{GDP/c} = F(\text{PrRg\_In}, \text{FrCorr\_In}, \text{FsFr\_In}, \text{GovSp}, \text{BussFr\_In}, \text{BussCr}, \text{LabFr\_In}, \text{MonFr\_In}, \text{InvFr\_In}, \text{FinFr\_In}, \text{TaxBuss}, \text{HumDev\_In}, \text{EcGl\_In})$$

Table no. 2. Estimating the parameters for the linear regression model: EU-27 countries

Dependent variable: <i>GDP/c</i> (included observation: 432)			
<i>Variable</i>	<i>Coefficient</i>	<i>t-Statistic</i>	<i>P-val.</i>
<b>c</b>	- 87472.60	-3.239267	0.0013
<b>PrRg_In</b>	182.7785	2.583670	0.0101
<b>FrCorr_In</b>	582.6876	7.661000	0.0000
<b>FsFr_In</b>	566.0126	8.936838	0.0000
<b>GovSp</b>	- 3002.636	-10.824414	0.0000
<b>BussFr_In</b>	230.5846	2.931850	0.0035
<b>BussCr</b>	-973.3959	-3.586538	0.0004
<b>LabFr_In</b>	- 121.3393	-2.638166	0.0087
<b>MonFr_In</b>	411.6995	2.571624	0.0096
<b>InvFr_In</b>	132.5838	1.884747	0.0429
<b>FinFr_In</b>	387.3158	5.921887	0.0000

<b>TaxBuss</b>	-215.8557	-4.773293	0.0000
<b>HumDev_In</b>	202364.5	7.524564	0.0000
<b>EcGl_In</b>	413.2396	2.961177	0.0031
<hr/>			
<b>R-squared</b>		0.748960	
<b>Adjusted R-squared</b>		0.741152	
<b>Prob (F-statistic)</b>		0.000000	

Source: processed by the authors

After analyzing table 2, we can observe a statistically significant linear relationship between the dependent variable GDP/c and FrCorr\_In, FsFr\_In, GovSp, FinFr\_In, TaxBuss and HumDev\_In (with a p-value = 0.0000). Our conclusions are consistent with the analysis of Dawson (2003), Vega-Gordillo and Álvarez-Arce (2003), Justesen (2008) and Heckelman (2000), who found causality between these sub-indices and economic growth. Also, we note a statistically significant linear relationship at a significance level of 1% (p value < 0.01) between GDP/c and PrRg\_In, BussFr\_In, BussCr, LabFr\_In, MonFr\_In and EcGl\_In and a level of significance lower than 5% at InvFr\_In with a value of p = 0.0429. These variables are significant for GDP/c (Ockey, 2011; Cebula 2011) at this sample level.

R<sup>2</sup> can have values between 0 and 1, the more its value is closer to 1, the regression is well specified, at the present model we have obtained an R<sup>2</sup> = 0,74 or we can say that 74% from the dependent variable is explained by the independent variables.

Following this model, we can observe that all our variables are significant with a probability value less than 5%. The standard errors have small values which indicates that the variables are indeed significant, but to make sure we will also check the correlations between the variables.

Table no. 3. Estimating the correlation between variables UE 27 Countries

	GDP/c	PrRg_In	FrCorr_In	FsFr_In	GovSp	BussFr_In	BussCr	LabFr_In	MonFr_In	InvFr_In	FinFr_In	TaxBuss	HumDev_In	EcGl_In
<b>GDP/c</b>	1													
<b>PrRg_In</b>	0.664	1												
<b>FrCorr_In</b>	0.746	0.845	1											
<b>FsFr_In</b>	0.527	0.522	0.630	1										
<b>GovSp</b>	-0.384	-0.362	-0.489	-0.673	1									
<b>BussFr_In</b>	0.445	0.551	0.700	-0.467	0.439	1								
<b>BussCr</b>	-0.158	-0.286	-0.255	0.153	-0.086	-0.120	1							
<b>LabFr_In</b>	-0.019	0.068	0.030	0.036	0.037	0.115	-0.078	1						
<b>MonFr_In</b>	0.271	0.433	0.360	-0.235	0.063	0.194	-0.213	0.085	1					
<b>InvFr_In</b>	0.262	0.614	0.573	-0.213	0.139	0.366	-0.234	0.091	0.281	1				
<b>FinFr_In</b>	0.429	0.535	0.525	-0.170	0.315	0.360	-0.190	0.285	0.258	0.482	1			
<b>TaxBuss</b>	-0.140	-0.402	-0.320	0.251	-0.307	-0.259	0.019	-0.036	-0.313	-0.330	-0.226	1		
<b>HumDev_In</b>	0.708	0.767	0.787	-0.621	0.439	0.577	-0.278	0.038	0.407	0.633	0.366	-0.410	1	
<b>EcGl_In</b>	0.549	0.727	0.620	-0.218	0.151	0.373	-0.205	0.222	0.298	0.630	0.547	-0.377	0.542	1

Source: processed by the authors based on statistical data from <https://www.theglobaleconomy.com>

In table 3 we have presented the pairwise correlations of GDP/c and the dependent variables for the 27 analyzed countries. We found a very weak correlation between GDP/c and LabFr\_In (coef = -0.019), TaxBuss (coef = -0.140) BussCr (coef = -0.158), MonFr\_In (coef = 0.271) and a much stronger correlation between GDP/c and FsFr\_In (coef = 0.527), BussFr\_In (coef = 0.445), FinFr\_In (coef = 0.429) and EcGl (coef = 0.549), and the strongest link is between GDP/c and PrRg\_In (coef = 0.664), HumDev\_In (coef = 0.708) and FrCorr\_In (coef = 0.746).

Although the Method of Smallest Squares is one of the most popular and frequently used, it does not recognize the heterogeneous nature of the transversal sections. To have a more accurate analysis we will use also linear models of constant and random effects, presented in table 4. The first one estimates a common single effect and the second one estimates the effects distribution using a mean.

Table no. 4. Fixed effects and Random effects

Variables	Constant effects			Random effects		
	Coefficient	t-St.	p-val	Coefficient	t-St.	p-val
<b>c</b>	-16491.72	-1.128560	0.0093	-37366.61	-2.613727	0.0258
<b>PrRg_In</b>	59.80671	2.026399	0.0434	58.56378	1.994623	0.0467
<b>FrCorr_In</b>	81.82342	2.145796	0.0325	140.1249	3.782050	0.0002
<b>FsFr_In</b>	3.422488	0.053387	0.0475	99.37435	1.727057	0.0849
<b>GovSp</b>	-818.1840	-4.888407	0.0000	-841.2840	-5.096097	0.0000
<b>BussFr_In</b>	17.90886	0.447326	0.0449	1.032671	0.026275	0.9791
<b>BussCr</b>	-55.27211	-0.492124	0.0229	-74.34978	-0.663884	0.5071
<b>LabFr_In</b>	-50.18831	-1.477846	0.1403	-40.32817	-1.206726	0.2282
<b>MonFr_In</b>	175.5243	3.047068	0.0025	173.7945	3.029471	0.0026
<b>InvFr_In</b>	55.32468	1.683591	0.0931	38.50897	1.179616	0.2388
<b>FinFr_In</b>	9.754437	0.272819	0.7851	54.40619	1.554371	0.1209
<b>TaxBuss</b>	-40.53127	-1.920857	0.0455	-21.36642	-1.024645	0.3061
<b>HumDev_In</b>	172444.1	11.04761	0.0000	184545.7	12.36600	0.0000
<b>EcGl_In</b>	973.2102	7.964223	0.0000	868.3682	7.374880	0.0000
	R-squared	0.876094		R-squared	0.332655	
	Adjusted R-squared	0.873716		Adjusted R-squared	0.311900	
	Prob (F-statistic)	0.000000		Prob (F-statistic)	0.000000	

Source: processed by the authors

Table no 5. Hausman Test: UE – 27 countries

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	65.793192	13	0.0000

Source: processed by the authors

In table 5. The Hausman test presents the comparison of the linear regression model between constant effects and random effects. If we accept the null hypothesis we must have a p-value greater than 5%, if we get a smaller value than p-value = 5%, it means that we reject the null hypothesis and accept the alternative hypothesis, a linear regression model with constant effects (Table 4). In the case of the performed test for the given model, we obtained p-value = 0.0000, this fact means that we accept the alternative hypothesis, with constant effects.

Hence, the indicators including Property rights, Freedom from Corruption Index, Fiscal Freedom Index, Government Expenditures, Business Freedom Index, Labor Freedom Index, Monetary Freedom Index, Investment Freedom Index, Financial Freedom Index, Interest Rate for business credits, the number of taxes paid by businesses, the Economic Globalization Index, and the Human Development Index collectively account for 87.60% of the observed variation in economic growth. Adjusted r-squared has a value of 87.37%. The other 12.4% are assumed to be the influence of other factors on the dependent variable that we did not include in the model.

The general linear regression equation is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n,$$

where Y is the dependent variable (GDP/c)  
 $\beta_0, \beta_1, \beta_2, \beta_n$  are the coefficients  
 $X_0, X_1, X_2, X_n$  are the independent variables (PrRg\_In, FrCorr\_In, FsFr\_In, GovSp, BussFr\_In, BussCr, LabFr\_In, MonFr\_In, InvFr\_In, FinFr\_In, TaxBuss, HumDev\_In, EcGl\_In)

Therefore the equation will have the following shape:

$$\begin{aligned} \text{GDP/c} = & -16491.72 + (59.80671 \times \text{PrRg\_In}) + (81.82342 \times \text{FrCorr\_In}) + (3.422488 \times \text{FsFr\_In}) + \\ & + (-818.1840 \times \text{GovSp}) + (17.90886 \times \text{BussFr\_In}) + (-55.27211 \times \text{BussCr}) + \\ & (-50.18831 \times \text{LabFr\_In}) + (175.5243 \times \text{MonFr\_In}) + (55.32468 \times \text{InvFr\_In}) + (9.754437 \times \\ & \text{FinFr\_In}) + (-40.53127 \times \text{TaxBuss}) + (172444.1 \times \text{HumDev\_In}) + (973.2102 \times \text{EcGl\_In}) \end{aligned}$$

The coefficient signs for HumDev\_In and EcGl\_In are as expected, positive. If HumDev\_In increases by one point, GDP/c will increase by approximately 172444.1, and taking into consideration that the Human Development Indicator (HumDev\_In) is recorded between the values (0-1), then at an increase of 0.01, GDP/c will increase by \$1724.44.

When EcGl will increase with one point, GDP/c will increase with 973.2102 \$.

From all sub-indicators of economic freedom, Monetary Freedom has the strongest positive influence: if MonFr\_In increases by one point, then GDP/c increases by \$175.52. Monetary freedom can have a strong positive impact on economic growth by: maintaining price stability (when central banks are free to decide monetary policy, they can maintain price stability by controlling the money supply; this can help avoid excessive inflation), flexibility of the economy (monetary freedom allows central banks to respond quickly to changes in the economy, such as rising or decreasing demand; this can help maintain a balance between supply and demand), stimulating investment and creating a healthy competitive environment (by allowing banks central to adapt to changes in the market).

The sign of the GovSp coefficient is negative, which means that if it increases by 1%, then GDP/c decreases by \$818.1840.

According to the data from table 3 (constant effects), it results that the HumDev\_In variable has the highest positive impact on GDP/c (172444.1), and EcGl\_In (973.2102) and the GovSp variable (-818.1840) the highest negative impact. Our results are in agreement with Ciftci and Durusu-Ciftci (2021).

## 5. Conclusions

In the present paper, we have explored whether economic freedom leads to economic growth. To do that, we considered the dependent variable GDP per capita, as an indicator measuring economic growth, in EU countries. The independent variables for this empirical research are the constituents of the Heritage Foundation's Index of Economic Freedom (Property Rights, Freedom from Corruption Index, Fiscal Freedom Index, Government Spending, Business Freedom Index, Labor Freedom Index, Monetary Freedom Index, Investment Freedom Index, Financial Freedom Index). We also used some control variables: the interest rate for business loans, the number of taxes paid by businesses, the Economic Globalization Index, and the Human Development Index.

The present study is based on electronically collected data about the state of economic freedom and economic growth of the European Union countries. We used a panel dataset, resulting from the 27 EU member countries. Considering the time interval perspective, panel data were used, which at different time intervals observe the same phenomena - regarding economic freedom and economic growth. Thus, the data collected covers a period of 16 years, from 2005 to 2020. This number of years is considered relevant to carry out a panel study, in order to obtain relevant and significant results.

Overall, our results suggest of all of the sub-indicators of economic freedom, Monetary Freedom has the biggest positive influence on economic growth.

In conclusion, we can say that economic freedom has an impact on the phenomena of economic growth, and that economic liberalization contributes to a better economic well-being of the population and determines a tendency of economic growth.

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## Developments in Cryptocurrency Transactions and Implications for Audit and Accounting Activities

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### Abstract

*The study analyses 1,757 peer-reviewed publications indexed in WOS between 2015 and May 2023, with a common theme of analyzing cryptocurrencies from a financial point of view. The study was conducted using bibliometric and exploratory analytical methods, with particular attention to the dynamics of the research directions over time. The results have resulted in the creation of comprehensive maps of hot research topics and new research trends for crypto assets. Furthermore, the mapping of international cooperation between the researchers included in the analysis revealed remarkable results. The study highlights some valuable insights into the profiles of individuals and companies who own and use cryptocurrencies. The analysis indicates the recent focus of research guidelines on topics such as inefficiency, risk or uncertainty in cryptocurrency transactions. With the help of the principle of prudence for accounting and audit, empirical studies in this direction require the development and active international cooperation between researchers and researchers and the business community.*

**Key words:** cryptocurrency, audit, accounting, business finance, economics.

**J.E.L. classification:** D80, G10

### 1. Introduction

Research directions in the field of cryptocurrency have shown significant developments in recent years, revolutionizing the traditional financial landscape. As these digital assets become more popular, concerns about their potential use in illicit activities, non-compliance with financial reporting, or the need to improve regulation have grown (Demertzis et al., 2018; Edwards et al., 2019).

Interest in the use of these assets in a non-centralized and unregulated market is raising increasing concerns about the profile of individuals who own and use crypto assets. Public interest also influences business interest in diversifying financial settlement methods by including crypto assets in the operations. The rapid development of technology, the public's desire for technology and unregulated investment opportunities (Ante, 2022) puts pressure on government policy makers who often cannot cope with the insurmountable changes in the cryptocurrency market.

The present study analyses the publications indexed in WOS between 2015 and May 2023, identifying a total of 1757 publications on cryptocurrencies from a financial perspective. Data collection was carried out by accessing various relevant and reliable sources, such as WOS and Statista, and a large amount of information was collected, which increased the relevance of the study.

The research methodology used bibliometric investigation and exploratory analysis to capture the dynamics over time of the hot topics for research and the collaborative relations between the researcher-authors involved in the study of cryptocurrencies. The analysis was aimed at exploring the profiles of cryptocurrency owners and users, both individuals and companies. The findings of the study have led to important conclusions both from the academic and an empirical perspective.

## **2. Theoretical background**

Investors have begun to see crypto assets as attractive investments and the motivational aspects of such context have stimulated research. The advancement of technology is often linked to economic progress and growth (Micu et al., 2021; Tofan et al., 2022). Other researchers have concluded that crypto assets are "safe haven" assets (Wang et al., 2019). The appetite for innovation and technology is a common feature of the young generation (Osagwu et al., 2022), for which the field of cryptocurrency seems to be rapidly being embraced and explored. Age, gender, and education of the people who are interested in the learning of cryptocurrency are topics that have attracted increasing interest among researchers in recent years.

In the case of cryptography, most studies have examined the relationships between Bitcoin and other investment assets in regulated financial markets. Aspects such as volatility, future development predictability, efficiency of investment portfolio returns, etc. have attracted attention from both theoretical and practical analysis perspectives. Investment behavior analysis is another area of interest for financial research (Abramova et al., 2021). The pressure exerted by stakeholders to achieve performance and ensure environmental sustainability inspires further research to explore the various perspectives on which green innovation hinders (Batrancea et al., 2021; Chin et al., 2022).

Although cryptocurrencies are not listed directly on traditional exchanges, many studies have explored the connection between cryptocurrencies and other investment assets. Investor interests are aimed at diversifying investments (Pop-Radu et al., 2018) and optimizing investment portfolios. The growing volatility of cryptocurrency may provide an opportunity if the possibility of accurately forecast profits arises, or leads to losses in other cases. Security issues and government regulations (Yeoh, 2017) are also factors that can influence investor confidence and generate volatility in financial markets.

## **3. Research methodology**

This paper presents an exploratory analysis of WOS-indexed literature from 2014 to May 2023, which uses cryptography as a common theme. The literature review focused on the study of financial issues, with selected publications from the fields of business finance, business, economics, management, and multidisciplinary sciences. 1757 publications were included in the sample analysis along with complete records and the data on cited articles.

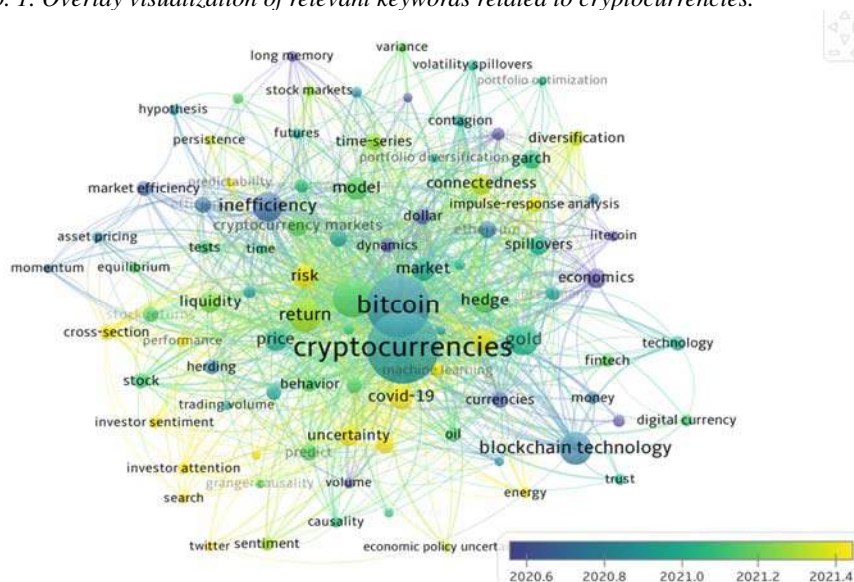
Research trends in the field of cryptography were explored and deepened in the geographical areas where most research concerns in this field were identified. The analysis of the implications of cryptocurrency transactions on accounting and audit related to crypto began with the exploratory examination of the profiles of crypto-owners and companies that own and operate with crypto. To achieve the research objectives, Statista data obtained by market research providers through surveys of individuals living in several countries were analyzed in addition to the WOS data. Comprehensive visual representations were created with relevant information on the description of those who own and use crypto assets, as well as the description of the 100 most representative companies using crypto in the world.

## **4. Findings**

In the first stage of the study, the analysis of research directions in the field of cryptocurrencies focused on exploring the keywords most used in research. The frequency of use of keywords in the 1757 studies indexed in WOS revealed a repetitive number of 2761 keywords. Of these, data filtering continued with the merging of terms with the same meaning but different spelling forms, such as "safe-haven" and "safe haven" or plural and singular forms of the same terms. This process resulted

in 2747 keywords. A new selection step was set, i.e. those keywords that were repeated more than 10 times in the publications analyzed were selected, and 91 terms that met the relevance criteria were identified. Representation of the terms and the links between them in a comprehensive image was made possible by using the VosViewer program, and Figure 1 was obtained.

Figure no. 1. Overlay visualization of relevant keywords related to cryptocurrencies.



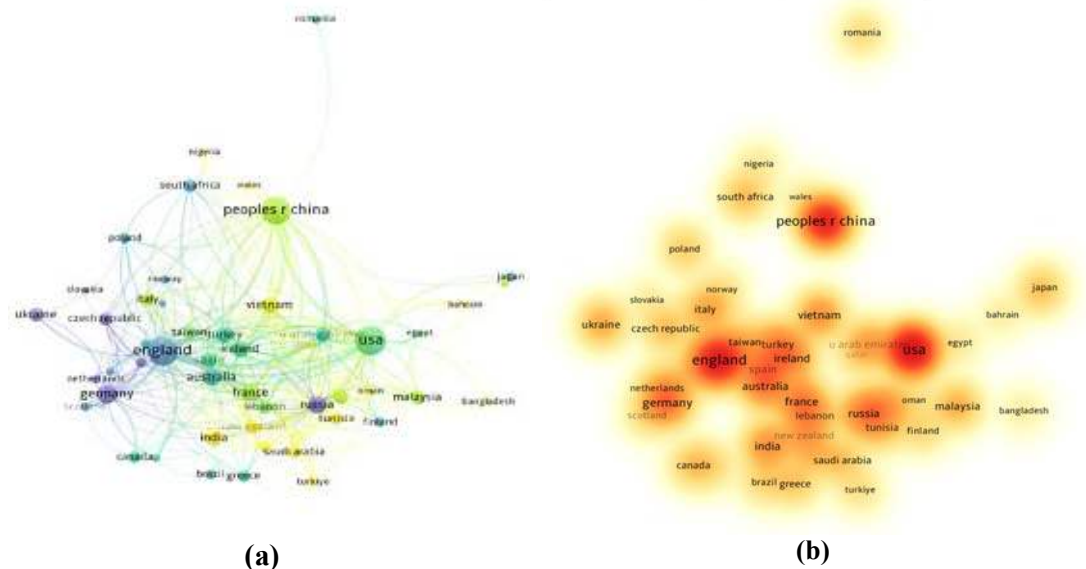
*Source:* own research based on WOS data

The overlay visualization provided by VosViewer was preferred for Figure 1 representation, to better capture the relationships between relevant keywords over time. The bibliometric representation in Figure 1 depicts the most recent research trends in shades of yellow and the topics with a longer history of study with deeper shades of blue. The visual representation of the research results reveals that the field of crypto worlds has aroused intense interest among researchers, and the directions of analysis are continuously expanding and dynamic. The trends of analysis have experienced multiple revivals through the identification of new research topics, as suggested by the predominance of yellow in Figure 1.

The keywords included in the sample that showed the most links to other research topics were "cryptocurrency" (731 occurrences), "bitcoin" (549 occurrences), "volatility" (204 occurrences), "gold" (115 occurrences), "return" (135 occurrences) and "inefficiency" (113 occurrences). It is interesting to note the importance of the keyword "inefficiency" in the picture of cryptocurrency research directions. In the context marked by the effects of the pandemic and the economic imbalances that have appeared in recent times, inefficiency has acquired new valences, with studies on risk, uncertainty (Yan et al., 2022), investment behavior, concerns about predictability or incidence of fraud (Florea et al., 2022a, Florea et al., 2022b) being in full development. The involvement of European institutions in preventing economic crime during the COVID-19 pandemic highlights the importance of government support and international cooperation in addressing these challenges (Florea et al., 2022c).

Further investigation of developments in cryptocurrencies transactions was focused on observing the collaboration between scientists and the main research trends. Co-authorship is a feature of VosViewer that indicates how two or more authors contribute to the same publication. Co-authorship helps to understand how researchers collaborate in order to exchange or explore new ideas and expand their international contribution to science advancements.

Figure no. 2. Representation of co-authorship analysis concerning the origin countries of researchers

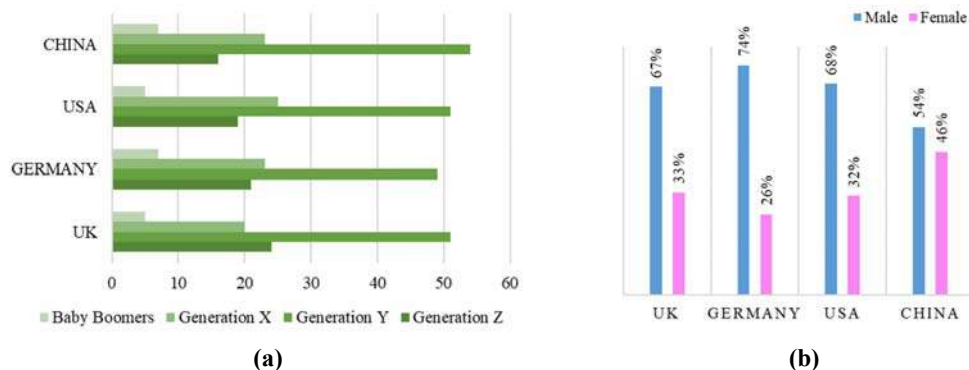


Source: own research based on WOS data

The co-authorship analysis of the country of origin of the researchers in collaborative relationships was carried out, according to Figure 2, through a double reanalysis. Figure 2(a) presents the overlay visualization of the researchers' collaborative network, emphasizing countries with multiple connections to other countries and also remote countries, like the case of Romania, that present a single link to another country. Countries which are at the borders or remote from the network map indicate a need to strengthen international cooperation with foreign research peers. It is remarkable to also note that countries like China, Italy, Saudi Arabia, India and New Zealand have actively contributes in the collaborative research network during recent years, yielding significant contribution to crypto research.

Figure 2(b) presents the density visualization of co-authorship countries. The representation vividly indicates the United States of America, the United Kingdom, China and Germany as hot spots for collaborative research networks. Such findings motivate our research to further investigate the development of cryptocurrency transactions and the profiles of crypto owners in those countries in order to better understand the implications of such trends on accounting and audit activities.

Figure no. 3. Representation of (a) age and (b) gender of cryptocurrency owners, per country



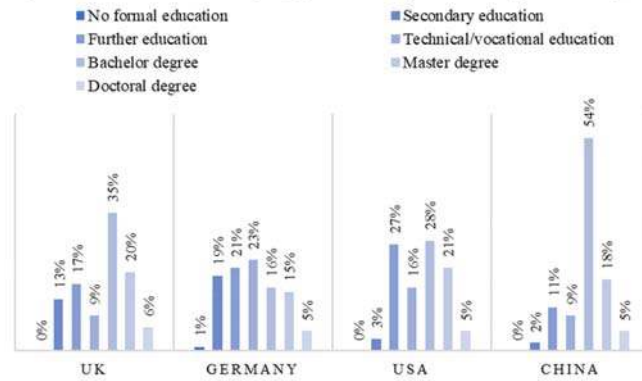
Source: own research based on Statista data

The ages of cryptocurrency holders residing in the four countries included in the analysis are depicted in Figure 3(a). In each country included in the analysis sample, most cryptocurrency holders are Generation Y (born between 1980-1996), and the fewest crypto investors are Baby Boomers (born between 1946-1964). As for the second category of cryptocurrency holders, it is interesting to note

that in the UK it is represented by Generation Z (born between 1997-2012), while in the other countries they are representatives of Generation X (born between 1965-1979).

Figure 3(b) visually reflects the gender of crypto owners and indicates that these are predominantly male. The lowest gender diversity was observed in China and the highest gender gap between male and female owners of crypto assets was observed in Germany, where the difference between gender was 48%.

Figure no. 4 Education of cryptocurrency owners, per country



Source: own research based on Statista data

Figure 4 shows that most investors in each country included in the analysis have a bachelor's degree or similar and that those less likely to invest in cryptocurrencies have no formal education. Germany and the US show a slightly homogeneous educational status of cryptocurrency owners, while the situation in China and the UK suggests larger educational gaps between investors. Another notable observation is that the percentage of cryptocurrency owners holding a PhD degree is stable among the sample countries at around 5%. Although the apparent percentage is small compared to people holding a bachelor's degree, it is still insignificant, as in general the number of people pursuing a doctoral degree is significantly lower than the number of those who obtain a bachelor's degree. Therefore, it can be concluded that people with a PhD degree show a significant predilection to invest in crypto assets, according to the data identified for the 4 countries included in the analysis.

Figure no. 5 Number of companies in top 100 worldwide using crypto (a) and mean CAGR (b)



Source: own research based on Statista data

Figure 5(a) shows the number of companies using cryptocurrencies that are ranked in the top 100 cryptocurrency companies worldwide. Companies are ranked by initial public offering (IPO) options: public IPO refers to companies offering the public the opportunity to invest in their shares, and private IPO refers to offering stock options to accredited investors. Most of the top 100 companies using crypto are located in the US (30 companies), of which 22 are classified as private IPOs. In China, only one public IPO company using crypto assets was identified in the top 100.

The compound annual growth rate (CAGR) represented in Figure 5(b) is calculated as mean CAGR of the top 100 companies centralized in Figure 5(a), according to available data obtained from Statista. CAGR is an important financial indicator that measures investment returns over a period of time. The indicator is calculated in correspondence with the classification of companies in Figure 5(a), as a mean indicator for private IPO companies and, respectively, as a mean indicator for public IPO companies. The mean CAGR calculated for the public and private IPO companies reveals that the public IPO companies were profitable for public investors, whereas the private IPO companies have performed negatively in the sampled countries, according to available data.

## 5. Conclusions

As the cryptocurrency market develops, the role of auditors and accountants becomes essential in ensuring transparency and accurate reporting of financial transactions. Fair financial reporting of crypto assets, tax issues related to tax obligations, crypto trading, and concerns about the inconsistency of laws are some of the problems that pose multiple challenges for accounting professionals or auditors when evaluating transactions with crypto assets. The rapid expansion of the cryptocurrency market and the regulatory dynamics that are more or less anchored in the dynamics of the time require accountants and auditors to develop a deep understanding of these digital assets and the potential risks associated with their use for individuals and businesses.

Regulators need to work with financial institutions to establish robust compliance and compliance monitoring measures. Auditors should assess the compliant application of these measures to cryptocurrency transactions.

According to the results of this study, the development of trends in cryptocurrency research is evolving both from the academic perspective and from the enthusiastic interest of the public and businesses. The impact of this context is profound for audit and accounting activities, particularly in terms of potential links with risks related to these transactions or with legislation that is still in the early stages of formulation. The rich research provided shows the dynamic nature of economic implications, the prevalence of investment studies, and the need for effective risk assessment mechanisms of cryptocurrencies.

The results of this research have provided valuable insight into the profile of individuals and companies who own and use cryptocurrencies. With regard to individuals, recent data show that cryptocurrency investors are predominantly Gen Y men with medium or higher economic education. As far as companies are concerned, the largest number of active companies using large volumes of cryptocurrencies is located in the United States. As regards the investment return of enterprises that trade crypto assets, according to available data included in the analyzed sample, the highest efficiency is recorded among public IPO enterprises, with the highest investment return in China.

The limitations of this study are mainly represented by the early stage of data centralization on cryptocurrency owners, which prevents extensive comparison analyses from evolving. Since the cryptocurrency market is a decentralized and unregulated market, the accuracy of the data often depends on the voluntary spirit of individuals reporting their ownership and transactions of the cryptocurrency. As a result, the challenges of the audit and accounting professions are becoming increasingly complex. More and more recent studies have explored inefficiency, risks, and uncertainty in the field of cryptocurrency. Based on the principle of prudence for accounting and auditing professionals, empirical studies in this area require the development and active participation of researchers at international level, as well as the participation of active market practitioners in research.

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## Improving Economic Efficiency of an Entity through Comprehensive Analysis of Receivables

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### Abstract

*The economic activity of any entity generates a complex, diverse and fluctuating system of economic and legal relations with services beneficiaries, product buyers, staff, the state budget, other legal entities and individuals. The relationships established in order to achieve the object of activity lead, due to the time gap in the fulfillment of financial obligations, to the appearance of receivables. This paper highlights the concept of receivables through the synthesis of literature, but also the bibliometric analysis, which allows for a clear picture of the extent and quality of scientific research in the direction of the analyzed issue, that is, accounting and receivables analysis. Likewise, the paper sheds light on the importance of the analysis of receivables, having as "raw material" financial-accounting information, or, the adequate management of the size, structure and maturity terms of the entity's receivables will lead to its prosperity.*

**Key words:** receivables, receivables analysis, receivables rotation, economic relations, performance

**J.E.L. classification:** M40, M41

### 1. Introduction

The evolution of accounting science is closely related to economic evolution, over time, accounting representing a tool for presenting and modeling the economic life of an entity.

Each entity is established and develops within an economic and social environment. Starting from the fundamental concepts in microeconomics, the entity stands out as a participant in the economic circuit, characterized by flows of money and economic goods, falling into at least one of the three large groups: producers, suppliers, buyers.

In the process of carrying out the economic activity of the entity, a complex system of economic and legal relations of rights and obligations is formed, depending on the position of each participant, these are materialized in receivables, but also debts. In the context of the market economy, the results of the economic activity of the entity are conditioned by the efficiency of commercial settlements, or, this quality constitutes the premise of an adequate management of commercial transactions under conditions of minimizing the risks of insolvency and solvency.

All these are patrimonial reports, which reflect the changes in the forms of existence of the patrimony, involve rights and liabilities, involve responsibilities and therefore they are part of the study object of accounting (Sajin, 2010, p.8), contribute to the value reflection and of the movement of the entity's patrimony following economic facts. In the context of what has been stated, it is found that the totality of economic agents' relations with third parties are formed and extinguished in an endless chain, each of which has clear terms of maturity, and these relations in most cases are reciprocal (Grigori, 2021, p. 269), as a result, two large categories of relationships with third parties are distinguished: the nature of debts and the nature of receivables (Munteanu, 2009, p.242).



*The aim of the scientific paper* is the multilateral examination of the theoretical and practical aspects of accounting and receivables analysis. At the same time, the qualitative and quantitative research of the concept of receivables through the prism of bibliographic study and scientometric methods in order to create a broad picture regarding the extent of the research of the chosen theme at national and international level.

*The importance and actuality of the research theme* derives from the omnipresence of receivables within any entity, the purpose of each economic agent being the achievement of the object of activity, i.e. the sale of products, the provision of services and the execution of works, economic operations that generate profit. As a result, the effective management of the size and maturities of receivables, as well as maintaining the balance between receivables and liabilities to avoid the growth of the latter, which could lead to difficulties regarding payments when due, due to the alienation of assets but not receiving the equivalent value. In the same way, the importance of research is demonstrated by its practical appeal, numerous entities facing difficulties in economic activity in order to recover debts.

Arising from the need to know and manage the heritage, in order to preserve and develop it, accounting is organized and kept in any entity, in this case, the accounting of receivables is an important aspect in the proper conduct of commercial transactions and in the adoption of operational and strategic decisions. In the same way, accounting information represents the "raw material" necessary for economic and financial analysis and has a special role in the management of entities as it must satisfy multiple requirements, in order to ensure a correct perception of the processes to which it refers (Vâlceanu, 2004, p. 39).

## 2. Literature review

From an etymological perspective, the Romanian term *creanță* (en. *receivables*) is borrowed from the French language *créance*, which in turn was borrowed from the Latin language *credentia*. According to the Etymological Dictionary of the French language, the origin and formal and semantic evolution of the term *créance* can be found in medieval Latin, namely, in the word *credere* (in French *croire*), called etymon from a linguistic point of view, that is, the word of origin. Thus, the author of the Etymological Dictionary of the French language, Clédât, L., mentions that "the primitive meaning of the verb "croire" is "to trust", which came into French with the meaning of confession of faith, at the same time, the nouns were formed: *crédit*, *créditer*, *discréditer*, *accréditer*, and the Latin derivative "credentia" gave a triple form: *crédence*, *créance*, *croyance*" (Clédât, 1914, p.155). As a result, merging the semantic and economic study of the term debt, it can be found that in the course of carrying out the economic activity, the entity shows an act of faith in relation to the debtor regarding the collection of the consideration under the conditions and terms established in the case of sale with deferred payment

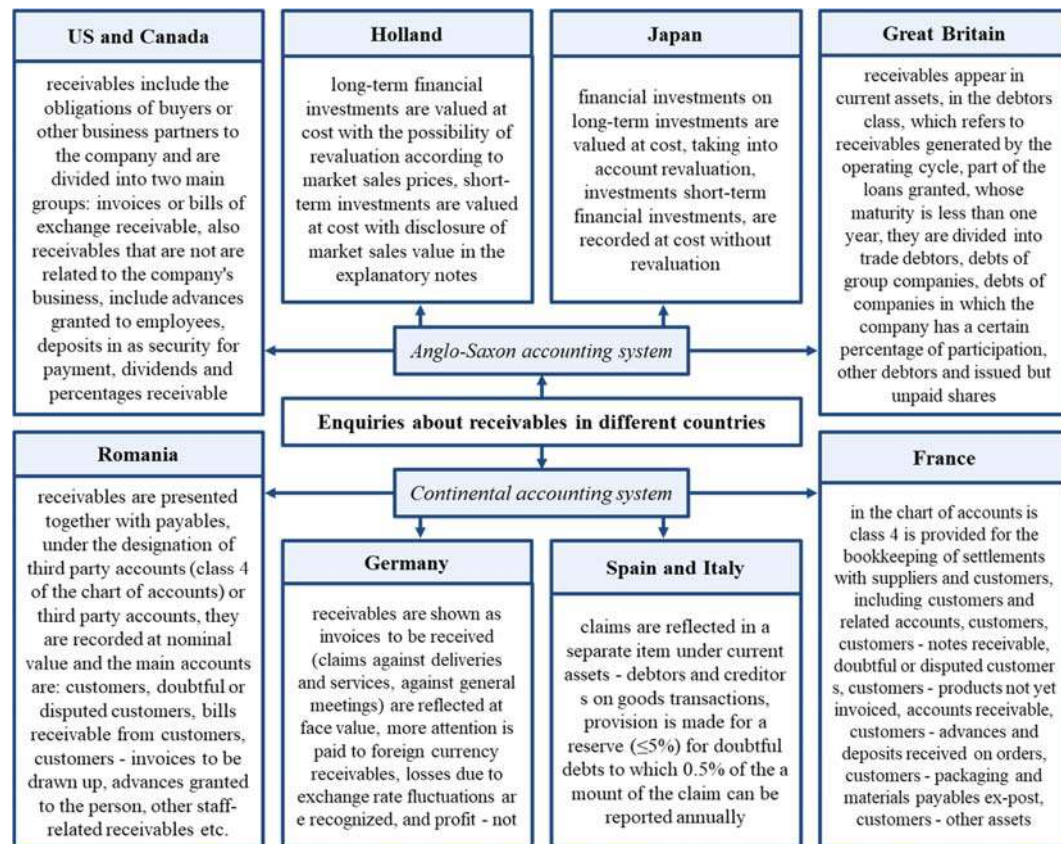
The analysis of specialized literature in the area of accounting and receivables analysis at the national and international level allowed the synthesis of the main definitions of receivables. Thus, in the opinion of the author Mihaila, S., receivables represent "a component of the assets that represent the right of the entity towards other natural and legal persons, which appear as a debt towards the given entity" (Grigori, 2021, p.269), a similar approach is shared by the researchers Țurcanu, V. and Bajorean, E., who claim that receivables represent "the debts of other legal and natural persons towards the given entity, they appear, as a rule, on commercial invoices unpaid by buyers, advances granted due to additional payments of funds in the budget, insurance bodies, employees, etc." (Țurcanu, 2004, p.37), both definitions advocating the fact that receivable constitutes a debt of a natural or legal person towards the entity, the latter, coming with concrete examples of occurrence.

In the same vein, the researchers Mehedinți, I. L. and Negoescu, Gh. highlight the aspect of the temporary advancement of economic values and the value concordance in the definition, noting that receivables reflect "the economic values temporarily ascertained by the owner of the patrimony against other natural and legal persons of to which a value equivalent is to be received" (Mehedinți, 2000, p.169), an opinion also shared by Professor Bojian, O. in his work, which characterizes receivables as "economic values temporarily advanced by the owner of patrimony to other legal entities or physical and for which they will receive the value equivalent" (Bojian, 1997, p.212).

At the same time, in the definition of receivables, emphasis is placed on the participants, called debtors and creditors, thus, the authors Ristea, M., Dumitru, C. G. and others, claim that "all natural or legal persons who have benefited from the advanced value, are referred to generically by the notion of debtors, i.e., the persons who, within an economic relationship, have received a value and are going to give a value equivalent or consideration, equally, the natural and legal persons to whom the unit has monetary obligations, are generically called creditors, therefore, the persons who within an economic relationship, they have advanced an economic value and will receive a value equivalent or a consideration" (Ristea, 2009, p.371). Starting from the definition proposed by the Romanian authors, it was found that this approach is shared by several authors in their works, such as Bojian, O. (Bojian, 1999, p.145), Nederita, A. (Nederita, 2003, p.234), Deju, M. (Deju, 2011, p.318) and Balteş, N. (Balteş, 2014, p.141).

According to researchers Darie, V., Drehuță, E. and others, receivables are known as "current settlements, operating settlements or settlements with third parties" (Darie, 1995, p.102), likewise, drawing a parallel between accounts receivable at the national and international level, in contrast to the national definition and classification, at the international level this is known as the accounting of relations with third parties, reflecting both the receivables and the debts arising from the patrimonial operations. Based on the above, figure no. 1 shows the main approaches to the notion of receivables in countries that apply the Anglo-Saxon accounting system and the continental accounting system:

Figure no 1. Comparative aspects regarding the notion of receivables in different countries



Source: (Țurcanu, 2004, p.178-267), (Feleagă, 2017, p.47-266)

Based on figure no. 1, it can be concluded that the general opinion regarding the notion of receivables hovers over the existence of customer obligations towards entities. From the perspective of American accounting, when recording the large quantities of goods and services sold on credit, emphasis is placed on the methods of calculating bad debts, such as: the method of percentages from the net realization and the method of recording invoices according to payment terms. In British accounting, the provision for doubtful debts is calculated but not recognized by the tax rules, while in the Japanese tax rules allow the formation of reserves for doubtful debts in the amount of 0.3-

1.35% of the amount of the debt, and in accounting Spanish and Japanese, in the amount of 0.5% of the amount owed.

Another relevant aspect that emerges from figure no. 1 is the balance sheet position of receivables, thus, in the American, Canadian and British balance sheet, receivables are presented in the composition of current (circulating) assets, in the category of debtors: commercial debtors, debts of group companies, debts of enterprises in which the company has a certain percentage of participation, other debtors, shares issued but unpaid. Analogously, in French, German, Spanish and Italian accounting, similar positions of receivables are observed in the balance sheet, in the receivables category, such as: trade receivables, amounts expected from affiliated enterprises, amounts expected from enterprises in which participate by share, other receivables, shares issued but unpaid.

### **3. Research methodology**

The methodological approach of the research is dimensioned by the theoretical and practical approach. As a result, the methodological tools characteristic of the social sciences were used in the scientific approach, applying several research methods, including: the analytical method, the comparison method, the systemic method, the synthesis method, the induction method and the deduction method. At the same time, statistical-mathematical tools through bibliometric and scientometric methods, for measuring and analyzing specialized literature in the direction of research performance regarding receivables accounting. The combined and consistent application of the listed research methods contributed to the foundation of scientific arguments related to accounting and receivables analysis in general and within the analyzed entity.

In this sense, an overview of the scientific works that are based on the study of accounting and receivables analysis is presented through the Web of Science platform, a platform that provides access to the largest database with scientific references and allows following the evolution of scientific works in the world scientific circuit. In order to identify relevant studies, the following research parameters were set: identification of the phrase "receivables" in the title of the publication in the period 1956-2023, the results obtained being interpreted with the help of the Bibliometrix R tool package.

Following the database research, 537 scientific works published in 391 sources (journals, books, collections) were found. Based on figure no. 2, we deduce that the annual scientific productivity and citation trend shows that the most scientific works were published in 2019 – 49 publications, 2021 – 47 publications, 2016, 2018 – 3 publications, 2020 – 42 publications and so on. In the same vein, we mention that the most productive authors in the period 1956-2023 are: Zimon, G. – 11 publications, Smrcka, L. – 9 publications, Kubickova, D. – 6 publications, etc., and as for demographic distribution of publications, we highlight that the most productive countries in terms of publication rate in the analyzed period are: the United States of America – 131 publications, China – 103 publications, the Czech Republic – 63 publications, Poland – 57 publications, etc.

Likewise, the multiple correspondence analysis of high frequency keywords presented in figure no. 3 concentrates multivariate data within a low-dimensional space in the process of delineating an intuitive two-dimensional graph under the conditions of using planar distance to project the similarity between keywords, thus words closer to the center point (red dot) indicate the frequency of use in scientific works in the period 1956-2023.



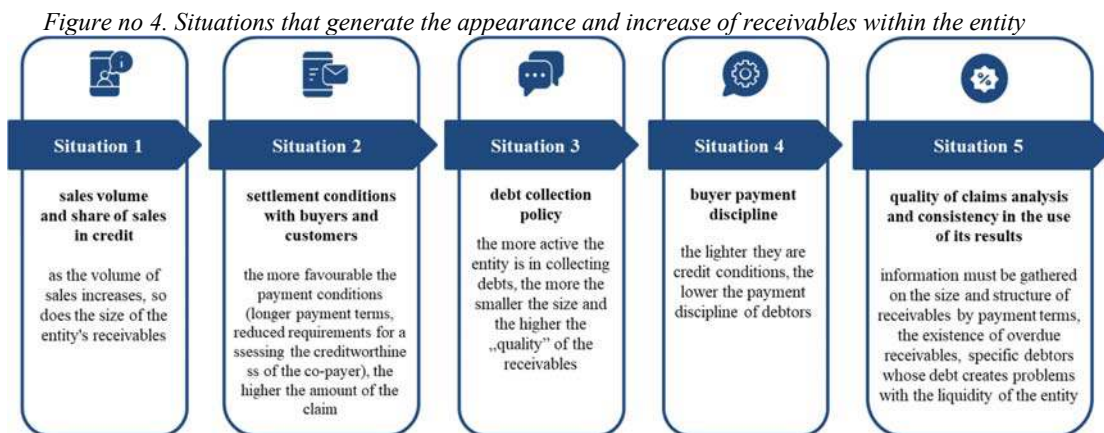
In the socio-economic space in which they operate, entities must prove their viability, ability to compete and adapt the efficiency of activities that are based on quantitative and qualitative determinations of production factors, maximum returns of their use, etc. (Vâlceanu, 2004, p.14).

In this case, the economic-financial analysis serves as a basic tool that allows the diagnosis of the financial situation within the entity to support managerial decisions and ensure the efficiency of economic and financial management.

In the process of the economic-financial activity of any entity, there is a need to make settlements with buyers, suppliers, budget, staff, etc. Since the moment of payment does not usually coincide with the moment of their appearance, the entity generates both receivables, the funds extracted from the entity's circuit and reflected in the balance sheet in the composition of assets, and liabilities, which represent the funds attracted and reflected in the balance sheet in the composition of liabilities (Țiriulnicova, 2011, p.225).

The analysis and management of receivables is necessary to prevent their excessive growth, which leads to the reduction of receipts and the appearance of bad debts, which can completely counterbalance the profit of the entity. The share of bad debts differs even among entities in the same branch. This depends on the analysis and control systems applied to the entities, as well as the length of the period in which the debtors undertake restitution commitments and repay their debts (Țiriulnicova, 2011, p.226).

The analysis of receivables becomes essential because it affects the performance, competitiveness and economic-financial stability of the entity. Thus, we can state that their analysis is one of the most important elements of the entity's financial management system (Paladi, 2018, p.121). In this sense, in figure no. 4 the main situations/motives and the economic context favoring the appearance of receivables within the entities are presented:



Source: (Paladi, 2018, p.121-122)

Any entity tends to maximize the volume of sales by applying different sales methods, respectively, the sale of goods with deferred payment means a risk and can lead to non-payment of accounts. As can be seen in figure no. 4, payment discipline, low payment culture and low payment capacity of customers are the main factors that contribute to the appearance and increase of the amount of receivables, including bad debts.

In the current conditions of the market economy, economic agents are able to choose their market but also their business partners, thus, receivables play an important role and speak about the economic and financial situation of both parties. As a result, a large share of receivables in the total amount of the entity's assets speaks of the reduction of liquidity and financial stability of the entity, as well as the increase of the risk of financial losses. However, receivables must be viewed in parallel with the volume of sales, the reasonable offering of commercial credit contributing to their increase and the growth of the entity's market share, which positively influences the entity's performance.

The sudden increase in receivables and their share in the entity's current assets can also speak about the entity's imprudent credit policy in relation to customers, the increase in sales or the insolvency and bankruptcy of some of the buyers. The reduction in receivables is the result of either accelerating payments or decreasing sales (Paladi, 2018, p.122).

Since commercial receivables are permanently subject to non-payment risks, in the case of sales with deferred payment, the appearance of bad debts causes financial difficulties that materialize through the lack of financial resources necessary for the normal performance of the activity. Moreover, the consolidation of receivables generates a slowdown in the turnover of assets, and the appearance of bad debts increases the risk of non-payment of debtor debts and, finally, the decrease of profit.

Due to the fact that receivables have a major influence on the size and structure of assets, in particular, current assets, including liquidity, solvency, asset turnover and financial position of the entity, the most important task of any entity is to increase the efficiency of receivables management based on an in-depth analysis of them (Paladi, 2018).

In this case, the in-depth analysis of receivables at the entity level involves the analysis of the situations and reasons for the appearance of receivables, the change in their size and structure, the analysis of the quality of receivables, the analysis of the variation of the share of receivables in the total amount of assets, respectively, of current assets, the analysis of receivables after maturity, the analysis the share of bad debts in their total amount, the analysis of the rotation of receivables and the correlation between receivables and debts of the entity.

In the general sense, turnover rates measure the speed of transformation of receivables into liquidities. The speed of receivables turnover in different branches of the economy is different, in some branches receivables register a faster rotation, in others slower. Thus, in the process of analyzing the receivables rotation, the entities have the mission to select the method of calculating the receivables turnover rates suitable for the type of activity carried out, to perform the factorial analysis of the duration of the receivables rotation and to highlight the possible ways to accelerate the speed of rotation of receivables.

In national and international economic theory and practice, there are three ways of assessing the rates (generalizing rates are the most frequently used in the practice of entities) of receivables rotation, by determining the number of receivables rotations, the rate of endowment of sales revenue with receivables and the duration (speed) of receivables turnover.

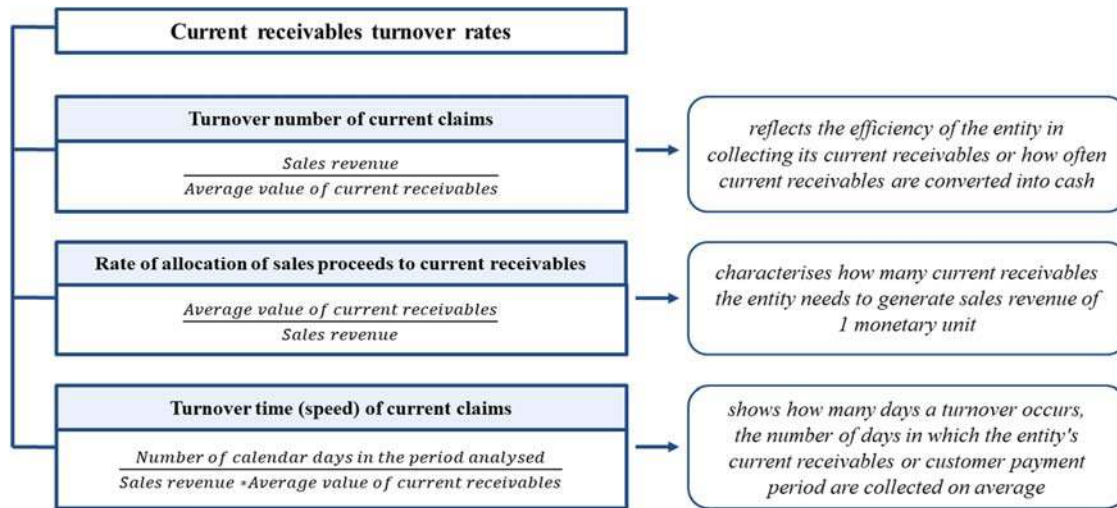
The research of the literature in the field of economic and financial analysis shows the existence of different approaches regarding the calculation of receivables turnover rates. However, we identify several authors who share the same opinion regarding the calculation of receivables turnover rates based on sales income, as: Țiriulnicova, N. (Țiriulnicova, 2011, p.167-168), Vâlceanu, Gh. (Vâlceanu, 2004, p.378), Niculescu, M. (Niculescu, 2003, p.267), Spătaru, L. (Spătaru, 2010, p. 474).

The calculation of receivables turnover rates based on sales income is the most widespread way in economic practice, because it is characterized by simple mathematical calculations and accessibility to information sources, that is, the Statement of financial position (Balance Sheet) and the Statement of profit and loss and other elements of the overall result.

Therefore, figure no. 5 shows the calculation formulas (3.3.-3.5.) of the turnover rates of current receivables, in this case, the number of turnover of current receivables, the rate of endowment of income from sales with current receivables and the duration (speed) of rotation of current receivables, determined on the basis of sales revenue and their economic essence:



Figure no. 5 The characteristic of current receivables turnover rates



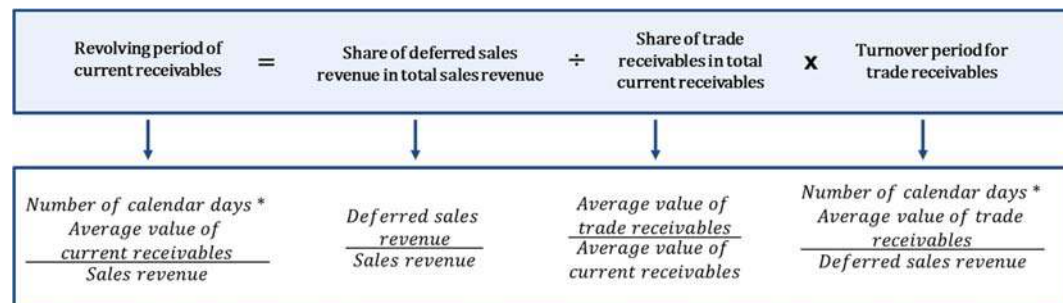
Sursa: (Țiriu Nicovă, 2011, p.167-168), (Vâlceanu, 2004, p.378), (Chirilov, 2015, p.77)

According to figure no. 5, we emphasize that normally, the number of rotations must increase, the acceleration of the receivables rotation being interpreted as a positive trend and the duration (speed) of rotation should decrease.

The examination of the literature from the perspective of the analysis of the rotation of receivables shows that factorial systems for their analysis are not built and recommended. As a result, in the opinion of researchers Chirilov, N. and Tolmanțchi, S. (Chirilov, 2015, p.79), the analysis of current receivables rotation from a causal point of view requires a deeper examination in the economic practice of entities. In this context, the authors propose a system of causal analysis of the rotation period of current receivables from three factors: the share of sales revenue with deferred payment in the total sales revenue, the share of trade receivables in the total current receivables and the rotation period of trade receivables.

In order to implement the recommended factorial system, figure no. 6 shows the calculation of each influencing factor on the change in the rotation period of current receivables:

Figure no 6. Factor system of the current receivables turnover period



Sursa: (Chirilov, 2015, p.79)

Consequently, starting from the information presented in figure no. 6, we deduce that the first factor offers users of economic and financial information the opportunity to perceive to what extent the structure of sales revenues influences the rotation of current receivables. The second factor is a good opportunity to know the extent to which the structure of current receivables by nature has accelerated or slowed down the speed of rotation. The third factor highlights the extent to which the efficiency of the use of commercial receivables influences the rotation period of current receivables. In order to determine the influence of the turnover period of trade receivables on the change in the turnover of current receivables, the authors recommend that the indicator be calculated based on sales revenues with deferred payment.

As a result, table no. 1 presents the initial data of the entity "Beta" SRL for the factor analysis of the rotation period of current receivables and table no. 2 shows the method of calculating the influence of factors on the rotation period of current receivables by the method of substitutions in the chain.

*Table no. 1. Initial data for the factor analysis of the rotation period of current receivables*

Indicators	Year 2021	Year 2022	Absolute deviation ( $\pm$ )
1	2	3	4 = 3 – 2
1. Average value of current receivables, lei	66 467 863	63 498 014	- 2 969 849
2. Average value of trade receivables, lei	62 804 946,50	57 142 334,50	- 5 662 612
3. Deferred sales revenue, lei	624 643 499	656 137 658	+ 31 494 159
4. Sales revenue, lei	657 519 473	771 926 656	+ 114 407 183
5. Turnover period of current receivables, days [(360 zile x rd.1)/rd.4]	36	29	-7
6. Turnover of trade receivables, days [(360 zile x rd.2)/rd.3]	36	31	- 5
7. Share of sales revenue on credit in total sales revenue, % (rd.3/rd.4x100)	95	85	- 10
8. Share of trade receivables in total current receivables, % (rd.2/rd.1x100)	94,49	89,99	- 4,5

**Note:** the average value of current receivables (rd.1) and the average value of trade receivables was calculated by simple arithmetic average based on the Balance Sheet data

*Source:* prepared by the author based on data from the Financial Statements of "Beta" Ltd. for the year 2022

As a result, based on the calculations from table no. 1, table no. 2 illustrates the methodology of the influence of factors on the rotation period of current receivables through the method of substitution in the chain:

*Table no. 2. Calculation of the influence of factors on the rotation period of current receivables by the method of substitutions in the chain*

Cal. no.	Subst. no.	Interrelated factors			Duration of rotation of current receivables total, days	Influence calculation, %	The size of the influence, p.p.
		Share of sales revenue on credit in total sales revenue	Share of trade receivables in total receivables	Duration of rotation of commercial receivables			
1	2	3	4	5	6=3/4x5	7	8
1	0	95	94,49	36	36	–	–
2	1	85	94,49	36	32	32 - 36	- 4
3	2	85	89,99	36	34	34 - 32	+ 2
4	3	85	89,99	31	29	29 – 34	- 5

*Source:* prepared by the author based on data presented in Table no. 1

*Verification:*  $29 - 36 = (-4) + 2 + (-5) \rightarrow (-7) = (-7)$

Based on the data from table no. 1, we note that the turnover period of current receivables at the end of the year was 29 days, 7 days less than at the beginning of the management year, which indicates the acceleration of the turnover of assets. This positive trend was influenced by the decrease in the share of credit sales revenue in the total sales revenue by 10 p.p., which conditioned the acceleration of the rotation period of current receivables by 4 days, at the same time, positively influenced the decrease of the rotation period of trade receivables by 5 days, which contributed to the acceleration of the turnover period of current receivables by the same amount, i.e. by 5 days. The decrease in the share of trade receivables in total current receivables by 4.5 p.p. had a negative influence, which led to a slowdown in the rotation period of current receivables by 2 days. We can mention that the situation as a whole is a favorable one for the entity because the purpose of any entity is to accelerate the rotation of assets, in this case, of receivables, or, accelerating the rotation of receivables leads to the withdrawal of assets from the economic circuit, and the slowdown to their



additional attraction in the circuit. Consequently, the acceleration of the rotation period of the current receivables of the entity "Beta" SRL indicates good organizational strategies and cultures of settlements by establishing clear maturity conditions and bank insurance of the alienated equivalent, which allowed the development of the economic and financial activity of the entity, substantiating optimal economic decisions, increasing sales revenue and profitability.

## 5. Conclusions

In this paper, the emphasis was placed on the theoretical aspects regarding the concept of receivables and its presence in the specialized literature and in scientific works at the international level, by means of the bibliometric analysis. Likewise, the general opinion on receivables from the perspective of the Anglo-Saxon and continental accounting systems was presented.

For the entity's economic-financial activity, it is also important to know the results of the receivables analysis because it influences the entity's ability to pay, it allows the prevention of the excessive increase in receivables that leads to a decrease in receipts and the appearance of bad debts, which can completely counterbalance the entity's profit, at the same time, it provides the possibility of preventing the risk of bankruptcy of the entity, in case of excessive increase in debts.

In conclusion, due to the overwhelming influence of receivables on the size, structure and turnover of assets, liquidity, solvency, financial position and more, the most important task of any entity is to increase the efficiency of receivables management based on an in-depth analysis of them (Codrean, 2023, p.232).

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## Accounting Informational System – Directions, Challenges, Risks and Opportunities

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### Abstract

*The paper studies, through specialized literature, the performance of the accounting information system (AIS) in its capacity as the main provider of the necessary information for various interested categories in synchronisation with modern information technology resources. But all this digitization is a double-edged sword for stakeholders, the role of active mediators in finding and identifying the most suitable AIS, returning to accounting professionals alongside information technology (IT) experts. The motivation for choosing this issue is justified in terms of the complex dynamics of AIS in recent years, while information quality, as a resource of organizations, represents a topic of maximum interest.*

**Key words:** Accounting Informational System, Information technology, AIS opportunities and risks, Integrated reporting,

**J.E.L. classification:** M41

### 1. Introduction

People's preoccupation in keeping records and providing information about various activities carried out dates back to the beginnings of civilization (differently coloured and knotted strings in the case of the Greeks, Persians and Incas, stones in the case of the Romans, wet clay tablets in Mesopotamia or papyrus in Egypt). In line with the increasingly complex development of economic relations, these accounts took the form of codes, norms and regulations, turned into a complex systems and became the prerogative of a distinct activity within organizations with the role of tracking and reporting the way that activities are carried out and results are generated. Among the many meanings of accounting, we find the one given by Esnault (1994) according to which it represents a quantitative technique for collecting, processing and analysing information on economic and legal processes within entities. Currently, the accounting information system is seen as being represented by all the means, procedures, methods, human, capital and informational resources within an entity whose purpose is data collecting, recording and processing and such as the transmission, use and storage useful information for stakeholders.

Any economic activity is based on information and the opportunity, accuracy, intelligibility, relevance, credibility, comparability and continuity represent the basic requirements of accounting information systems (AIS) while the evolution of accounting information technology has an impact on all economic activity and, implicitly, on AIS, as the same way as the impact that the industrial revolution had on economic life worldwide (Moscove et al., 2002). Elliot (1998) considers that the greatest impact that IT has had on service industries has been on public accounting, once a

conservative branch and with a slow pace of development. On top of this extraordinary evolution of AIS triggered, for the most part, by rapid changes in the socio-economic environment, two major trends prevail: the globalization of economic activities and an increased interest in ensuring the environment - especially in highly industrialized and developed states (Mansour & Spătariu, 2023).

The paper aims to study, through the analysis of specialized literature, the influence of success and effectiveness factors that act on AIS, factors that have determined the directions and development opportunities of AIS over time, but also the risks generated within this complex process.

The intra- and inter-organizational information provided by AIS represents a permanent flow that must correspond in terms of quality and opportunities without allowing the interpretation by the decision-makers and the standardization of the specific reports represents of one of the necessary requirements in order to assure the interoperability for different sources data's (Mansour et al., 2023).

*The motivation* underlying the choice of the present research topic has in mind the intention to contribute to the expansion of the AIS study through the prism of risks and opportunities arising in the organizations economic and financial life, accentuated by the requirements of the standards implementation of integrated reporting for financial and non-financial information in standardized digital formats. AIS is viewed on the one hand as the main financial information provider of the organization but also as a determining means of improving the stakeholder communication process. These aspects represent the basis of the motivation for study AIS as a dynamic process, in continuous development both at the level of specialized literature and at the level of international regulation or in the entities practice.

*The relevance* of the chosen theme is determined by the AIS performance and their permanent evolution determined in turn by the speed of changes that take place on an economic-social plan, at an international level but also at the level of regulatory frameworks. Companies' financial and non-financial reporting obligations are also subject to permanent changes (IIRC, 2013, European Parliament, 2022, IFRS Foundation, 2020) and the activity of regulatory authorities in the financial field tends to exceed the limits of determining legal norms (Albu et al., 2022).

*The purpose* of this work is represented by the definition and analysis of AIS features, the factors that can influence the AIS performance in ensuring quality financial-accounting information, as well as the risks that can affect them.

In order to achieve this goal, we systematized and analysed relevant works from the specialized literature and we identified two *objectives*:

Objective no. 1 aims to define and to critically analyse the AIS features through the specialized literature.

Objective no. 2. Aims to identify the factors that can improve AIS but also the risks to which it is subject.

To achieve the objectives, we studied the specialized literature from which results that AIS, supported by IT, has the ability to manage tangible and intangible organization aspects, including risk assessment, activities' control and coordination.

*The methodology* used to achieve the objectives consisted in the systematization and analysis of the most important articles from the specialized literature with the aim of synthesizing the results of previous research in this area of interest, this being the method most approached by researchers in the AIS analysis (Mansour et al., 2022). The work aims to be useful to the business environment and accounting professionals in understanding the need for rapid AIS adaptation to the transformations imposed by IT technologies and by the socio-economic demands.

The work is divided into 5 chapters. The first of these summarizes a short introduction accompanied by the motivation of the chosen theme. In the second chapter, the specialists' interest regarding the AIS development importance and their multiple implications within organizations is presented. Section number three presents the research methodology. The fourth section provides main features, risks and opportunities identified in the specialized literature regarding AIS and the IT implications. The last of the sections expose a synthesis of the results as well as opportunities for future research.

## 2. Literature review

Accounting Information Systems (AIS) represents the intersection point of two disciplines: accounting and information systems, so that the study of AIS is often seen as the study of computerized accounting systems. Simkin (2012) approaches AIS as a data collection and processing procedures that generate to stakeholders' useful information.

Accounting information provided to stakeholders influences their behaviour and decisions, so AIS must be able to provide end users relevant, timely and accurate information on which to base the best decisions. Various stakeholders may have competing objectives, which may sometimes be mutually exclusive, based on incompatible interests, and may request conflicting information from the AIS. To ensure this requirement, the system must record in monetary terms every financial or non-financial action (physical resources, financial resources, reputation, partners, human resources) that could affect the entity's income or financial position (Neogy, 2014), AIS efficiency also having implications on the organization performance (Suzan et al., 2019). To the extent that an AIS fails in recording and reporting relevant information on any of these resources, it may be considered inadequate as a source of information/control and decision support.

Internal and external decisions of a financial or managerial nature are based on the information provided by accounting. Hodget et al. (2015) defines accounting as being the process of identifying, measuring, recording and communication of economic and financial information that allows well-documented judgment and decision-making, in a word "reporting". "To report" comes from the Latin "reportare" which means "to bring back", "to give an account", "to submit a formal report" to give an account of a observed phenomenon, heard, realized or investigated (Oxford University Dictionary, 2014), including here the financial or non-financial reports offered by AIS, regardless of which users category they are addressed to. Freeman's innovative theory (Freeman, 1984) directs reporting strategies to all stakeholders in the disadvantages of the "Shareholder primacy" theory, thus balancing all informational interests, a theory that led to the redefinition of the AIS nature and performance in the stakeholder communication process (Jensen, 2001) but also as a tool to achieve investors' objectives (Asher et al., 2005; Balmer et al., 2007).

Brown (2009) proposes an AIS conceptual framework based on the political philosophy of agonistic democracy according to which when consensus is not possible, pluralistic engagement is called for that facilitates dialogue and that respects different competing perspectives. Its purpose is not immutable consensus, but understanding, learning and progress. The same agonistic theory in the AIS approach is also proposed by Dillard & Yuthas (2013) with the aim of facilitating pluralism in addressing the needs of traditional and non-traditional businesses and different stakeholders' categories. We are witnessing a continuous process of transforming the entire society into a true "information society", where access to knowledge has become a basic economic resource and AIS identifies itself as the synergy between the four dimensions of the organization that lead it to sustainable development: people, data, processes, technology (Mansour et al., 2022).

The IT introduction at the level of reporting provided by AIS had the immediate effect the reducing of the time and of the information transmitting costs to the capital markets, the increasing the comparability, transparency and quality of information and creates the opportunity for its to be integrated within multiple information systems, facilitating quick reactions from users (Mansour et al. 2023).

## 3. Research methodology

Following previous studies, the present paper is based on the relevant specialized literature review in the AIS field, published in the period 2000-2023 (articles, books, doctoral theses, national, European and international legislative sources, websites of international professional bodies) identified in databases Elsevier, Emerald, Scopus, SpringerLink, WoS,. The selected articles, using the searching keys "Accounting informational system" and "Challenges"/ "Risks"/ "Opportunities". Those were then coded according to their content and to their research methodologies and results.

In order to achieve the established objective, we considered it appropriate to channel AIS studies in three directions: challenges, risks and opportunities. Following this analysis, a series of characteristics, risks and opportunities of AIS in the last decade resulted, but also the broad spectrum

of relations between the AIS component elements as well as the multitude of interactions with the organizational environment.

The limitations of this paper are mainly related to the general way of presenting the concepts, the high degree of theorizing without having an empirical study to identify the features of AIS at the organizations level.

#### 4. Findings. AIS Challenges, opportunities and risks and the response of Information Technology on modern accounting system

Information as a product of AIS has a double role: both as a regulatory factor (a factor that highlighting a state of affairs) but also as a catalyst factor (concentrates a series of data that outline a certain evolution in the future). The AIS features and the complex role at the level of different organizational structures confer it relevance within the global economic system. Stakeholders' efficient decisions are based on the information multidimensional character, which is essential to generate a synthetic but at the same time an integral image over the analysed phenomenon. AIS are subordinated to the same characteristics and they provide analysis or diagnostic accounting information that has the effect of formulating working or strategic hypotheses. Neglecting these information systems requirements generates negative effects on economic processes. At the basis of the working hypotheses formulation and well-defined strategic objectives is a well-designed AIS, focused on the exact knowledge of the analysed phenomenon, on the objective examination of the facts, on the presentation of all the phenomenon essential aspects and on the explanation of the possible causes that may affect the phenomenon but also of the expected trends in its evolution.

The proper management of all information, regardless of the organizational level involved, is the essential condition for success in developing a strategy. This information management involves a series of complex actions related to the administration of databases with the help of information technology means, from their generation through storage on different technical devices to exploitation. From the accounting point of view, information can be considered patrimonial asset, respectively intangible asset, this resulting from the contribution that it makes to the patrimony development and from the information' ability to generate future economic benefits. Regarding the information features, as an entity assets, they are common to other fixed assets, with a predominant focus on moral wear and tear against the background of constant advances in technology and business models. The advantage in the struggle for development belongs to the holder of timely, clear, correct, relevant and sufficient information.

Figure no. 1. Components of Accounting informational system



Source: Authors' contribution

Although raw data may be of interest to some information users, most need processed data on which to validate their decisions and their actions. Modern AIS leverages and integrates information technology in all processes (input, storage, processing, transmission). The structure of an accounting information system is presented in 'Figure no.1.

Abutaber (2014) presents a series of essential features of an efficient and reliable accounting information system: accuracy of information, timeliness, internal and external control of the information process, the planning process, flexibility and the ability to adapt to the fluctuations determined by the organization's internal and external environment.

Accounting software packages' implementation adopted by companies led to improved transaction processing capabilities (Booth et al., 2000), reduced data processing costs (Dillard & Yuthas, 2013; Scapens & Jazayeri, 2003), facilitated the generation of various financial reports (Chapman & Chua, 2005), improved financial control (Wagner & Newell, 2006) and influenced the accounting information quality and business strategy (Puspitawati, 2021).

Soudani (2012) found that AIS positively influenced the organizational performance of listed companies, while Sari et al. (2019) demonstrated that the quality of accounting information depends on the quality of AIS (including financial accounting, management accounting and sustainable accounting) with direct influence on managerial decisions (O'Connor & Martinsons, 2006) better planning of activities (Sari et al., 2019) and the quality of financial reporting as well as that of the internal control system is directly dependent on the quality of AIS (Monteiro et al., 2019). The ability to adapt to the environmental changes and manage competitiveness are the direct benefits of the optimal use of AIS (Soudani, 2012).

Hla & Teru (2015) identified a series of risks that AIS may be subject to: the internal control system quality, the relationship between the interested parties and the audit activity, respectively the independence of the internal and external audit, the quality of human resources, the quality of information technology (software and hardware) but also of organizational processes. Along with the internal factors that can affect the quality of AIS, there is also pressure from the external environment (Mitnick, 2015), the systems being dependent on its evolution and trends.

Classical information systems focus, in particular, on economic transactions defined by neoclassical economics as "relevant", leaving out social and environmental considerations, an example is that it insufficiently addresses the informational needs associated with the Global Principles of United Nations (2015) for responsible business in the field of human rights, collective bargaining, discriminatory labour practices, etc. All these have become imperatives of the design criteria of the new informational accounting systems. Extending the design requirements may have the effect of increasing costs in the short term, but the management decision will be fundamental based on social and environmental opportunities as well as a much more realistic risk management.

Kumar's study (Kumar et al., 2020) shows that the greatest interest in the AIS study was the emergence of IT technologies within the AIS but also their application for the purpose of growth information quality. Organizations have used the Internet as an effective channel of stakeholders communication, most choosing to publish their reports on their own websites or on those of various international regulatory bodies.

Information technology includes a multitude of processes, software, hardware, information systems, programming languages in different formats (visual, multimedia), but not limited to those listed, tending to expand from individual use or within of some restricted systems to their use in increasingly complex and interdependent networks. The organisation ability to develop and use complex computer systems to track, record, process and transmit various financial transactions represents the most profound impact that the evolution of IT has had on accounting systems. Other advantages of the emergence of IT within AIS are: increased functionality, improved data quality, rapid processing, improved external reporting. Specialized studies in recent years have demonstrated the benefits offered by the expansion of digital reporting, as elements of AIS: reducing debt costs (Kaya & Pronobis, 2016; Laiet al., 2015), timeliness of information transmission (Du & Wu, 2018), reduction of information processing costs (Blankespoor et al., 2020), simplifying the information transfer process (Baldwin et al., 2006), improving the quality of information transmitted and its relevance (Baldwin et al., 2006; Birt et al., 2017), improving reporting transparency (Bartley et al., 2011), all with a positive impact on shareholder wealth (Chen et al., 2018; Kim et al., 2018).

These advantages offered by the technology development are obvious, but along with the technological revolution, a series of problems related to the emergence of technology in information systems were also raised in specialized studies. One of these relates to technology's ability to rapidly deliver large amounts of information, thus becoming a challenge for AIS to process, manage, store and distribute only useful information, avoiding the risk of losing relevant information. Human resources, information and computer technology are currently in an inseparable connection, so to analyse them distinctly, as separate entities, is almost impossible. Even if the human resource manages the whole activity, this inseparable link is real (Orlikovski & Baroudi, 1991). AIS are becoming increasingly important through the prism of transitions between physical and digital realities (Recker et al., 2021). This digitization also brings with it the danger of representing reality, in the sense that computer systems also have the capacity to create rather than to represent reality (Baskerville et al., 2020).

## 5. Conclusions

Previous studies have shown that the development of AIS had the immediate effect of increasing the performance, profitability, effectiveness and efficiency of the organization, improved the stakeholder communication process, leaving its mark on the organization global value.

The presence of information systems in different forms of presentation can be identified on the development of economic and social life. The revolution in information technology has determined major changes both in the approach, organization and operation of accounting and implicitly in AIS, allowing the circulation of large amounts of a various nature information.

AIS is influenced and in turn influences the organization economic-financial activity and it represents the main source of information. information of AIS, with the increasingly important help of IT. The connection between accounting, as a distinct component of the organization, and the rest of the activities (management, forecasting, marketing, etc.) is achieved through the AIS information function, with the increasingly important help of IT.

Any economic analysis or decision is based on information, seen as a resource, and the power of accounting through the processing of a data large volume makes AIS a basic component of the organizational economic system.

AIS is privileged as an essential working tool, a resource at the management disposal, necessary to obtain sustainable competitive advantages against the background of technological progress, the increase in the information needs from all stakeholders.

Information technology represents the exogenous force of AIS change and its operation is stable when the organization integrates technology within his own activities.

The paper studies aspects and considerations related to the need to implement modern AIS, an aspect that, in view of their complexity, needs to be detailed in the future, including the emergence of new technologies within these systems that support the implementation of real-time accounting reporting.

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## Exploratory Analysis of Assets Nonconformities in Financial Statements

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### Abstract

*Financial irregularities can occur in the management of assets and may be caused by faulty accounting procedures, erroneous estimates, inadequate depreciation or unexpected losses. Such irregularities and errors can affect both the financial statements and the overall performance of the firm. Financial errors can have similar effects. They could arise either from incorrect accounting for asset acquisition or depreciation, negligence or misinterpretation of accounting rules. Such mistakes can disrupt financial statements and the understanding of a company's financial performance and stability. Based on the indicators reported by firms in 2021, this study identifies both at the level of each county and by taxpayer category, situations where fixed assets are lower than tangible assets, and the risk of non-compliance in financial reporting appears to be significant.*

**Key words:** assets nonconformities, exploratory analysis, financial error, fixed assets, noncurrent assets, tangible assets

**J.E.L. classification:** H00, H32, K00

### 1. Introduction

In the context of finance, asset management is an essential component of a successful company. Non-compliant assets, deviations from regulations and financial errors can significantly affect the performance and viability of an organization (Amiram et al, 2013, p.732). Therefore, exploratory analysis of these issues becomes a critical step in identifying and solving problems and improving fixed asset management.

In order to fully understand the concept of non-compliant assets and financial errors, it is important to define the asset and understand its classification. Assets are resources controlled by an entity as a result of past events and from which future economic benefits are expected (Rus, 2013, p. 942). They can be divided into several categories, such as fixed assets (tangible and intangible) and current assets. Tangible fixed assets are assets used in the long-term process of production, provision of goods and services; they include buildings, machinery, equipment and means of transport. Intangible fixed assets are also assets used on a long-term basis but which are not physical in nature, such as patents, trademarks and copyrights.

Deviations from the rules and financial errors can occur in the management of assets, regardless of the category to which they belong. They may be the result of faulty accounting processes, inaccurate valuations, improper depreciation or accidental losses. Such misstatements and errors can affect both financial reporting and overall company performance (Birkin, 2000, p. 289; Munteanu, 2020, p. 978).

An example of a deviation from the rules could be the incorrect valuation of a building recorded as a fixed asset. If the value of the building is overstated, this can lead to a distortion of the company's financial position and affect appropriate management decisions. At the same time, an undervaluation may lead to under-reporting of assets and underestimation of the true value of the company.

Financial errors can have similar consequences. They can result either from incorrect accounting for asset acquisitions or depreciation, or from negligence or inaccurate interpretations of accounting policies. Such errors can affect financial reporting as well as the interpretation of a company's performance and financial health (Rus, 2019, p. 144; Munteanu, 2020, p. 980).

Exploratory analysis of asset management deviations plays a crucial role in identifying and remedying problems. It involves closely examining financial reports, evaluating valuation and depreciation methods, checking accounting recording processes and accounting policies adopted by the company (Chen et al, 2011, p.1255). Through exploratory analysis, discrepancies between book values and actual asset values can be identified, recording errors identified, and the efficiency and effectiveness of existing policies and procedures assessed. Exploratory analysis can also highlight opportunities to improve workflows and optimise asset management processes.

Exploratory analysis of asset non-conformities in financial statements is a key topic of discussion in the field of finance and accounting. It involves a detailed assessment of how assets are presented and managed in companies' financial statements. The main purpose of this analysis is to identify and correct any discrepancies that could have a negative impact on the financial condition of an entity. In this context, activities to prevent and combat tax fraud become essential (Aivaz, Munteanu and Chiriac, 2022, p.337). They argue that "the 2014-2020 period has brought a significant dynamic in the activity of the Directorate General Anti-Fraud in Romania" (Aivaz et al., 2022, p. 341). This suggests that improving fraud detection mechanisms can help prevent noncompliance in financial statements. Stan (2013, p.111) also highlights the importance of legal regulation at European and international level in assessing environmental impacts, which is also reflected in asset management. He states that "international and European legal regulations on environmental impact assessment in the coastal zone of Romania are an essential governance tool for the protection of the environment and natural resources" (Stan, 2013, p.113). Therefore, proper asset management can be influenced by compliance with these regulations. Also Stan, in another study (2014), discusses the importance of public-private partnerships for sustainable urban development. The author mentions that "public-private partnership can be a solution for sustainable urban development of cities" (Stan, 2014, p. 142). This is relevant to our topic, as the involvement of the private sector can help improve asset management in financial statements. According to Petrișor, Susa and Petrișor (2020), creating an environment where sustainability is key can have risks. They argue that "counting for sustainability: the risks of creating a market environment for the environment" (Petrișor et al., 2020, p. 170). Thus, we need to ensure that asset non-conformities are not the result of an attempt to put a price on the environment.

In conclusion, exploratory analysis of asset non-conformities in financial statements is essential to ensure transparency and accuracy of financial information. A multi-disciplinary approach is needed that takes into account both legal regulations and private sector involvement, as well as environmental and sustainability factors. In this respect, preventing and combating tax fraud as well as effective asset management can have a major impact on the quality of financial information.

## **2. Theoretical background**

In any organisation or business, asset management is a crucial aspect of achieving goals and long-term success. Assets are any valuable resource of an organisation, such as physical assets, money, intellectual property and human resources. To ensure effective asset management, deviations from the rules need to be monitored and controlled. Exploratory analysis of these deviations is an essential process to identify and understand the causes and consequences of these deviations, thus facilitating informal decision making and improving organizational processes (Stanciu, Condrea and Costandache, 2017, p. 320)

Deviations from norms are situations in which activities, results or organisational behaviour do not comply with established norms, policies or standards. These deviations can occur in different aspects of asset management, such as unauthorized expenditures, inefficient use of resources or violation of security policies. Exploratory analysis focuses on identifying and assessing these deviations in order to understand their root causes and impact on the organisation.

Exploratory analysis allows the identification and assessment of risks and vulnerabilities associated with deviations in asset management. By examining these deviations in detail, weaknesses in the asset management system can be identified and appropriate risk mitigation and management strategies can be developed. This process facilitates the prevention of financial losses and other organizational damage (Condrea, Munteanu and Mirea, 2019, p. 793)

Deviations from the rules can reveal inefficient processes or inadequate policies that prevent the achievement of organisational objectives. By understanding the causes of these deviations, organizations can develop and implement strategies and corrective measures to optimize their operations and improve their long-term performance.

Exploratory deviation analysis helps to identify and eliminate waste and other operational inefficiencies. By investigating assets and processes that generate deviations, inefficiencies that lead to additional costs and misuse of resources can be identified and eliminated. This leads to increased organizational efficiency and profitability by optimizing asset utilization and reducing unnecessary expenses.

Also, by identifying deviations and assessing their causes, organizations can take corrective and preventive actions to comply with legal requirements and relevant industry standards. This reduces the risk of legal and reputational penalties and protects the organisation's image and integrity.

Exploratory analysis of regulatory deviations can help improve organisational culture and work ethics. By examining and managing deviations, organisations can promote accountability and respect for rules and regulations. This process facilitates the creation of a strong organizational culture based on ethical values and mutual trust among team members (Chiriac, Munteanu and Aivaz, 2022, p. 298).

After identifying deviations from the rules and financial errors, it is necessary to implement an action plan to manage fixed assets in an efficient way and in compliance with financial regulations and standards.

This includes reviewing and updating accounting policies, establishing clear procedures for valuation and accounting recording, adequate training and education of staff responsible for asset management, and establishing a system for regular monitoring and review of these processes.

It is also important to focus on communication and collaboration between financial, accounting and asset management departments to ensure the correct and accurate flow of information and to avoid errors and deviations.

The first step in managing fixed assets is to identify and record them. The organisation should develop a system or register containing detailed information about each asset, such as description, value, date of acquisition, location and other relevant characteristics. This register should be updated regularly as new acquisitions or changes are made to existing assets.

To manage fixed assets effectively, it is important to regularly assess their value and calculate depreciation based on wear and tear and the passage of time. This can be done through methods such as straight-line depreciation or more complex methods such as accelerated depreciation or fair value depreciation. Proper valuation and depreciation of fixed assets helps to determine the net value of assets and to make informed decisions about their replacement or repair (Mirea and Munteanu, 2017, p. 88).

In order to keep fixed assets in good working order and to extend their useful life, it is essential to implement a proper maintenance and upkeep program. This can include regular overhauls, preventive and corrective repairs, replacement of worn or defective parts and compliance with safety standards. A well-planned and implemented maintenance programme can reduce operating costs, minimise downtime and extend the life of fixed assets.

To manage fixed assets effectively, it is important to monitor their use and efficiency. This can be done by collecting and analysing relevant data such as operating hours, yield or costs associated with asset use. Monitoring enables the identification of non-conformities, inefficiencies or needs for improvement and facilitates informed decision-making to optimise asset utilisation and resource allocation (Munteanu and Condrea, 2018, p. 525).

In order to minimise the risk of loss or damage to fixed assets it is important to implement appropriate protection and insurance measures. This may include insuring against fire, theft or other unwanted events, implementing an adequate security system, and developing policies and procedures

for the proper use and handling of assets. Adequate protection and insurance of assets helps to minimise risks and protect their value and integrity.

As fixed assets reach the end of their useful life, it is important to plan for their replacement or upgrade. This may involve developing a phased asset replacement plan so as to avoid the costs and problems associated with suddenly replacing all assets at once. By planning to replace and upgrade assets, the organisation can ensure operational continuity and maintain optimal performance.

### 3. Research methodology

The main objective of this study is to conduct an exploratory analysis of the risk of non-compliant financial reporting in asset management.

The exploratory analysis method used in this research is a process by which various sets of financial data are examined to better understand patterns, trends and relationships between different variables (Hoque, 2017, p. 241; Aivaz et al, 2022). This analysis is usually performed before any attempts are made at financial modelling or prediction.

The main steps of an exploratory analysis of financial indicators are:

- Understanding the data: It is essential to understand the nature and structure of the data set we have. This might involve examining the types of data, measuring variation and understanding how the data was collected.
- Cleaning the data: This process involves removing any errors, gaps or anomalies in the data. It is also important to identify and deal with outliers that could distort the analysis.
- Descriptive analysis: This step involves summarising the data using statistical measures such as mean, median, mode and standard deviation. The aim is to get a clear picture of trends and patterns in the data.
- Visual analysis: This involves graphing the data to make it easier to understand patterns and relationships. This may include using bar charts, line graphs, scatter plots or box plots.
- Inferential analysis: Once the data have been visualized and described, more advanced statistical methods can be applied to better understand the relationships between variables. This may include hypothesis testing, regression analysis or other similar methods.
- Interpretation of results: Finally, the findings of the exploratory analysis are interpreted in the context of the research questions or business issues of interest. This is the stage in which conclusions are drawn and recommendations are made for further stages of analysis or action (Pintilescu, 2007, p. 10; Pintilescu, 2022, p. 23).

For this exploratory study, we recorded the financial indicators: fixed assets and tangible fixed assets, the data being publicly available on the website of the Ministry of Public Finance of Romania. Fixed assets show us the predilection of an entity to invest for the long term.

Where fixed assets are smaller than tangible assets, the risk of non-compliance in financial reporting appears to be significant. There may also be situations of reclassification or correction of fixed assets to other categories of assets, which are required to be explained in the notes to the financial statements. Given the differences identified in this analysis, the risk of non-compliance with financial reporting appears to be probable and significant.

These situations may indicate the existence of errors either in the current reporting or in prior years' reporting. The error may also arise either from the erroneous recording of depreciation or from the erroneous reporting of items in the categories of fixed assets (intangible assets and/or financial fixed assets).

### 4. Findings

Analysing the data presented in Figure 1, we can observe significant differences between counties in the values of tangible fixed assets and total fixed assets.

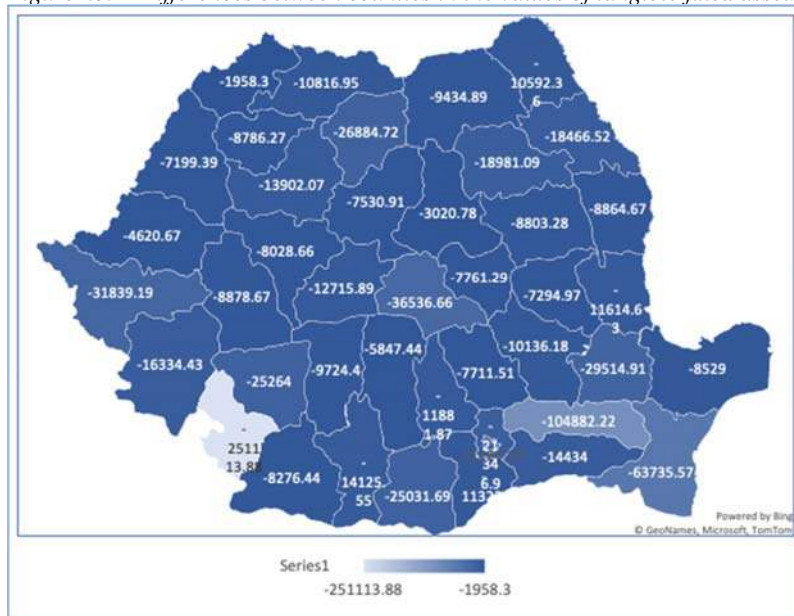
The highest level of tangible fixed assets is recorded in Botoşani county, with a value of 4,166,619 lei, followed by Braşov county with 1,155,843 lei and Ilfov county with 1,112,946 lei. These counties stand out for their significant investments in tangible assets, such as buildings, land, equipment, etc.



At the opposite pole, Covasna county records the lowest level of tangible assets, with a value of 80,920 lei.

Similar to tangible fixed assets, Botoşani county ranks first in terms of total fixed assets, with a value of 4,156,027 lei. The next counties are Prahova with 912,324 lei and Ilfov with 1,091,599 lei. At the other end of the spectrum, Covasna county also has the lowest level of total fixed assets, with a value of 73,159 lei. Also, from the analysis of the data, we can deduce that Botoşani county stands out for its high level of investments in tangible fixed assets and total fixed assets, while Covasna county is at the bottom of the ranking in terms of these values.

Figure no. 1 Differences between counties in the values of tangible fixed assets and total fixed assets



Source: Authors' work

Based on these data, there are several possible explanations for these results:

- Economic development: Botoşani County may have more fixed assets due to significant economic development. There may be more companies or public institutions that have invested in long-term assets in this county.
- Industries present: The type of industries present in a county may influence the level of fixed assets. For example, counties with many factories or other types of manufacturing that require expensive equipment and facilities will have more fixed assets than counties with more service-based economies.
- Population and size: Larger counties or counties with a larger population may also have more fixed assets because more infrastructure is needed to serve more people.
- Investment policies: Differences may also be influenced by the investment policies of local organisations or governments. Counties that encourage investment in long-term assets may have higher levels of investment.
- Historical factors: Sometimes differences of this type can be the result of historical factors, such as a legacy of past investments.



It is important to note that these figures reflect the level of fixed assets at a particular point in time and do not provide information on the economic performance or profitability of the respective counties.

Table 1 is the result of a statistical analysis intended to provide an overview of tangible fixed asset values and total fixed assets within the identified taxpayer groups. The "Large" group represents a single taxpayer and the average values for tangible fixed assets and total fixed assets are approximately 64,565,699 and 64,503,260 respectively. It is important to note that this group contains only one taxpayer, so the values represent the result of this single case.

The "Small" group consists of 2,162 taxpayers and the average values for tangible fixed assets and total fixed assets are approximately 747,910.93 lei and 728,412.86 lei respectively. This group represents taxpayers with lower values compared to the "Large" group. These lower values may indicate smaller business sizes or lower investments in fixed assets.

*Table no. 1 Average level of tangible fixed assets and fixed assets by large taxpayer group*

Taxpayer group		Tangible fixed asset	Total fixed assets
Large	Mean	64565699.00	64503260.00
	N	1	1
Small	Mean	747910.93	728412.86
	N	2162	2162
Middle	Mean	5165239.74	5079934.40
	N	81	81
Total	Mean	935799.26	913906.66
	N	2244	2244

*Source:* Authors' work

The "Middle" group is composed of 81 taxpayers and the average values for tangible fixed assets and total fixed assets are approximately 5,165,239.74 lei and 5,079,934.40 lei respectively. This group falls between the "Large" and the "Small" group in terms of recorded values. This suggests that taxpayers in this group have a more significant level of investment than those in the "Small" group, but less than those in the "Large" group.

Finally, looking at the whole sample, the average values for tangible fixed assets and total fixed assets are approximately 935,799.26 lei and 913,906.66 lei respectively. This represents the average value for the whole sample of 2,244 taxpayers. The average value for the whole sample reflects the distribution of these values across the whole population of taxpayers. As the majority of taxpayers are in the "Small" group, this may have a significant impact on the overall average.

Possible explanations for these results could be as follows:

- Company size and financial capacity: the "Large" group may include a large corporation or a firm with significant financial capacity, which would allow it to hold a higher value of property, plant and equipment and total fixed assets. Also, the type of business this company conducts may require a significant investment in fixed assets.
- Number of contributors in each group: The large number of taxpayers in the "Small" group may contribute to lower average tangible fixed assets and total fixed assets. If many of these firms are small or medium-sized and have fewer financial resources to invest in fixed assets, this could lead to a lower average value.
- Type of industry or sector: The 'Middle' group may include firms in sectors or industries that require a moderate level of investment in fixed assets. For example, these could be manufacturing firms that need equipment or facilities, but on a smaller scale than a large corporation.
- Investment strategy: Differences between groups can also be influenced by the investment strategies of companies. Some companies may prefer to invest more in fixed assets to increase production or efficiency, while others may prefer to invest less in these assets and more in other areas such as human resources or marketing.

- Higher value of tangible assets compared to the value of total fixed assets: deviations from accounting regulations, errors in the accounting of the value of fixed assets held in the balance sheet (Munteanu I., 2020, pp.978). Each particular case requires its own analysis and appropriate accounting treatment. An exploratory analysis such as the one proposed in this article is not only recommended, but also necessary for the correct balance sheet recording of a company's financial indicators, as well as for the correct basing of managerial decisions on correct financial indicators.

This analysis allows us to get an overview of the distribution of the values of tangible fixed assets and total fixed assets within the different groups of taxpayers. It can be useful in identifying significant trends and differences in the level of investments and fixed assets within these groups.

## 5. Conclusions

The management of fixed assets is essential to ensure efficient and sustainable use of organisational resources. By properly identifying and recording assets, assessing their value and depreciating them appropriately, implementing a maintenance and upkeep programme, monitoring their use and efficiency, protecting and insuring them appropriately, and planning for replacement and upgrading, organisations can manage assets effectively and ensure a seamless workflow and optimal use of resources. Effective management of these assets contributes to achieving organisational goals, reducing costs and increasing long-term performance.

Exploratory analysis of deviations from the rules plays a key role in asset management and ensuring long-term organisational success. By identifying and assessing these deviations, organisations can identify risks and opportunities, improve operational performance and efficiency, maintain compliance with legal and regulatory requirements and improve organisational culture. Therefore, it is crucial that organizations pay attention to exploratory analysis of deviations from regulations and take appropriate corrective and preventive measures to ensure effective asset management and achieve their strategic objectives (Krambia-Kardis, M., 2002, pp.266).

In the cases analysed in this study, where fixed assets have lower values than tangible assets, there is a significant risk of non-compliance in terms of financial reporting. There is also the possibility of reclassification or correction of fixed assets to other categories of assets, which should be described in detail in the notes to the financial statements. Due to the discrepancies identified in this analysis, the risk of non-compliance with financial reporting rules appears to be both likely and significant.

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## A Bibliometric Analysis on Fraud in Accounting

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### Abstract

*The main objective of the research was to visualize and analyze complex datasets for the development of keyword maps and the identification of clusters of connected terms. In order to highlight thematic relationships between words, thus providing insight into the dynamics of the domains of interest, we used VOSviewer, a versatile digital tool. With this tool we detected sub-domains connected with fraud or various specialisations within the domain. The approach adopted for this study was the bibliometric analysis of a total volume of 1377 articles, which were indexed in the Scopus database over a nine-year period from 2015 to 2023. The primary topic of these articles was tax evasion, while secondary topics were accounting, forgery and legal issues. In addition, the keywords used, relevant by their frequency and impact, gave us the opportunity to identify dominant themes and uncover less explored areas of research, thus being able to guide future directions of study.*

**Key words:** frauds in accounting, bibliometric analysis

**J.E.L.:** H00, H32, K00

### 1. Introduction

Fraud is a complex phenomenon that cuts across many spheres of our lives, from accounting and economics to legal issues and even counterfeiting. In all these areas, the aim is the same: to prevent and punish fraudulent behaviour in order to protect the economy, consumers and the integrity of the legal system. While fraud may sometimes seem to be an intractable problem, by understanding and addressing it in a comprehensive and interdisciplinary way, important steps can be taken to reduce its negative impact.

Bibliometric analysis software allows complex data to be visualised and analysed in a graphical way, and can be used to develop keyword maps or analyse groups (clusters) of keywords. It can be used in various fields such as scientific research, innovation management, or social analysis. Clustering keywords can highlight thematic relationships between words, indicating which words are often used together in the same context. If the data analysed includes a temporal component, cluster analysis can show how themes evolve over time or certain keywords, depending on their frequency, suggesting changes in areas of interest.

Cluster analysis can also help to identify sub-domains or specialisations within a given field. VOSviewer, the software used in this research, can also show the popularity and impact of keywords. Keywords that appear in many articles, or are associated with frequently cited articles, may be considered more important. Last but not least, keyword cluster analysis can also help identify areas where there is little research or understanding, pointing to possible directions for future research.

This bibliometric study on fraud in accounting provides an extended view over a broad time horizon (Munteanu and Jakubowicz, 2022, p. 920), including the number of publications focused on this topic indexed in the Scopus database. Our intention is to highlight fraud in accounting as a research area. The main objective of the research is to assess the current situation and to identify

future perspectives of concerns in the field of fraud in accounting, the selected studies aiming at obtaining answers to the following research questions:

Q1 - What are the most relevant research topics related to fraud in accounting?

Q2 - In which research network are the secondary research topics related to the topic fraud in accounting integrated?

In order to answer the research questions we conducted an initial analysis with Microsoft Excel (Araya-Castillo et al., 2021, p. 1; Ribeiro-Navarrete et al., 2021, p. 1), then we conducted a bibliometric analysis. Bibliometric analysis uses mathematical and statistical methods to analyze scientific activities in a given research field (Callon et al., 1991, p. 195; Aparicio et al., 2019, p. 105). There are different programs that can perform this bibliometric analysis. In this study, we opted for VOSviewer 1.6.16 (Van Eck and Waltman, 2010, p. 523) due to the possibility to build and visualize bibliometric networks from scientific publications and researchers using keywords, bibliographic links, co-citation or author relationships.

## 2. Theoretical background

Fraud is an illegal activity that is closely linked to many aspects of economic and social life. The connection between fraud and accounting is mainly manifested through accounting fraud. This involves manipulating, hiding or distorting a company's financial information to mislead investors or tax regulations (Jakubowicz and Munteanu, 2022, p. 883). Examples of accounting fraud can include manipulating sales figures, hiding debts and misrepresenting the value of assets. The role of accountants is to keep a clear and accurate record of an entity's financial transactions. When this ethical standard is compromised, it can lead to serious legal consequences and loss of public trust.

Second, fraud is a central concept in economics, where it is considered a form of rational but unfair behaviour. People are motivated to commit fraud when the potential rewards outweigh the risk of being caught and punished. Economic fraud can have a significant impact on the economy by distorting markets, undermining fair competition and eroding public confidence in the economic system.

As far as the legal aspects are concerned, fraud is, of course, a criminal offence. Whether it is mail fraud, bank fraud or insurance fraud, all are punishable by law. Forgery is a form of fraud involving the fabrication or alteration of an object or document with the intention of making it appear genuine. This can include forging a signature on a cheque, creating a false document or even counterfeiting money. Forgery is also a serious crime, punishable in most jurisdictions around the world.

Accounting fraud is a topic of great interest in the scientific literature. Florea and Aivaz (2022, p. 325) who conducted an exploratory analysis of the number of corruption offences in Romania from 2014 to 2020, approached this topic from a macroeconomic perspective. The authors focus their analysis on data on corruption offences in Romania, highlighting that corruption offences are not only violations of the law, but can also have significant effects on a country's economy. In parallel, Aivaz et al (2022) discussed the topic of fraud from a different angle, exploring the impact of non-compliance in transport businesses. The authors argue that non-compliance can have a domino effect, leading to financial fraud and potentially economic instability.

Another relevant study is that by Aivaz, Munteanu and Chiriac (2022, p. 337). It focuses its research on the work of the Directorate General for Anti-Fraud (DGAF), highlighting how it influences the accounting and tax environment in Romania. In addition to these approaches, fraud can be studied multidisciplinary, with a number of famous case study examples presented in a study by Chiriac, Nisulescu and Aivaz (2021, p. 989), these studies illustrate how it can affect different areas of the economy and society. Analysing these works, a common theme can be observed: accounting fraud has spillover effects in different sectors of the economy and society. From corruption that can destabilise national economies (Florea and Aivaz, 2022, p. 325), to non-compliance in transport businesses that can lead to financial fraud (Chiriac, Munteanu and Aivaz, 2022), the impact is significant and varied.

It is also important to note how institutions, such as the DGAF, are trying to counter these crimes and ensure the integrity of the tax system (Aivaz, Munteanu and Chiriac, 2022, p. 298). This effort not only helps to prevent and combat fraud, but also contributes to maintaining economic stability.

In conclusion, accounting fraud is a complex and multifaceted subject that requires multidisciplinary and cross-sectoral approaches. By studying cases of fraud and efforts to combat it, we can better understand its impact on our society and economy, and move towards creating more effective policies and mechanisms to prevent and combat it.

### 3. Research methodology

This section highlights the importance of bibliometric analysis as a research method for examining the most relevant aspects of fraud in accounting as a field of research.

The significant increase in scientific output in recent decades has increased the value of bibliometrics (Hernandez-Perlines, 2022, p. 428). In recent years, we have witnessed the indexing of publications in automated bibliographic databases that have allowed the generation of indicators to measure the results of scientific and technological activities. Most bibliographic databases contain titles, journals, authors, institutions, citations, keywords, abstracts, etc. With such information, it is possible to evaluate science using bibliometric techniques (Gutiérrez-Salcedo et al., 2018, p. 1275) in a systematic literature review (Toro-Jaramillo, 2017, pp.229; Kraus et al., 2020, p. 1023). Through bibliometric analysis, we can assess scientific activity, the impact of publications and the resources available to guide new research (Montero-Díaz et al., 2018). Researchers use it as a reference (Morales et al., 2017, p.329), as it provides a detailed and systematised source of information on scientific production in a particular discipline (Merigó et al., 2015). All these have made bibliometric analysis an emerging and cutting-edge field of research (Astro'm, 2007, p. 12; Miguel and Dimitri, 2013, p. 117; Araya-Castillo et al., 2021).

Prior to the bibliometric analysis in this paper, a preliminary analysis was conducted using Microsoft Excel software (Ribeiro-Navarrete et al., 2021; Araya-Castillo et al., 2021, p. 1). VOSviewer software, version 1.6.16 (Van Eck and Waltman, 2010, p. 523) was used for the bibliometric analysis. An advantage of this software is that it allows us to combine visual interpretation with tables and provide a map based on co-occurrence (Ribeiro-Navarrete et al., 2021, pp.1).

### 4. Findings

The analyses performed co-occurrence mapping. Co-occurrence, also known as semantic network, refers to the relationships between keywords.

In co-occurrence mapping, all keywords were considered as a unit of analysis using the full count method. The study also established some limitations in the analysis. For example, a minimum of 12 occurrences of a keyword was set as a limiting factor. Thus, out of 1377 articles selected from the SCOPUS database, we obtained 3937 co-occurrences, with only 96 keywords passing the threshold number of occurrences.

Each keyword was analysed using software in which links, total link strength and co-occurrences of the keyword with other keywords were calculated. Link strength refers to the co-occurrence between one item (e.g. a keyword) and another, and total link strength corresponds to the total cited references between one item and the others. Also, occurrences represent the number of articles in which the keyword was found. Among the keywords with the highest co-occurrences we have: fraud 529(3682), accounting 355(3492), article 308(3429). The link strength is indicated in parentheses.

As can be seen in Figure 1, the co-occurrences of keywords were also illustrated by a network visualization. As can be seen in Figure 1 the 3937 keywords formed 5 clusters: cluster 1 (red), cluster 2 (green), cluster 3 (blue), cluster 4 (yellow) and cluster 5 (purple). The importance of the circles and texts in each cluster represents the strength of their co-occurrence with the other keywords, while the distance between items and the lines connecting them show the links and interdependencies of the keywords.

In addition, the keywords in each cluster were examined to establish the thematic distinctiveness of the cluster based on the distinctive topic of those keywords.









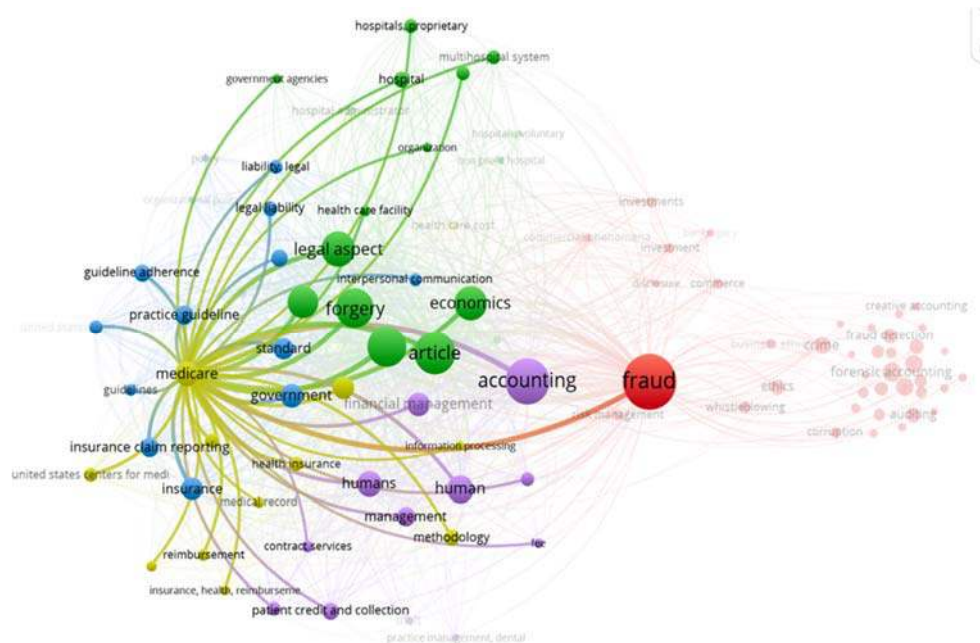


Insurance is the core concept of the cluster. It is a key financial practice involving the transfer of risk from one entity to another in return for the payment of a premium. The standard in this context could be interpreted as a set of rules or standards set by government or a regulatory organisation that guide how insurance claims are reported and processed. The reporting of insurance claims is an essential aspect of the insurance process. It refers to how insurance claims are communicated and documented by policyholders. The Practice Guide could be a document or resource that provides guidance and recommendations on how claims reporting should be carried out in accordance with established standards.

As can be seen, all of these concept's interconnect and create a unified cluster that addresses the management and regulation of insurance claims reporting practices.

*Cluster 4* in Figure 5 focuses on problems: *Medicare, organization and management, health care cost, health insurance*. Fraud is a significant problem in health insurance, including health care systems such as Medicare. As a government-funded health insurance program, Medicare is often a target for fraud. For example, a healthcare provider may fraudulently bill Medicare for services that were not provided or for services that were not needed. Effective organization and management practices can help detect and prevent fraud. Using advanced data analysis tools can help identify complex fraud schemes. Fraud can also contribute to increased healthcare costs. Fraudulent billing for services that have not been provided or for inappropriate or excessive services can lead to additional costs for insurers and ultimately patients. Health insurance fraud can take many forms, including fraud by policyholders, providers or intermediaries. This can include anything from submitting false or exaggerated claims for reimbursement, to selling fake insurance policies or identity theft.

Figure no. 5 Medical co-occurrences



*Source:* Authors' work

Preventing, detecting, and combating fraud are therefore key issues in the administration of health insurance programs such as Medicare, with significant implications for both the cost of health care and the overall efficiency of the health insurance system.

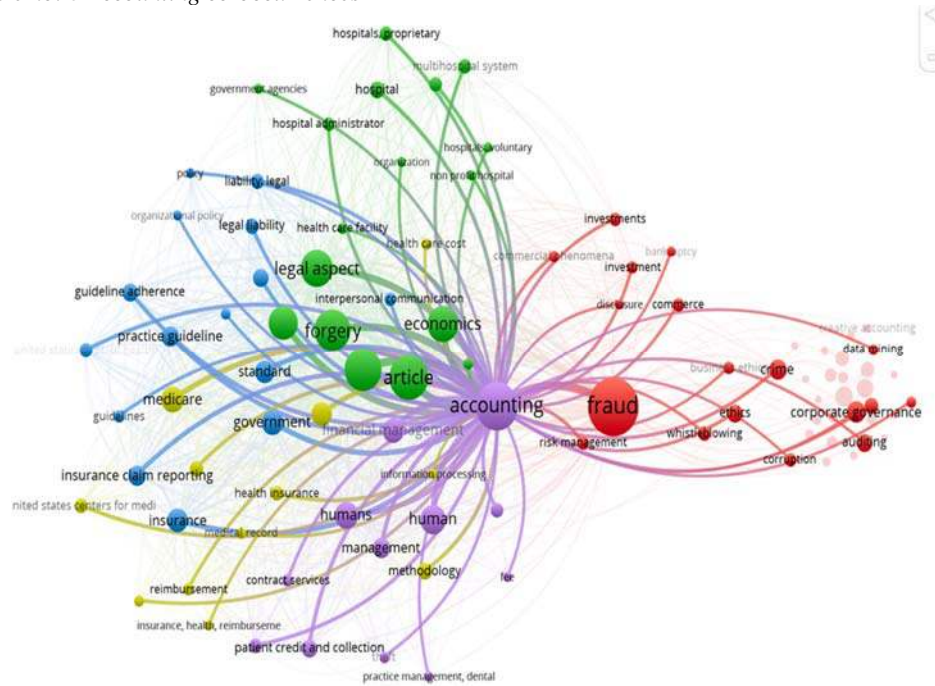
Cluster 5 consisting of the keywords Accounting, human, management, patient credit and collection, contract services is shown in Figure 6.

As we know, accounting is the process by which an organisation's financial transactions are recorded, analysed, interpreted and reported. In this context, accounting fraud can take various forms, such as manipulation of financial data, falsification of records or non-declaration of transactions. At

the same time, staff within an organisation play a crucial role in detecting and preventing fraud. Educating and training employees on recognising the signs of fraud, as well as implementing a corporate culture based on ethics and integrity, can contribute significantly to reducing fraud. Effective management includes implementing and maintaining strong internal controls to prevent and detect fraud. This may involve the development and implementation of policies and procedures that limit opportunities for fraud (Rus, 2013, p. 942). Fraud related to service contracts can also be a significant problem; a service provider may bill for services that have not been rendered or exaggerate the cost of services provided.

Thus, all these keywords combine to form a complex picture of fraud in an organisation, highlighting the need for effective management practices, trained staff and robust accounting systems to prevent and detect fraudulent behaviour.

Figure no. 6 Accounting co-occurrences



Source: Authors' work

## 5. Conclusions

For the study, we opted for a bibliometric analysis methodology. This involved a rigorous research process that considered a total of 1377 scientific papers indexed in the Scopus database over a nine-year period from 2015 to 2023. The papers analysed were based on a central theme of fraud, but also included related topics such as accounting, government and various legal issues.

The main objective of the study was to visualise and analyse complex datasets from these papers in order to develop keyword maps and identify clusters of related terms. Through this methodology we aimed to provide a clear picture of the structure of the information, highlighting the links and connections between the different keywords in the context of the themes addressed.

To achieve this goal, we turned to VOSviewer, a versatile digital tool known for its ability to visualise and analyse data in an efficient way. This software not only allowed us to easily visualise the data, but also helped us to detect sub-domains or specialisations related to the central theme of tax evasion, such as various forms of fraud.

The use of keywords played a key role in our study as a main tool for analysis. They were carefully selected for their relevance to the themes addressed, but also for their frequency and impact within the scientific literature reviewed. By identifying the most frequently used keywords and analysing their impact, we were able to highlight the dominant themes in the literature we analysed.

Also, a valuable aspect of using the VOSviewer was the possibility to discover less explored areas of research. Keyword cluster analysis allowed us to identify not only central research themes, but also areas where there is a knowledge or research gap. These may represent future directions of study, offering significant opportunities for advancing our understanding of tax evasion.

In conclusion, our study has been able to provide a detailed picture of the field of tax evasion and related topics by analysing a significant number of scientific papers indexed in the Scopus database over the last nine years. The results revealed both dominant themes and less explored areas of research, providing valuable directions for future research in this area.

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## Are Coins and Notes History in The US ?

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### Abstract

*There is a famous saying: Money changes companies and companies change money. Nowadays there are more and more opinions about the future of money and central banks. Is money issuance still a function of central banks? Regulation or deregulation? Society without physical money? These are just some of the questions we hear from both the general public and the financial banking world.*

*This paper is a small study of money issuance and its necessity from a central bank perspective. The study on the US case is based on data published by the Federal Reserve and brings the US dollar issuance into focus. Based on volume and tightness analysis, the results show that there is still a need for physical currency in the US, especially small denomination.*

*Although credit cards have replaced many cash transactions in recent years, the dollar is a sought-after physical currency outside the US.*

**Key words:** currency, Fed, monetary policy

**J.E.L. classification:** G01, G20, G21, G24, G30, E50

### 1. Introduction

The emergence of money in human history was a major step towards modern society. While in the beginning the form of money - obviously unregulated - was varied, today we talk about varieties of money and regulatory institutions.

The US economy developed mostly on the basis of private property, and in this context physical money appeared early compared to today's regulatory institution, the Fed.

The need for a US central bank arose as a result of the bank failures of the early 20th century.

Early uncertainties also existed: in the late 18th and early 19th centuries, the US Congress twice passed bills providing for the establishment of a US bank. However, the partially implemented project did not continue.

In the early 1900s, the financial crises brought the issue of setting up a financial regulatory institution to the fore. We finally have the public and government consensus needed to create a truly independent central bank. As a result, in 1913 the Fed was established.

The original goals of the Federal Reserve System were to provide the country with a more stable currency, provide facilities that would lead to reduced commercial lending, and improve oversight of the banking system. Today, the Fed has multiple objectives and has a monopoly on money issuance by decision of the US Congress.

### 2. Theoretical background

Within each banking system, the issuing bank plays a key role. Through its functions, its links with other banks and with the economy, the US central bank plays its role in the monetary issuance process.

The Board of Governors is the issuing authority for Fed notes. It aims to meet the public's needs by having sufficient cash in circulation. Federal Reserve Banks receive, distribute and process Federal Reserve notes. It also distributes coins through depository institutions. The Board of

Governors and the Reserve Banks work together to maintain the confidence and integrity of the currency, the US dollar.

The Federal Reserve Bank's 28 cash offices provide cash services for over 8.000 savings loan and credit union banks. The amount of currency in circulation depends significantly on the public's demand for currency.

The amount of money in the economy is an important element of monetary policy. Monetary cycles follow one another, and decisions on money issuance are linked to central bank policies.

Over time, there have been controversies in monetary theories, including those related to central bank independence.

Given that the Fed has multiple objectives, the importance of which changes over time, we find studies linking money supply to other factors of a cyclical or countercyclical nature. An older empirical study was carefully revisited by Bernanke & Carey (1996). They found that real wages were strangely countercyclical in a case of 22 countries between 1931 and 1936.

For international and historical evidence one can read the study on the determination of business cycles and the role of money quantity by Backus & Kehoe (1992) and later by Bergman, Bordo, Jonung (1998). Interpretation of international historical evidence are all the more complicated when one seeks to measure the exact duration of business cycles.

Basu & Taylor (1999) have shown that monetary shocks – are not neutral in their effect on the economy.

Building on these issues revealed in the literature we will issue money - as a function of the Fed.

### **3. Research methodology**

In the literature, including on the basis of specific datasets, there is a wide range of approaches to the causal relationship between the quantity of money and monetary policy instruments.

The decision to issue physical money is strongly related to monetary policy. In recent years, to overcome the limits of traditional monetary policy imposed by the effective lower bound on short-term interest rates, the Federal Reserve, but and other central banks from the advanced economies have used new monetary policy instruments. Bernanke B (2020) reviewed these. He focused on the easing of quantitative easing (QE) and the forward guidance of the main new instruments used by the Fed.

The impact of US monetary policy on banks, the volume of banknotes issued, the leverage of US banks globally on dollar-denominated cross-border bank flows are important topics of the studies. Romer and Romer, 2004 studied US monetary policy shocks identified from narrative sources of the Federal Reserve's Greenbook forecast. Compared to Bruno and Shin (2015), who use standard recursive monetary policy identification techniques, they find that leverage declines faster and to a much larger extent after monetary tightening, suggesting that the declining availability of debt financing plays a significant role in the propagation of monetary policy through the banking system. In our study, we aim to investigate the dynamics of outstanding volume in the US.

### **4. Findings. Volume and structure of currency in circulation in the US**

In the US, domestic demand is driven by the use of currency transactions influenced mainly by the prices of goods and services, and then by the level of household income. External influenced by political and economic uncertainties.

According to studies published by the Federal Reserve, between 50% and 66% of all US currency issued is held by individuals or entities located abroad.

The Federal Reserve Board has decided that the notes currently issued are \$1, \$2, \$5, \$10, \$20, \$50 and \$100.

For the \$5, \$10, \$20, \$50 and \$100 notes, the note has a letter and number designation that corresponds to one of the 12 Federal Reserve Banks. The largest note ever issued by the Federal Reserve was the \$10,000 note.

Table no. 1 Value of currency in circulation in billions of dollars

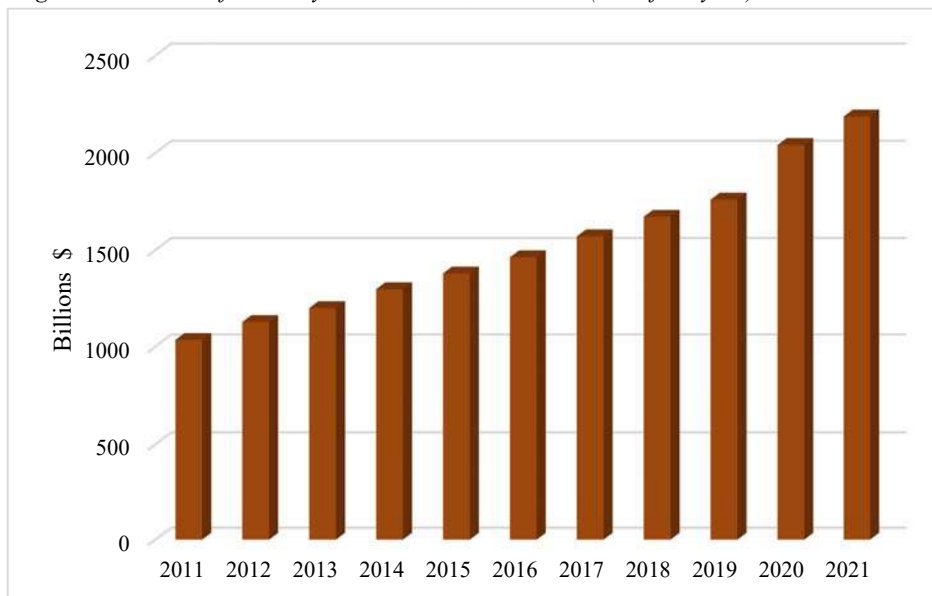
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<b>1\$</b>	10	10,3	10,6	11	11,4	11,7	12,1	12,4	12,7	13,1	14
<b>2\$</b>	1,9	2	2,1	2,2	2,3	2,3	2,4	2,5	2,7	2,7	2,8
<b>5\$</b>	11,8	12,2	12,7	13,1	13,7	14,2	14,8	15,3	15,8	16,1	17,1
<b>10\$</b>	17,2	17,7	18,5	18,9	19	19,2	19,6	20,1	20,9	22,5	23,2
<b>20\$</b>	141,1	148,9	155	162,2	171,3	177,2	183,8	188,5	190,5	234,9	237,9
<b>50\$</b>	69,6	72,5	74,5	76,9	79,8	83,5	86,4	89,2	92,3	114,2	122,9
<b>100\$</b>	782,6	863,1	924,7	1.014,5	1.082,2	1.154,8	1251,7	1.343,5	1.424,7	1.636,8	1.769,3

Source: own conception based on data published at:

[https://www.federalreserve.gov/paymentsystems/files/coin\\_currircvalue.pdf](https://www.federalreserve.gov/paymentsystems/files/coin_currircvalue.pdf)

Analyzing the value of the currency in circulation in the period 2011-2021, we can notice an increasing trend of each category of banknotes separately.

Figure no. 1 Value of currency in circulation, US Dollar (end of the year)



Source: own conception based on data published at:

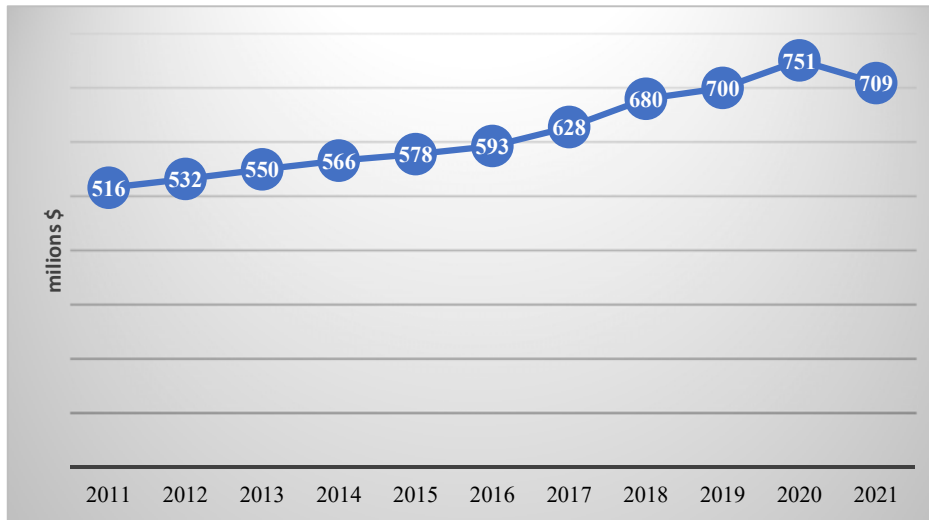
[https://www.federalreserve.gov/paymentsystems/files/coin\\_currircvalue.pdf](https://www.federalreserve.gov/paymentsystems/files/coin_currircvalue.pdf)

Figure no. 1 shows a significant increase in the total value of coins in circulation year on year.

If at the end of 2011, the Federal Reserve recorded the value of \$1,034.2 billion in circulation, in 2021 the value was \$2,187.2 billion, an increase of 111.49% compared to the beginning of the period analysed.



Figure no. 2 Federal Reserve spending on cash operations



Source: own conception based on data published at:  
[https://www.federalreserve.gov/paymentsystems/coin\\_expcashops.htm](https://www.federalreserve.gov/paymentsystems/coin_expcashops.htm)

The existence of these expenses is justified by: processing, payment, receipt, verification, destruction, transport and packaging of the coin. We therefore see an increase of \$193 million in 2021 compared to 2011.

Table no. 2 Printing orders between 2020 and 2023

	2020	2021	2022	2023
<b>1\$</b>	1.574.400	709.120	1.004.800	2.003.200
<b>2\$</b>	0	51.200	102.400	128.000
<b>5\$</b>	467.200	419.200	403.200	864.000
<b>10\$</b>	460.800	300.800	256.000	364.800
<b>20\$</b>	1.721.600	3.107.200	2.464.000	204.800
<b>50\$</b>	236.800	499.200	752.000	192.000
<b>100\$</b>	1.334.400	2.482.176	2.201.600	1.302.400

Source: own conception based on data published at:  
[https://www.federalreserve.gov/paymentsystems/final\\_2023\\_currency\\_print\\_orders\\_accessible.htm](https://www.federalreserve.gov/paymentsystems/final_2023_currency_print_orders_accessible.htm)

Table no. 2 reflects US dollar printing orders over the period 2020-2023. It show us that the need for currency has been increasing. On the one hand this is correlated with the needs of the economy, on the other hand it can be explained by the growing external demand.

However, the result contradicts some views that physical currency will disappear. If we look explicitly at the year 2023, we can see an increase in the number of small denomination banknotes put into circulation. For example, for 1 dollar we have double the number of banknotes printed compared to the previous year.

## 5. Conclusions

Every year, the Fed's Board determines the number of new Federal Reserve notes needed to meet the public's requirements and sends the printing order to the Treasury's Bureau of Engraving and Printing (BEP). This order reflects the Board's assessment of expected growth rates for payments and receipts of currency in circulation.

The Fed pays the BEP the cost of printing a new coin and also the related transportation cost from the Bureau's Washington D.C. facility to the Bank's cash offices.

When a depository institution orders a quantity of currency from Reserve Bank, the institution arranges for its transportation to destination.

When a depository institution deposits currency with a Reserve Bank, the Reserve Bank stores it in secure vaults until it is verified. During this complex verification process, the currency is counted and suspect banknotes, such as counterfeits, counterfeit notes and destroyed notes, are identified. The appropriate currency is returned to the vault and used to fulfil future orders from depository institutions.

On preparing for the future, the Fed's launch of FedNow has triggered new speculation about the digital dollar.

While FedNow is not currently tied to any digital US dollar initiative or the crypto space in general, experts warn that the system could end up being a precursor to the infrastructure for a central bank digital currency. This is a direction we plan to explore in the future.

Although payment instruments are often used at the expense of physical currency, the study shows that there is still a need for coins and banknotes in the US and around the world.

As for the role of the central bank, it will not diminish, but will change as the Fed adapts to the new forms of currency in circulation.

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## Bank Lending in Romania after the Covid 19 Pandemic

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### Abstract

*Bank lending is at the stage of financial intermediation in most countries with a poorly diversified money market. The credit market in Romania has been growing steadily since 2005 as a result of banks opening up to the public. After the advent of the first mortgages, credit took off and the volume of consumer credit reached a peak.*

*The unexpected Covid 19 pandemic has brought minor changes to the structure and volume of bank lending in Romania. The study reveals changes and trends in bank lending in Romania. Due to the fact that bank credit is the main form of financing in Romania, the study presented is important and relevant for analysts and the public.*

**Key words:** loan, banks, consumer credit, banking strategy

**J.E.L. classification:** G01, G20, G21, G24, G30, E50

### 1. Introduction

Credit plays a very important role in the economic and social system. It is the source of funds for business investment, consumption and housing. Its role and importance are highlighted by its functions.

Credit is considered an important element of the market economy for a number of reasons, but however important it is, its use must be managed responsibly, as excessive debt can lead to financial difficulties and economic instability and can do more harm than good.

Credit plays a very important role in the economic and social system. It is the source of funds for investment in business, consumption and housing. Its role and importance are highlighted by its functions.

Credit is considered an important element of the market economy for a number of reasons, but, important as it is, its use must be managed responsibly because excessive debt can lead to financial difficulties and economic instability and can do more harm than good.

### 2. Theoretical background

Credit in various forms is a financing tool, along with leasing, forfeiting, factoring, etc. In developed economies the forms of financing are diverse and the capital market active and strong. In less developed economies, banks play an important role in the financial intermediation process.

In the case of banks, capital is the safety net. The more diversified financial products and services are, the greater the credit risk. A study of a sample of public and private banks in the US shows that as credit volume increases, quality standards can fall. However, in banks with strong capital, the loan portfolio is of high quality. (Jin, Kanagaretnam, Liu, Liu (2019).

In many emerging countries, many banks are state-owned, in which case public policy is important. Dinc (2005) has also shown that in election years, lending to public banks increases.

In Romania, although the financial market is not very developed, the share of private capital in the banking system is more than 75%.

Kupiec. Lee and Rosenfeld (2017) bring attention to the link between bank policy strategy, the rating model used and monetary policy. They show that weak rating system has negative impact on bank credit growth. Moreover, in markets with illiquid assets, central bank lending regulations are important for financial stability.

In today's era of digitisation and social media, the online aspect of the bank-customer relationship cannot be ignored. Cerchia (2016) analyzed the impact of social media on a bank's customer management. For an increase in the customer portfolio and therefore in their lending, in recent years, banks like other companies are present on social networks attracting customers and retaining them.

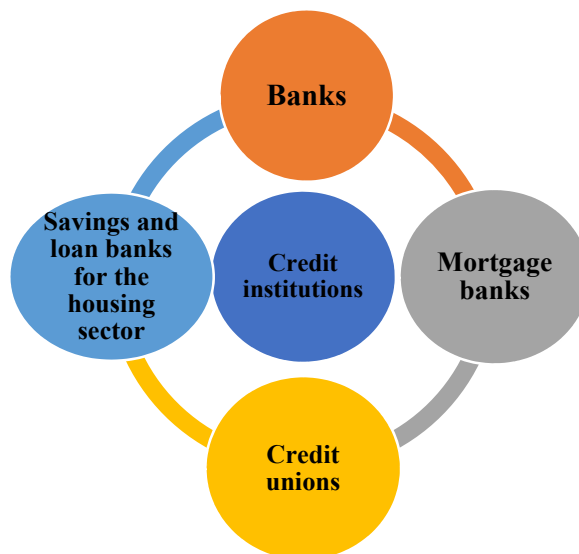
Credit facilitates the purchase of goods and services before you have sufficient equity. People can access credit to buy homes, cars, electronics and other goods, allowing them to satisfy their needs and wants now, instead of waiting years to save the money they need. Credit thus stimulates consumption and contributes to aggregate demand in the economy.

### 3. Research methodology

The banking system is a link in the financial system in Romania as in other countries. Within the credit institution sector, there are commercial banks. In the case of Romania, banking assets represent the largest share of total financial system assets.

The categories of credit institutions that can operate in Romania are shown in Figure 1. It can be seen that there is not a great diversity of such institutions. So if we study the volume of credit in Romania, it is predominantly banking.

Figure no. 1 Categories of credit institutions in Romania



Source: own conception

On 31 March 2023, a total of 32 credit institutions were registered as assets in Romania. Of these, 8 are branches of foreign banks. All these cover 712.6 billion RON - total assets.

In order to tailor the offer to the needs of customers, Romanian banks are interested in consumer behaviour and typology. A nation's culture also determines its financial behaviour. The study by Ianole-Călin, Francioni, Masili, Druica and Goschin (2020) provides a cultural understanding of the deeper mechanisms underlying attitudes and intentions associated with collaborative consumption.

Through analysis in structure and volume, a picture of credit in Romania pre and post Covid Pandemic 19 will be obtained.

#### 4. Findings. Volume and structure of credit in Romania

Domestic credit is a relevant indicator for the study of financial intermediation, but it also shows trends in the economy, especially in countries where bank lending has a large share of total financing.

In the run-up to the Covid 19 pandemic, domestic credit showed a slight upward trend year-on-year, reaching RON 383,787.2 million in December 2019. The Covid 19 pandemic and the first measures adopted in Romania started at the end of March 2020. On 31 March 2020, the volume of domestic credit was RON 398 814.4 million.

Thus, at the beginning of April 2020, economic activity was restricted as a result of entering the state of isolation. However, the volume of domestic credit continued to increase month by month in 2020, with the exception of June: RON 401 214.4 million in April 2020, RON 405 344.2 million, RON 427 961 2 million in December.

Even at the height of the Pandemic, domestic credit continued to grow. The explanations are: at the beginning of the period there was inertia, and then part of the population turned to consumer credit or credit cards to cover temporary needs. The government came to the aid of those who could not pay their instalments when they fell due with a law allowing individuals to defer payments. However, in 2021, this led to interest rates rising against the background of the market and as a result of increased credit risk.

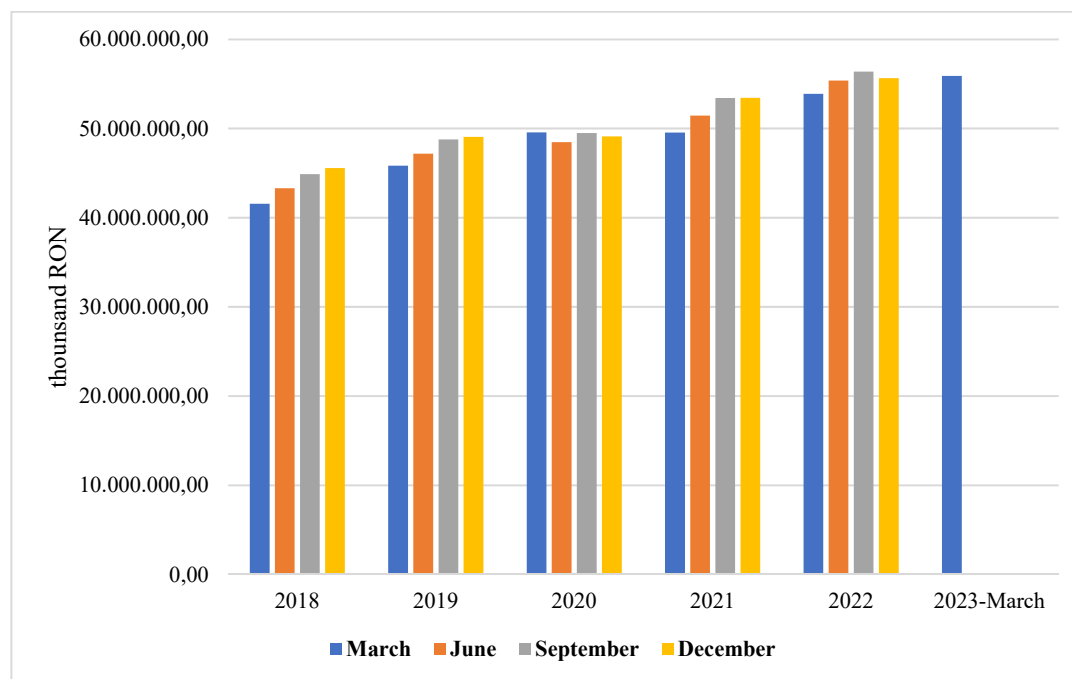
And after the end of the pandemic period, domestic credit continued to grow: RON 538 707.9 million in December 2022 and RON 549 918.5 million in March 2023.

The growth of domestic credit in 2018-March 2023 is based on some of its components, which will be analysed below.

One category influencing the dynamics is household credit with its two main components: consumer credit and housing credit.

Analysing the evolution of consumer credit, it can be seen that in the period 2018-March 2020, the volume increases quarterly. The pandemic stops this category only in the second quarter of 2020. In the following quarters we have growth again.

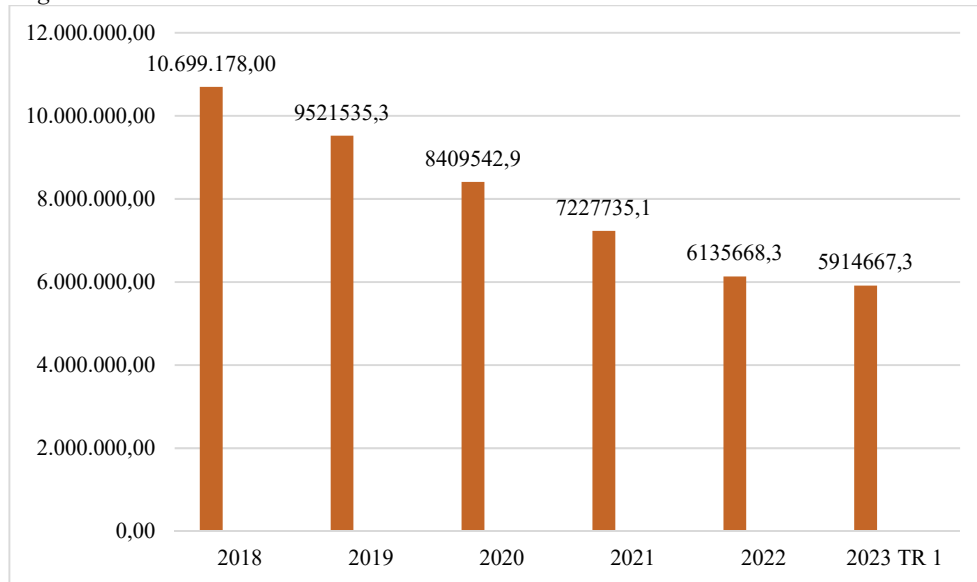
Figure no. 2 Volume of consumer credit in RON



Source: own conception based on data published at  
<https://bnr.ro/Credite-acordate-gospodariilor-populatiei-5771.aspx>

Thus, consumer credit in RON had the following annual evolution reported to the first quarter: RON 41,584,649.2 thousand in March 2018, RON 45,842,121.7 thousand in 2019, RON 49,574,556.9 thousand in 2020, RON 49,564,668.2 thousand in 2021, RON 53899509.8 thousand in 2022, and 2023 records a total volume of RON 55,899,451.7 thousand. From 2018 to 2023 the volume of loans granted to households increased by RON 10,057,330 thousand.

Figure no. 3 Consumer credit in euro



Source: own conception based on data published at  
<https://bnr.ro/Credite-acordate-gospodariilor-populatiei-5771.aspx>

Consumer credit in euros has fallen considerably as interest rates have risen sharply, from 3.74% in December 2021 to 6% in December 2022. In addition to higher interest rates and higher inflation, the war in Ukraine was a new context for Romanians to switch away from personal loans in euros.

The year 2018 was marked by a rapid increase in loans granted to the population with a characteristic atypical of the developments of previous years, namely the increase in the share of mortgage loans over that of consumer loans in the context of an increase in lending of more than 13% compared to the previous year. At the same time, the increase in mortgage lending was accompanied by an increase in indebtedness due to both a 9% increase in the median value of loans contracted and a 1.6% increase in the interest rate compared to the previous year..

Anticipating the growing trend in the population's appetite for credit in conditions of increasing indebtedness and automatically significantly increased risk exposure, the NBR took the decision to amend NBR Regulation No 17/2012 on certain credit conditions. In this way it was decided to reduce the leverage ratio for consumer loans and mortgages in lei to 40% and 20% for those in foreign currency. The measure was taken in order to reduce the default risks to which low-income individuals were exposed, while also reducing the foreign exchange risk.

This resulted in the number of highly indebted borrowers falling from 50% of total loans in 2018 to 13% at the end of 2019 while the stock of mortgages increased by 10.5% at the end of the same period. We can therefore say that the quality and performance of lending products has increased (more forcibly).

A key issue in 2019 is the decrease in the number of loans granted through the First Home program by 13 percent compared to the previous year, while standard mortgage loans increased by 12 percent compared to 2018. It is worth mentioning that 2019 is the year in which the maximum number of completed new homes was reached, reaching approximately 65,000, thus increasing the supply on the real estate market by 13% compared to the previous year.

The downward trend for the demand for loans through the First Home programme continued in 2020 even though the number of new loans granted in 2020 was 7.2% higher than in 2019. This increase is mainly due to an increase in demand for the regular mortgage loan by 20 percent.

After the COVID 19 pandemic, demand for home loans was also influenced by the housing market. The evolution of this market in Romania has been extensively covered in the study by Cerchia, Zaif and Lipară (2021).

Table no. 1 Housing credit structure 2018-2022

Date		Household loans for housing	Household loans for housing in RON	Household loans for housing in euro	Household loans for housing in other valute
		Thousand RON	Thousand RON)	Thousand RON	Thousand RON
2022	T4	106.169.230,3	88.926.330,9	15.964.529,8	1.278.369,6
	T3	106.104.432,7	88.524.295,7	16.218.154,9	1.361.982,2
	T2	105.200.033,8	87.283.970,0	16.570.911,9	1.345.151,8
	T1	103.021.175,2	84.631.426,5	17.026.377,0	1.363.371,6
2021	T4	100.691.047,6	81.687.219,6	17.578.770,8	1.425.057,2
	T3	97.737.864,8	78.106.593,5	18.195.190,3	1.436.081,0
	T2	94.140.159,3	73.923.963,0	18.741.291,1	1.474.905,2
	T1	91.465.122,3	70.565.931,5	19.382.479,5	1.516.711,3
2020	T4	89.175.438,9	67.865.743,6	19.725.213,7	1.584.481,6
	T3	86.595.417,3	64.661.341,0	20.269.709,9	1.664.366,5
	T2	84.615.623,3	62.202.521,2	20.678.409,2	1.734.692,9
	T1	83.145.089,4	60.339.449,8	21.005.059,9	1.800.579,7
2019	T4	81.177.605,6	58.098.493,0	21.293.335,7	1.785.776,9
	T3	78.624.998,7	55.078.724,1	21.715.237,1	1.831.037,5
	T2	76.492.991,7	52.492.159,0	22.169.247,9	1.831.584,9
	T1	75.252.500,7	50.520.599,2	22.842.733,9	1.889.167,7
2018	T4	73.484.212,6	48.746.633,2	22.850.163,2	1.887.416,2
	T3	71.654.298,0	46.378.539,9	23.346.010,3	1.929.747,8
	T2	69.824.110,8	43.986.455,0	23.819.804,1	2.017.851,7
	T1	67.638.345,9	41.214.407,9	24.378.624,5	2.045.313,4

Source: National Bank of Romania's Statistics

The mortgage market remained at the same level in 2021 as in the previous year, with a share of 49% of total new loans granted to the population, compared to 50% in 2020. The volume of transactions in 2021 returned to the pre-pandemic level, reaching EUR 0.92 billion, compared to EUR 0.58 billion in 2020.

The year 2022 brought a record level of new loans to the population reaching 25 billion lei, an increase of 7.2% compared to the previous year. This increase is even more surprising if we take into account the unpredictable situation of the border war, post-pandemic economic measures and rising inflation.



## 5. Conclusions

Credit offers the possibility to diversify financial risk. By accessing credit, people and businesses can avoid concentrating all their equity in one business or investment. By borrowing funds from third parties, the risk is spread between the lender and the borrower, which reduces the impact of any financial failure or loss.

The study shows that consumer lending to households has grown considerably, but 2020 was a setback even for this type of banking product due to the Covid 19 pandemic.

Environmental concerns are present in the Romanian public as well as in banks. In recent years, more and more financial institutions are getting involved in sustainable projects to protect the environment. A new market is emerging - green loans. Although in its infancy, the sector is growing. However, according to a study by Marars, only two of the top ten banks in the Romanian banking market (by assets) have published a local sustainability report. Only 1/2 of the banks included in the study offer green loans. (Dănilă et al, 2022)

Romanians' appetite for credit depends on a number of factors related to financial education, but not only.

I consider useful for future research on the credit decision a study conducted in 2021 by Ianole-Călin Druică and others on a representative sample of the Romanian population in terms of income and education. They collected data on financial anxiety and security, financial saving behaviour (dependent variables), self-control, optimism, future orientation, deliberative thinking and financial education (independent variables).

Summing up the benefits, we can say that credit facilitates economic growth through investment and consumption. In an economy where credit is widely available, financial resources can be channelled quickly and efficiently into productive projects and activities, thereby generating sustainable economic growth.

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## Possibilities of the Development of the Application of Financial Instruments in the Accounting Systems

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### Abstract

*The purpose of this research consists in the schematic presentation of the possibilities of implementing new financial instruments under the conditions of the use of advanced information technology tools. The progress of computer technologies based on artificial intelligence and the use of new hardware devices open opportunities for the instrumentalization of financing solutions in accounting. The present offers possibilities for economic entities to finance themselves quickly and at low costs, reducing the time needed to access additional monetary liquidity, compared to traditional solutions. Alternatives to classic bank financing are emerging. The use of alternative e-banking IT solutions is an important incentive for financing newly established businesses as well as existing ones. It must be pointed out the need for economic entities to invest heavily to equip themselves with new hardware and software tools. It's time for changes in approach regarding the implementation of information systems, of financial and accounting records.*

**Key words:** financial solutions, accounting, technologies

**J.E.L. classification:** M41, G32.

### 1. Introduction

There are a multitude of financial instruments in use today.

Internet Banking, or online banking, is a term used for remote access payment systems used to conduct banking transactions via the Internet. These are banking systems that allow remote electronic access to available currency's on accounts in order to operate transactions and obtain statements about your own accounts. Such systems are represented by different applicable systems. (Nicolae, 2010)

Mobile Banking is a payment tool with remote access, which requires the use of a mobile device - smartphone, tablet and some services offered by telecommunications operators. (Nicolae, 2010)

The Internet Banking service provider represents that credit institution or non-banking financial institution that issues and makes available to the holder an electronic payment instrument, based on a contract concluded with it, and annually has the obligation to subject these systems to a strict approval process/ re-approval according to legal regulations.

### 2. Theoretical background for the application of financial instruments in accounting systems

Depending on their nature, the method of exercise and the content of the rights involved, financial instruments are classified as simple or derivative and non-complex or complex.

From an accounting point of view, financial instruments are divided into: assets, financial liabilities (IASB, 2022).

Here are some examples of financial instruments (IASB, 2022).

The bank deposit is the most common, best known and simplest financial instrument, used for both savings and investments. When you deposit a certain amount of money in a bank deposit, the bank will add interest for the time you keep the money in that deposit.

Stocks are another example of a very well-known financial instrument.

The social parts that the owners of a joint-stock company hold are the shares, and these are, of course, financial instruments.

Bonds are another type of financial instrument used mainly by the state, state entities and private companies, which borrow in the market and offer a fixed interest rate for the money they use.

Derivative financial instruments are based on the return offered by another financial instrument or commodity, called the underlying asset. In short, the yield of the financial instrument is derived from the evolution of the price of an instrument, commodity or other asset. Here are some examples of derivative financial instruments: gold; currencies; actions; stock indices.

Depending on the nature of the income it provides, we can have the following financial instruments with fixed income: bonds with fixed interest; state securities; land documents; preferential shares; or other derivative instruments. In addition to financial instruments with fixed income, we also have those with variable income which can be: shares, bonds with variable interest, derivatives (IASB, 2022).

Depending on how they are created, financial instruments can be primary, special, derivative or synthetic. When it comes to primary financial instruments, they can be basic, issued by capital seekers and investment funds, ie: shares, bonds or securities of collective investment undertakings.

In the case of synthetic financial instruments, they refer to stock index futures, options strategies, contracts for differences (CFDs) (IASB, 2022).

The general risks associated with investing in financial instruments are set out below.

Currency risk occurs in the case of transactions with financial instruments denominated in foreign currency, the performance of the investment depending not only on the local yield of the financial instrument on the foreign market, but also on the evolution of the exchange rate of the respective foreign currency against the portfolio currency.

Credit risk: for each issuer traded on the capital markets, it presents a certain degree of risk, given the fact that past performance is not a guarantee of future performance. Credit risk refers to the possibility of the insolvency of the counterparty, namely the inability of one of the parties to a transaction to fulfill its obligations, such as the payment of dividends, interest, repayment of the principal when due, or failure to fulfill these obligations in full. It is also called repayment risk or issuer risk. Such risks are classified using ratings. A rating is the rating scale used to assess the creditworthiness of an issuer. The rating is drawn up by the rating agencies, especially based on credit risk and country risk. The rating scale ranges from AAA (the best credit rating) to D (the worst credit rating) (IASB, 2022).

Country risk represents the creditworthiness of a particular country; this risk arises in the case of the solvency of a certain country, economic or political factors may have negative effects for all counterparties resident in that country (IASB, 2022).

Transfer risk: depending on the respective country involved, the securities of foreign issuers present an additional risk related to political or exchange control measures that may complicate or even prevent the realization of an investment. In addition, problems may arise in connection with the settlement of an order. In the case of foreign exchange transactions, such measures may prevent the free convertibility of the currency.

Total loss risk is the risk that an investment becomes completely worthless, for example, because of its conception as a limited right. The total loss can occur, in particular, if the issuer of a financial instrument is no longer able to fulfill its payment obligations (insolvent), for economic or legal reasons (IASB, 2022).

Price risk occurs in case of unfavorable price fluctuations of individual investments.

The risk of acquiring securities through credit: the acquisition of securities based on a loan presents a high risk, as the loan must be repaid regardless of the investment's performance; in addition, the costs of a loan reduce the value of the investment (IASB, 2022).

Sector risk occurs when a portfolio is made up of financial instruments of issuers active in the same sector of activity (IASB, 2022).

Market risk: in the market of financial instruments, phenomena that are difficult to anticipate can occur, events that can affect trading prices.

Interest risk is the risk that, in the case of an investment instrument with a fixed interest rate, the value of the investment will change as a result of the evolution of interest rates in the market (if the interest rate in the market is higher than the interest rate attached to the investment product, the

market value of the investment product is may depreciate).

Liquidity risk represents the impossibility or the possibility of financial losses for the client to liquidate the investment product when he wants to do so. If the client wishes to liquidate the investment product before maturity and the market does not identify enough buyers interested in purchasing it at a market price, the client risks recording financial losses due to the liquidation of the product at a price far below its market value - the market is illiquid (IASB, 2022).

### **3. Research methodology. Evolution of financial instruments used in accounting - empirical aspects of research**

The research methodology used in this article consists of the empirical research of a data set available on the Internet and the construction of models of accounting records.

The methods and tools used to secure transactions with banking instruments run on a wide range.

Authentication with user and password is a classic method of recognizing authorized users, due to the limited level of security it offers, it is generally made available for accessing data with reduced requirements regarding the confidentiality level or for carrying out a limited number of operations with a reduced degree of risk on the client. Different methods have been adopted for establishing the username, from establishing a set of digits on a customer's card, to establishing it by the user at the stage of contracting the service. ([www.ziare.com](http://www.ziare.com))

Physical token authentication involves the authentication device generating random codes, valid for a single use within a predetermined time interval, that will be used by users when authenticating into the application and signing transactions made through it. The device is made available by the bank when purchasing the Internet Banking service and, depending on its type, it can in turn be secured by means of a PIN code chosen by the beneficiary upon first use. In addition, the physical token can also provide a control code that appears on the Internet Banking page and is generated according to the code for identification. ([www.ziare.com](http://www.ziare.com))

Virtual token authentication is an authentication method consisting of the automatic transmission of an access code with a limited period of validity via SMS. To use this authentication mechanism, it is necessary to communicate to the bank a phone number on which you want to receive messages. ([www.ziare.com](http://www.ziare.com))

The encryption of communications involves the encryption of data before being transmitted via the Internet, it consists in transforming them into an indecipherable string of characters with the role of ensuring confidentiality during communication between the bank's system and the client's. ([www.hyperledger.org](http://www.hyperledger.org))

Very large, huge data is organized in Data Warehouses (DW) with dimensional data modeling techniques. These dimensional data modeling techniques make it easier for end users to query business data. ([www.hyperledger.org](http://www.hyperledger.org))

Dimensional data models are the data structures available to end users in the Extract, Transform, and Load (ETL) flow to query and analyze data. The Extract, Transform, and Load (ETL) process ends with loading the data into the target dimensional data models. Each dimensional data model is built with a data table surrounded by multiple dimension tables.

Listed below are the various advantages of dimensional data modeling.

- They are secured to use ever-changing DW environments.
- Huge data can be easily constructed using dimensional data models.
- Data in dimensional data models is easy to understand and analyze.
- They are quickly accessible by end users for high performance queries.
- Dimensional data models allow us to analyze (or) scroll data hierarchically.

ER modeling (entity-relationship model) is suitable for operational systems, while dimensional modeling is suitable for data warehouse. ([www.hyperledger.org](http://www.hyperledger.org))

ER modeling maintains detailed current transactional data, while dimensional modeling maintains the summary of both current and historical transactional data. ([www.hyperledger.org](http://www.hyperledger.org))

ER modeling has normalized data, while dimensional modeling has normalized data.

ER modeling uses more joins during query retrieval, while dimensional modeling uses fewer joins, so query performance is faster in dimensional modeling. ( [www.hyperledger.org](http://www.hyperledger.org))

## 4. Findings

### 4.1. Survey on the evolution of the use of financial instruments in the accounting of national entities

The research methodology used in this article consists of the empirical research of a data set available on the Internet.

The macro-financial environment continued to deteriorate in the second half of 2022 amid a global tightening of financial conditions, high levels of inflation and high commodity prices. Economic activity is expected to slow sharply in 2023, with recession risks rising. However, the latest data was more positive than expected by the forecast. ([www.ziare.com](http://www.ziare.com))

Macroeconomic conditions were strongly affected by high inflation and commodity prices amid uncertainty related to the ongoing war in Ukraine and slowing activity in the US, Europe and China. In October, the International Monetary Fund (IMF) cut its global real gross domestic product (GDP) growth forecast for 2023 to 2.7% (–0.2 percentage points (pp) compared to the July forecast), and The European Commission has reduced its EU. it is estimated at 0.3% for 2023 (–1.2 percentage points compared to July). However, in January 2023 the IMF revised its GDP forecast up (+0.2 percentage points) to 2.9 percent as the global economy proved more resilient than expected in 2022 and inflation is expected to decrease. ([www.ziare.com](http://www.ziare.com))

Global financial conditions tightened further, with corporate bond yields reaching their highest levels since 2009. The increase in yields for highly rated bonds was driven mainly by the risk-free rate, while for lower rated bonds, credit spreads also played an important role. role as investors left riskier assets ([www.ziare.com](http://www.ziare.com)).

Asset values remained relatively stable at the end of the reporting period compared to the end of June, with the exception of commodities which fell substantially. However, asset prices were volatile during the second half of 2022, highlighted by high peak to trough levels.

Commodity prices remained very high. While the composite commodity price index remained stable, there were substantial price fluctuations during the energy price period. Going forward, natural gas and electricity rose over the summer to peak in late August. Since then, energy prices have fallen as mild weather and output from other sources helped dampen demand, leading to 88% of EU storage at the end of December (compared to 53% in 2021). In contrast, agricultural and metal prices remained relatively stable ([www.ziare.com](http://www.ziare.com)).

High levels of uncertainty and fragile market liquidity limit the resilience of the financial system to external shocks. The recent stress on liability-led investment (LDI) strategies investing in sterling government bonds exemplifies how this risk can crystallize. A large shock to gilts has resulted in substantial liquidity pressure on leveraged LDI funds. Margin calls and repo collateral backed by government bonds (which have fallen in value due to a sharp rise in yields) and interest rate derivatives (IRDs) rose as higher yields triggered losses in market value. To increase liquidity, LDIs sought to sell sovereign bonds, but the market was unable to absorb the sales volumes, triggering the Bank of England's intervention to provide support to the sovereign bond market.

In general, global financial markets remain in a state of great uncertainty. The ongoing war in Ukraine and uncertainty over future monetary policy, combined with signs of a slowdown in economic activity in the US and China could weigh on financial markets, although recent more positive data on the macroeconomic outlook for 2023 may mitigate these risks. Geopolitical risks remain high globally and regionally ([www.ziare.com](http://www.ziare.com)).

The second half of 2022 was characterized by rapid movements in share prices and sustained levels of volatility. The downward pressure that started in early 2022 continued in Q3 2022 amid concerns about global growth, inflationary pressures and tight monetary policy (–5% in the US and –4% in Europe). However, the markets recovered in the 4th quarter, which was linked to the flow of corporate earnings news and the hope of reducing inflation, with the main indices scoring +15% (Euro Stoxx 50) and +8% (S&P 500) compared to September 30, 2022 ([www.ziare.com](http://www.ziare.com)).

By sector, with the exception of energy (+27% in 2022 vs. 2021), European equity valuations are still below 2021 levels, with real estate (–39%), retail (–31%) and energy, such as technology (–26%) and industry (–19%), which suffer the biggest declines. The real estate sector (RE) is going through the biggest losses on the secondary market since 2009 ([www.ziare.com](http://www.ziare.com)).

Inflationary pressures, weaker growth prospects and tighter monetary policy expectations continued to shape developments in fixed income markets in H2 2022. This translated into bond yield volatility and a deterioration in liquidity conditions (www.ziare.com)

The deterioration of the macroeconomic environment, together with the increase in input costs, has affected the profitability of European corporations, especially in the high-yield (HY) sector. In this respect, corporate bond markets have underperformed overall in 2022, with both the investment grade (IG) and HY bond indices down -14% and -12% respectively. However, HY valuations showed signs of a partial recovery in 2H2022 (+4% from June 30). Despite the decline in November, credit spreads across rating categories remained high, particularly for HY. This signals ongoing concerns about the sustainability of corporate debt in a weak economic environment and an increase in the cost of refinancing (www.ziare.com)

#### 4.2. The observation of the accounting issues associated with financial instruments used in accounting

Financial assets and financial liabilities given real and cash flows are evaluated in the following alternatives presented below (Nicolae, 2010).

Fair value, or the amount for which an asset can be sold or a debt paid between knowledgeable parties, in a transaction carried out by the will of the parties, under objective conditions (Nicolae, 2010).

Mark-to-market (adjustments to the fair values of financial assets and liabilities): is a process by which the values of the most traded assets (for example, those held for trading and those available for sale) are adjusted to reflect current fair value. Such adjustments are often made daily and cumulative balances are resumed the following day before a new cumulative mark-to-market adjustment is recalculated. (Nicolae, 2010)

Amortized cost is the value at which the financial asset or liability is valued at the time of initial recognition (initial cost minus subsequent impairments). (Nicolae, 2010)

Hedge accounting symmetrically recognizes the offsetting effects on net profit or loss of the fair variation of the hedging instrument and the hedged item. Hedging relationships are of three types:

- fair value risk hedging is the risk of a recognized asset or liability is hedged (eg: the change in the fair value of bonds with a fixed interest rate as a result of the change in the market interest rate)
- hedging the risk of cash flows is the risk of cash flows regarding a recognized asset or liability is covered (eg: future interest payments related to a bond)
- covering the risk of a net investment in an external entity is the risk of exchange rate variation is covered. (Nicolae, 2010)

The gain or loss resulting from hedging must be recognized in net profit or loss or equity.

#### 5. A case study of the accounting records for financial instruments

Table no. 1 Table of transactions related to the case study for financial instruments

Transactions	Textual description of the transactions
January 1, 2022	The Starx entity bought on 01.01.2023 a standardized package of call options on quoted shares, subscribed by the Fox2 entity as the seller. (Nicolae, 2010).
	The transaction is a hedging for the seller, where the hedged element is the market risk and the financial instrument designated for hedging is the options contract
	For the buyer, the transaction is only a speculation of the favorable price, whether he will decide to exercise or whether he will trade the option package as a security.
	The securities that constitute the underlying asset of the options are issued by a third company that does not intervene in this mechanism.
	The Starx company hopes that the market price of the shares in question will increase, while the Fox2 company hopes that the market price of the shares in question will decrease. Each predicts a gain by preserving the share price, but only one of the parties will win. So each hopes to transfer the market risk to the partner, in case of exercise of the option by the buyer.
	The premium representing the right to buy the option package price is 50,000 monetary units (mu).

	The exercise price is 1,550,000 mu.
	The value of the shares held (20,000 titles) by the company Fox2 is 1,500,000 mu with a nominal value of 75 mu.
	The stock price of the shares on the exercise date is 120 mu.

Source: Case study data proposed by the author

Note

Debit = D

Credit = C

### Accounting data

(Making entries by the author)

The following operations take place in the buyer's accounting:

If he intends and decides to hold the options package until maturity, then he will record only the premium paid on the transaction date, following that at maturity he will exercise the purchase option (obviously if the price of the shares on the market will increase).

Table no. 2 Registration of recognition of the premium on the date of the transaction, the buyer of the options will recognize the paid premium of 50,000 mu in financial expenses

Account - D	Account - C	Amount
Financial expenses for listed shares	Available in currency on account	50,000

Source: Calculations and records made by the author

Table no. 3 On the exercise date, recognition of the options package as a security independent of the underlying asset, if the market price of the shares is favorable - higher than the contracted one - at the level of the exercise price of the call option

Account - D	Account - C	Amount
Shares financial instruments	Available in currency on account	1,550,000

Source: Calculations and records made by the author

The gain appears indirectly, as an economy compared to the value of the shares at the stock exchange rate and is not highlighted in accounting.

Table no. 4 If the standardized package of options is traded, as a security, then the premium paid = entry cost of this security, on the date of the transaction we have the registration

Account - D	Account - C	Amount
Other financial instruments	Available in currency on account	50,000

Source: Calculations and records made by the author

Table no. 5 At the moment when the value of the standardized option package has intrinsic value (market price higher than the premium of 50,000 mu), the buyer will decide to sell the short-term financial investment at the level of the stock exchange rate, which is composed for the company of the value of the premium (50,000 mu) and the difference up to the stock exchange rate (51000 mu):

Account- D	Account - C	Amount
Available in currency on account	Other financial instruments	50,000
Available in currency on account	Income from financial instruments	1,000

Source: Calculations and records made by the author

If the price of the shares on the market does not increase until maturity, the Starx company will not exercise the call option to purchase the underlying asset, recording only a financial loss caused by the procurement of the options contract of 50,000 mu.

The following operations take place in the seller's accounting:

Table no. 6 The recording of the premium of 1000 mu collected for the issuance of the options and for the company Fox2 to firmly commit to deliver the underlying securities at maturity, in case the buyer decides to exercise the call option, a delivery commitment is highlighted outside the financial position statement:

Account - D	Account - C	Amount
Available in currency on account	Other Income from financial instruments	50,000

Source: Calculations and records made by the author

Table no. 7. In the situation in which the company Starx decides to exercise the call option, then the seller is obliged to deliver the underlying securities at the predetermined exercise price and the corresponding collection of the difference:

Account- D	Account - C	Amount
Available in currency on account	Shares financial instruments	1,500,000
Available in currency on account	Income from trading financial instruments	1,500,000

Source: Calculations and records made by the author

Respecting the symmetry of the registrations made by the company Starx, the exercise means for the seller an indirect loss of 50,000 mu, equal to the unrealized gain, which is not shown in the accounting. It follows that the hedging operation initiated by the seller failed due to the evolution of the price of the underlying asset, contrary to expectations.

## 6. Conclusions

In my opinion, there are multiple elements that allow a positive forecast on the development of the accounting instrumentation of financial instruments.

Consideration should be given to developing and implementing a complex and flexible legislative, fiscal framework that allows and stimulates at the same time the concrete applicability of the various embodiments of financial instruments for financing economic activities. The provisions of the legal acts must be issued in a context adapted to the European legislation, simultaneously with the establishment of the concrete modalities of implementation, adapted to Romania.

There is a significant impact of the changes in the financial markets globally, which puts its mark on the expansion of the use of financial instruments in the current and future activities of economic entities in Romania. It is noted, in the conditions of a tightening of the possibilities of access to the financing resources for the Romanian companies, the need for a flexibility of the opportunities for application of the financial instruments.

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## Reflections on the Effect of Massive Data on Digitalized Accounting Information

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### Abstract

*The purpose of this work is the issue of new software and hardware applicable to the realization of practical accounting work. Accounting as an academic discipline and practice of records, with millennial existence, is in the process of reconstructing its founding instrumentation. The impact of new technologies - the use of Information Technology (IT) tools, the expansion of applications based on artificial intelligence, radically changes the way the accounting system is thought and developed. The transformations generated by the emergence of new technologies in the concrete record-keeping activities of the entities, the new opportunities created by the existing software and hardware tools or proposed to be implemented, constitute as many challenges for the science of accounting and the practical techniques of organizing the accounting of the entities..*

**Key words:** accountings paradigms, new technology

**J.E.L. classification:** M41, F60

### 1. Introduction

Although the use of digital technologies is essential for all sectors of the economy, each field has its own particularities, causing different speeds of implementation. ([www.hyperledger.org](http://www.hyperledger.org))

Technologies of large volumes of data - BigData (BD) and/or complex data analysis solutions are used in digital platforms that mediate the alternative transport of people, in the communications sector and by large retailers, but much less used in the banking sector, within price comparison platforms and in e-commerce.

The implementation of BigData solutions brings general benefits, valid for any sector in which they were implemented, such as: optimization of operational and technical processes, efficiency of operational costs and resources, but also for a series of activities specific to each field of activity. ([www.hyperledger.org](http://www.hyperledger.org))

Digitization investments are substantial, involve significant resources and long implementation times.

The barriers/ risks in the implementation of BigData technologies are generated by the high costs related to the acquisition/development and implementation of solutions, the inherent complexity of the data, the lack of skills within the companies for data interpretation, the difficulty of hiring specialized personnel, ensuring security and preserving data confidentiality.

The use of BigData technologies can bring competitive advantages to companies, such as: adjusting, in real time, the price level to changes in the demand/supply ratio, thus ensuring the rebalancing of the demand and supply of accounting information. ([www.hyperledger.org](http://www.hyperledger.org))

### 2. Theoretical background for the use of the IT techniques in accounting

BigData (BD) represents the technologies to process and analyze, cost-effectively, the large and varied volumes of available data, at the desired speed, with the aim of improving business operations and decision-making processes. ([www.hyperledger.org](http://www.hyperledger.org))



The BD architecture represents the basic system used to capture, store and process, in bulk and in real time, large volumes of data, so that they can be analyzed, including through predictive analysis and machine learning (automatic learning) tools. ([www.hyperledger.org](http://www.hyperledger.org))

BigData Analytics (BDA) is the process of analyzing large volumes of data.

Dynamic Machine Learning (ML) algorithms are algorithms that decide for themselves what information to use (from a specified set) and how to process it to achieve the result they are programmed to achieve. ([www.hyperledger.org](http://www.hyperledger.org))

Business Intelligence (BI) defines a term that refers to a set of software applications and technologies designed to collect, manage and analyze information from different business management systems or other databases. BI involves activities such as: analysis of large volumes of data, online analytical processing, queries and reporting. ([www.hyperledger.org](http://www.hyperledger.org))

The notion of BD appears in the digital world in the 2000s, with reference to a large set of data, at that time, impossible to manage and process with existing technical solutions. The exponential growth of information and communication technologies, the expansion of global Internet access in recent years have stimulated the emergence of the digital economy and allowed the development of business models based on the collection and processing of BigData. The term BigData refers to the tools, processes and procedures that enable the creation, processing, storage and management of large data sets. The explosion of data volume characteristic of the BigData phenomenon also comes from unstructured data, and the large volume of data that must be processed requires specific techniques, tools and architectures. BigData generates value by storing and processing large volumes of digital information (structured, semi-structured or unstructured), which can no longer be analyzed with traditional techniques. ([www.hyperledger.org](http://www.hyperledger.org))

The amount of digital data generated by the evolution of the Internet, the emergence of IoT (Internet of Things) and better resolution of digital images worldwide is expanding exponentially. It is estimated that the volume of data will reach 44 ZB(zettabytes) in just 20 years after entering the 21st century. And every year, 4.5 ZB of new data can be generated: 1 zettabyte (ZB) = 1 billion terabytes (TB). ([www.hyperledger.org](http://www.hyperledger.org))

Big Data is responsible for managing, managing and processing different types of data such as structured, semi-structured and unstructured. Big data technologies are cost-effective in terms of maintaining a large amount of data, they work on a distributed database system. One can save large amounts of data for a long time using BigData techniques. So it is easy to manage historical data and generate accurate reports. The data processing speed is very fast and therefore social media uses Big Data techniques. Data accuracy is a big advantage of Big Data. Big data technologies allow users to make effective decisions for their business based on current and historical data and error management, version control and customer experience are very effective in BigData.(Nicolae, 2010)

### **3. Research methodology. Evolution of IT techniques in the accounting record system - empirical aspects of research**

The research methodology used in this article consists of empirically researching a data set available on the Internet and building models of accounting records.

Big Data influences the activity of companies, which are forced to reconsider their organization and business processes, taking into account the data they have and which could be transformed into a competitive advantage in the new information-based market. The decision-making process is moving from a model based primarily on the experience of the decision-maker to one based on information and often on the experience of the user. The use of Big Data offers a new perspective by improving the practices of analysis and predictive modeling, with a positive effect in the decision-making process in real time. ([www.hyperledger.org](http://www.hyperledger.org))

Just as it helps companies increase their productivity, BD enables public administrations to improve their IT systems and public sector administration, helping global organizations analyze information for strategic planning. ([www.hyperledger.org](http://www.hyperledger.org))

Like any new field, the BD concept comes with a series of challenges regarding the acceptance and implementation of these specific technologies. ([www.hyperledger.org](http://www.hyperledger.org))

The insufficient understanding and acceptance at the organizational level of the BD phenomenon is a challenge at present. Without a clear understanding of the BD phenomenon: what BD is, the benefits it brings, which architecture lends itself best to the organization, the BD implementation project risks failure. The implementation of BD technologies represents a major change within the organization, a change that must be recognized and accepted at all its levels. ([www.hyperledger.org](http://www.hyperledger.org))

The variety of existing BD technologies and architectures on the market makes it difficult to choose the most appropriate one for the organization to implement. Taking into account the permanent expansion of data volumes, the chosen solution must allow, without decreasing performance, the possibility of including new processing and storage capacities. ([www.hyperledger.org](http://www.hyperledger.org))

Local implementation involves costs with new hardware, new employees – administrators/developers. Although most framework software systems are open source, there are costs associated with the development, configuration and maintenance of new programs. And the cloud storage solution involves, in addition to infrastructure access costs and costs with new employees, development, configuration and maintenance. For the implementation of BD, it is necessary to establish a team of data analysts and competent programmers (who filter and analyze the data), whose employment is difficult and expensive. ([www.hyperledger.org](http://www.hyperledger.org))

BD technologies are never 100% accurate, data comes from various sources in a variety of formats, processing it and filtering useful information from the very large volume of raw data is difficult. It is also difficult to validate the veracity of data, and erroneous and/or redundant data can provide wrong or contradictory solutions. ([www.hyperledger.org](http://www.hyperledger.org))

Data security and confidentiality involves adequate back-up mechanisms for large and varied volumes of data and a unified access control mechanism for multiple sources and types of data.

Currently, BD technologies are subject to national privacy and data protection legislation. The current legal system focuses on specific forms of data protection (personal, private data, statistical data), from the data collection stage and on the principle of purpose limitation (data cannot be used for purposes other than those for which they were collected). Instead, the logic of BD technologies is more data, more accurate results and is based on the general collection of data, combining them from several sources and their secondary use in other analyses. The most important stage of BD technologies, the analysis stage, in which the algorithms, data sources, classification and weighting criteria are established, is not yet regulated, and the automatic decision-making process is not prohibited. ([www.hyperledger.org](http://www.hyperledger.org))

Given the rapid evolution of technologies and the long implementation period of a BD solution, there is a risk that, by the time the implementation period is completed, the technology will already be outdated.

#### **4. Findings. Concise review of specific developments regarding the application of computer technologies (IT) in the accounting record system**

Blockchain, translated from English chain of blocks, is a distributed database, which is shared between the nodes of a computer network. (IASB, 2022)

The digital market is the space in which goods, services and data are traded, using digital technologies and mainly includes electronic commerce, digital accounting and telecommunications. Trading in digital markets is done through digital, Internet-based channels. (IASB, 2022)

In the conditions of the increasingly rapid evolution of digital technologies, on which all sectors of the economy are currently based, increasing competitiveness and productivity crucially depend on the ability to effectively generate, amplify and exploit digital innovations. ([www.hyperledger.org](http://www.hyperledger.org))

To support Europe's role in the global digital economy, in 2015 the Commission launched the Digital Single Market Strategy, based on the concept of an internal market, in which the free movement of goods, people, services and capital is ensured. Through the digital single market, the EU aims to remove national barriers to online transactions and give European companies the opportunity to operate in any other EU country, legally, safely, securely and cost-effectively. The basis of an effective single market is provided by common standards that ensure the interoperability of digital technologies, foster innovation and reduce barriers to entry to the digital single market.

The data market, a component of the digital market, is the market where digital data is traded in the form of products or services, following their raw processing. Maximizing the growth of the data market is one of the important objectives of the EU and of the digital single market strategy for Europe.

According to the study on the European data market published in June 2020, the size of the European data market reached a level of over 58 billion euros in 2019, an increase of approximately 5% compared to the previous year. The evolution of the European data market maintained an upward trend, during the period 2013-2019, with an average annual compound growth rate of 7.4%. ([www.ziare.com](http://www.ziare.com))

The data market impact measures the overall effects of the data market on the EU economy and includes, as mentioned previously, the direct (equal to the size of the data market), indirect and induced effects of the data market on the economy.

In 2019, the impact of the data market on the EU economy was approximately €325 billion, up 7.7% on the previous year, representing the equivalent of 2.6% of EU GDP. In the period 2013-2019, the trend was an upward one, with an average annual compound growth rate of 8.2%. ([www.ziare.com](http://www.ziare.com))

Europe has a dynamic, growing (digital) data ecosystem. The evolution of the data market highlights the constant investments in the digital economy, artificial intelligence and robotics. Thus, the data market and its impact on the European economy had a constant and significant growth in the period 2013-2019. The compound annual average growth rate, in the period 2013-2019, was 7.4% for the data market, respectively 8.2% for its impact on the European economy. The faster growth of impact highlights the positive multiplier effect of innovative technologies based on information and data. ([www.ziare.com](http://www.ziare.com))

Digital platforms are a promising tool in accounting. Currently, more than one million businesses in the EU trade their products or services, digital or not, through the platforms.

The use of online platforms improves activity efficiency and competitiveness, increases consumer choice, offers new business opportunities for enterprises of all sizes, by generating alternative business models, based on new technologies and access to the global market.

Digital platforms, like any classic intermediary, connect two distinct groups: sellers/ buyers, accountants/ users of accounting data, teachers/ students. They cover a wide range of activities: financial accounting, financial reporting, management accounting, price comparators, application platforms, search engines, payment systems, collaborative economy. (IASB, 2022)

To meet the challenges of new data processing requirements, Big Data platforms are complex systems made up of a suite of components with a well-defined role in processing data volumes, as follows: the data collection component (structured, semi-structured, unstructured); the data quality component (cleaning, transformation and ETL loading); the data storage component (Data Lake, Data Warehouse); data analysis component; the component of exposing the result of data processing to end users. ([www.hyperledger.org](http://www.hyperledger.org))

Using Big Data technologies, companies can collect more precise and detailed data, both structural and behavioral, from internal or external sources, to help them understand the needs of customers, their preferences, but also the phenomena that influence performance to achieve superior results. The volume of data is growing exponentially, the phenomenon affecting every company/institution. But it is not only the volume of data that is increasing, but also the number of data sources. ([www.hyperledger.org](http://www.hyperledger.org))

Different approaches to data acquisition have emerged depending on their scope, developing a series of protocols and tools, including open source solutions, that support the data acquisition process. 90% of the data currently available globally was produced in the last 2 years. The source and nature of this data is diverse, the speed with which it is collected and exchanged is one in real time (through sensors that take data from the movement or through smartphone applications, tablets, etc.), and the variety of their formats poses data management problems (you can collect anything from emails to financial transactions). ([www.hyperledger.org](http://www.hyperledger.org))

In order to have access to these huge volumes of data, they must meet several conditions, such as: availability, accessibility, persistence, interoperability.

The underlying assumption is that multiple volatile data sources generate information that must be captured, stored and analyzed by a big data processing platform. New information generated by the data source is passed to the data store using a data acquisition framework that implements a predefined protocol.

Several of the organizations that rely on big data processing have designed protocols specific to their purposes, which are not public and therefore cannot be described in this chapter. Open protocols are frequently used for data acquisition.

Advanced Message Queuing Protocol (AMQP) is an open protocol developed to meet the data acquisition requirements of large companies. ([www.hyperledger.org](http://www.hyperledger.org))

The Java Message Service (JMS) protocol API. According to the specification, JMS provides a common way for Java programs to create, send, receive, and read messages in an enterprise messaging system. ([www.hyperledger.org](http://www.hyperledger.org))

As for data acquisition software tools, many of them are well known and available on the Internet. Some examples are shown below.

Many companies and applications use open-source application Storm to power a wide variety of production systems that process data, including: Groupon, The Weather Channel, fullcontact.com, and Twitter. ([www.ziare.ro](http://www.ziare.ro))

Kafka was originally developed by LinkedIn to monitor user engagement and define the relevance of their posts. ([www.ziare.ro](http://www.ziare.ro))

There are mainly four recognized techniques for acquiring data from the Internet.

Crawlers - are tools used to download many pages from the Internet. The main properties of crawlers are scalability and volume. They follow links on web pages on the Internet (or within a website) and download pages. They can be distributed across multiple devices to download tens of thousands of web pages. Among the most well-known technologies for crawling: Heritrix – from Open Internet; Archive Nutch – from Apache; Aspider - from Search Technologies etc. ([www.ziare.ro](http://www.ziare.ro))

Scrapers - are usually less scalable and require more programming work than crawlers and are generally used for extracting structured data from web pages based on presentation structure.

Browser Automation - fetches and renders the page like a web browser. Browser automation tools actually run JavaScript extracted from web pages and render HTML (and other data structures). These can then be combined with custom scripts to explore the results and download content that would otherwise be inaccessible. Among the most well-known browser automation tools: Stropi, PhantomJS, Selenium, WebDriver.io, Nightmare, etc. ([www.ziare.ro](http://www.ziare.ro))

API (Application Programming Interface) - APIs are made available by content providers to facilitate the integration of different software products. Examples: Thomson Reuters, LexisNexis, Bing, Factiva, NewsCred, etc. ([www.ziare.ro](http://www.ziare.ro))

These tools must meet requirements such as: being able to pick up frequent data changes to ensure that the data destination is in sync with the content source; store the data as it is retrieved; any operation on the data (normalization, cleaning, enhancement) is performed later in the loading/storage process; be able to obtain all necessary metadata from the content source; be able to retrieve files stored in the content source.

In conclusion, data acquisition is an important process and allows the downstream components of data processing to perform their functions correctly.

In the case of BD technologies, data storage is provided by a specially designed infrastructure for recording, managing and retrieving massive amounts of files and data objects. A BD platform is built for much greater scale, speed and performance than traditional enterprise data storage has allowed. It must allow large volumes of data to be stored and sorted in such a way that it can be easily accessed, used and processed by specific applications. Large data storage needs to be able to scale flexibly as needed.

A misconception about big data is that the term only refers to the size of the data set. While this is true in principle, the science behind big data goes deeper. The intent is to extract specific subsets of data from multiple large storage volumes. This data may be widely dispersed across different systems and may not have an obvious correlation. The goal is to unify the data in an intelligent way to enable rapid analysis.

From the point of view of big data storage, the analysis can be carried out in two dimensions closely interconnected and dependent on each other, respectively: hardware infrastructure and software infrastructure.

Data Warehouse (DW) are central repositories of structured data integrated from one or more disparate sources, used for reporting and analysis using Business Intelligence (BI) technologies. In fact, DW is a database optimized to analyze relational data from transactional systems and specific business applications. DW architecture was born in the 80s as an architectural pattern designed to support the flow of data from operational systems to decision support systems.

The trend of moving from structured to unstructured data makes traditional relational databases unsuitable for storage. This shortcoming of relational databases motivates the development of efficient distributed storage mechanisms.

Thus, NoSQL (not only SQL) technologies emerged that introduce flexible data models, horizontal scalability and unstructured data models. These databases aim to provide ease of scalability and handling of large volume data. NoSQL databases provide some level of transaction management, so they are suitable for social networks, email and other web-based applications. To improve data accessibility to its users, data is distributed and replicated across multiple sites using cloud infrastructures. ([www.ziare.ro](http://www.ziare.ro))

Combining the capabilities of the two technologies for structured and unstructured data, Data Lakes have been developed, which store relational data from business applications and non-relational data from mobile applications, IoT devices and social media. The data structure or schema is not defined when the data is captured. This means that data can be stored without careful design or the need to know what questions might need answers in the future. Different types of analytics such as SQL queries, big data analytics, full-text search, real-time analytics, and machine learning are used to discover diverse information. ([www.ziare.ro](http://www.ziare.ro))

Recently, organizations that have implemented DW systems have seen the advantages of Data Lakes and are developing them in the sense of implementing these new technologies that allow various query capabilities, data science use cases and advanced capabilities for discovering new information models. ([www.ziare.ro](http://www.ziare.ro))

Cloud computing is a modern concept in the IT field. Cloud-based solutions are the benchmark for managing large volumes of data, services and their associated analytics. ([www.hyperledger.org](http://www.hyperledger.org))

There is a general tendency of companies to migrate to cloud services due to the following: reduced time required to implement new services, real-time cost control, scalability according to demand, ability to adapt the resources used.

Thus, cloud computing represents a viable alternative to on-premise corporate data centers, enabling the on-demand delivery of IT resources and applications from and over the Internet, with a pay-as-you-go pricing model. ([www.hyperledger.org](http://www.hyperledger.org))

On-demand delivery involves provisioning resources to the customer only when they need it, without prior planning. The infrastructure and software resources are already available in the data centers of the cloud provider and are only made available to the customer when he requests them, immediately or in a very short time frame. ([www.hyperledger.org](http://www.hyperledger.org))

IT resources are all or parts of an IT infrastructure or services. In the Cloud, they can be categorized as Infrastructure as a Service - abbreviated IaaS. Examples of cloud IT resources: virtual servers, virtual hard disks, network cards, network addresses (ips), Internet gateways, virtual load balancers, etc. ([www.ziare.ro](http://www.ziare.ro))

Cloud apps are software that you use and pay for as a service. The concept is called Software as a Service abbreviated SaaS. Examples of SaaS: document editing suites-Amaon WorkDocs, Google G Suite, Office 365, ERP-type applications, etc. Most software developers have come to offer a Cloud version, with a monthly payment, in parallel with the classic sales offer. ([www.ziare.ro](http://www.ziare.ro))

## 5. A case study of the accounting of set of transactions

Table no. 1 Table of transactions related to the case study

Transactions	Textual description of the transactions
01.01.2023	The Astra9 company purchases 2,000,000 Digital Euros on 01.01.2023, at the price of 6 monetary units (m.u.). (Nicolae, 2010).
December 31, 2023	On 31.12.2023 the re-estimation is done and it is found that the price of a Digital Euros has dropped to 5.5 m.u.
December 31, 2024	On 31.12.2024, the re-estimation is done again, the Digital Euros reaching the price of 5.7 mu
December 31, 2025	On 31.10.2025 the company sells the Digital Euros at the price of 6.2 m.u.

Source: Case study data proposed by the author

Note:

**Debit = D**

**Credit = C**

### Accounting data

(Making entries by the author)

Table no. 2 Calculations at 01.01.2023

Calculations
Purchase cost: 2,000,000 Digital Euros (EuDi) x 6 um = 12,000,000 um

Source: Calculations made by the author

Table no. 3 Purchase of Digital Euros (EuDi) at 01.01.2023

Account - D	Account - C	Amount
Cash equivalents – EuDi	Bank accounts	12,000,000

Source: Calculations made by the author

Table no. 4 Calculations at 31.12.2023

Calculations
Cost of re-estimation = 2,000,000 EuDi x (6 – 5.5) = 1,000,000 um

Source: Calculations made by the author

Table no. 5 Re-estimation of of Digital Euros (EuDi) at 31.12.2023

Account - D	Account - C	Amount
Other financial expenses	Cash equivalents – EuDi	1,000,000

Source: Calculations made by the author

Table no. 6 Calculations at 31.12.2024

Calculations
Revenue from EuDi re-estimation = 2,000,000 EuDi x (5.7 – 5.5) = 400,000 mu

Source: Calculations made by the author

Table no. 7 Re-estimation of of Digital Euros (EuDi) at 31.12.2024

Account - D	Account - C	Amount
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Source: Calculations made by the author

Table no. 8 Calculations at 31.12.2025

Calculations
Downloading the book value of Cash equivalents – EuDi = 2,000,000 EuDi x 5,7 = 11,400,000 mu
Financial income = 2,000,000 EuDi x (6.2 – 5.7) = 1,000,000 mu
Total amount collected = 2,000,000 EuDi x 6.2 = 12,400,000 mu

Source: Calculations made by the author



Table no. 9 Sale of of Digital Euros (EuDi) at 31.12.2025

Account - D	Account - C	Amount
Bank accounts	Cash equivalents – EuDi	11,400,000
Bank accounts	Other financial revenues	1.000,000

Source: Calculations made by the author

## 6. Conclusions

In my opinion, the application of new, innovative tools and techniques, which appeared as a result of the development of the informational capabilities of information technology (IT), provides the necessary foundation for a paradigm shift in the processing of accounting information, the development of new ways of thinking and practice in the activity financial accounting of the entities.

The widespread global use of information technology tools – smart phones, tablets, laptops, wireless accounting information transmission devices and 5G/6G, all of which open up new opportunities in processing large volumes of accounting data in real time.

Financial reporting - annual financial statements in the classic sense - are about to be transformed and incorporated into a system of integrated financial reporting. Integrated financial reporting allows multi-dimensional and multi-criteria treatment of financial-accounting information. It improves, dramatically reduces the time required to transmit accounting information generated by entities to users.

A little-studied aspect refers to the energy consumption generated by the use of smartphones, tablets, laptops, 5G/6G devices, etc., much higher consumption compared to the traditional paper-based processing of accounting data.

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## Catalyzing Change: ESG Integration in the Global Economy for a Resilient and Responsible Future

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### Abstract

*Considering the global state of the current economy we can notice a slowdown across both developed and developing countries, most of them facing the risk of recession.*

*This paper aims to explore the intersection of ESG, and the pressing challenges confronting the global economy. The article will emphasize the significance and urgency of addressing these challenges to foster sustainable growth and resilience. The study seeks to analyze potential benefits that the integration of ESG norms can bring to the global economy and highlight the reasons why it has become so crucial. The research methods employed provide an overview of the key issues with the greatest impact that are shaping the present global economy as well as how ESG - Environmental, Social, and Governance factors have emerged as catalysts for change by mitigating risks, capitalizing on opportunities, and driving long-term value. The findings of this study serve as a foundation for developing more viable and resilient practices, enabling informed decision-making, and ensuring the long-term sustainable growth of the global economy overall.*

**Key words:** environmental social governance (ESG), climate change, global economy, technology, sustainability

**J.E.L. classification:** M14, M16, M48, F01, F21

### 1. Introduction

There are multiple issues shaping the present global economy but the ones with the biggest impact, there are COVID-19, digital transformation, climate change, global trade tensions, protectionism and the matter of inequality and social justice.

Transformative effects of emerging technologies in the present global economy such as automation, AI artificial intelligence, and blockchain have the potential to transform industries, the labor market and improve productivity.

The global economy is undergoing a transformative phase, influenced by a growing emphasis on Environmental, Social, and Governance (ESG) considerations.

Considering ESG – environmental, social, governance as a catalyst of change refers to the fact that integrating ESG factors is no longer just a matter of corporate social responsibility rather it became a strategic imperative for businesses and investors alike. By aligning their financial goals with sustainable practices organizations can reduce risks, seize opportunities, and drive long-term value creation.

Through ESG programs we can help businesses grow, attract new investors, increase, and maintain their customer's loyalty, and entirely transform their operations by making them more sustainable resulting in gaining a competitive edge.



## **2. Theoretical background**

Due to the climate change phenomena that happened worldwide, people started to become more responsible and aware of the role of ESG. Although there is still a big gap between believing in its benefits and implementing it within organizations. While some studies have suggested its positive long-term benefits such as increased rate of attracting new investments, enhanced reputation, brand value, innovation, and competitive advantage, there is still a need to better explore the benefits. This study aims to address this gap and provide a more comprehensive understanding of the opportunities and benefits it can bring to the global economy.

This research draws attention to how to manage crisis damages to create a more sustainable future and growth.

According to McKinsey & Company (2022) resilience is part of the key to success as it said back in 2022 "Resilience should be seen as the ability to deal with adversity, withstand shocks, and continuously adapt and accelerate as disruptions and crises arise over time" (Brende et al, 2022). They see the actual crisis as disruptions that are pushing us to a global transition to a low-carbon emission economy.

A study made by GSIR (2020) – Global Sustainable Investment Alliance gives us a short overview of the rising trend of investing in sustainability and the impact of these investments on the global economy.

The World Bank reports, and live graphics are also important references showing us the importance of ESG integration and how can it contribute to a better sustainable future.

Even if we report more granularly than the global economy and look a little towards the European one, there are data that indicates the good performance of ESG implementation. Thus, according to the statistical data available at the EFAMA (2021) - European Fund Asset Managers Association level, at the end of the first quarter of 2021, the most performant companies are those who aim to fulfill the best they can, the ESG criteria. Along with these companies, another type of business with high performance and profits is the investment funds that invest in these companies.

ESG factors encompass a range of environmental, social, and governance considerations that can affect the long-term performance and sustainability of businesses. Environmental factors include issues such as climate change, resource depletion, and pollution. Social factors encompass labor practices, human rights, community engagement, and diversity. According to Inderst G, Stewart F, (2018), governance factors refer to the structure, transparency, and accountability of corporate decision-making processes. ESG integration involves systematically incorporating these factors into investment analysis, decision-making, and risk assessment processes.

Studies have shown that the integration of ESG can lead to better financial performance, risk mitigation, increased stakeholder trust and enhanced brand reputation.

Regulatory frameworks and reporting standards, such as the United Nations' Principles for Responsible Investment (PRI), the Global Reporting Initiative (GRI), and the Task

Force on Climate-related Financial Disclosures, TCFD(2022) has played a crucial role in driving the adoption of ESG practices. Institutional investors, including pension funds and asset managers, have also recognized the importance of ESG integration in their investment strategies, leading to a growing demand for ESG-related products and services.

Despite the progress made until now, there are still challenges that remain to achieve integration at a global scale. These include issues such as quality standardization of reporting frameworks, data availability and the need for robust impact measurement methodologies. However, all these challenges also offer opportunities for innovation and collaboration among stakeholders to develop and implement more effective ESG integration practices.

## **3. Research methodology**

The research methodology used to approach ESG integration in the global economy for a Resilient and Responsible Future is the type of mixed methods research combining both qualitative and quantitative elements. During the research were collected and analyzed both numerical and non-numerical data to gain a comprehensive understanding of the research question. Approach which helped in triangulating findings and providing a complete picture. Qualitative research helped for a

better understanding and interpretation of social phenomena from a more subjective point of view. Meanwhile, quantitative research was based more on the collection and analysis of data which are helpful to answer many questions and hypotheses.

It was also based on studying different in-depth interviews with key stakeholders, such as industry experts, corporate executives, investors, policymakers, and representatives from non-governmental organizations – NGOs. The interviews explored their perspectives on ESG integration, the challenges faced, the strategies employed, and the potential for catalyzing change.

There was collected quantitative data from different sources including reports from different reference companies, financial databases and agencies specialized in ESG ratings.

The research was conducted following ethical guidelines and principles. All the information given in this paper is public information that can be revealed to the public. It adheres to ethical standards of data collection, analysis, and reporting.

The used research methodology provides a comprehensive understanding of the catalyzing effects of ESG integration in the global economy. It allows for the exploration of stakeholders' perspectives, the identification of challenges and strategies, and the examination of the relationship between ESG integration and financial performance.

## **4. Findings**

### **4.1. Most important issues which are shaping the global economy**

According to OECDiLibrary, (2021), what was known as the famous COVID-19 pandemic continues to have a major negative impact on the global economy. Among the major problems created, there is disruption of the supply chains which led to a lot of frozen industries and permanently closed businesses, which in the end, caused severe economic contractions in many countries. The recovery and long-term effects of the pandemic remain uncertain, posing challenges to global economic stability and growth.

Digital transformation is reshaping the global economy as well. Technology is advancing at lightning speed worldwide, especially in areas such as AI artificial intelligence, process automation and digital platforms that are completely transforming industries and the way of work. While at first sight digital transformation must seem like a huge opportunity for efficiency and innovation it also has a more controversial side and raises concerns about job displacement, income inequality, and data privacy. Managing digital transformation and ensuring its benefits are widely shared are pressing challenges for the global economy.

Addressing climate change and promoting environmental sustainability is also a critical global issue. There is an urgency of transitioning to a low-carbon economy and to do so we need to reduce greenhouse gas emissions and adapt to the impacts of climate change. The impacts of climate change such as extreme weather and increased sea levels pose risks to economies and societies worldwide. Certainly, a good way to fight all this is by investing in sustainable practices that can create economic stability and resilience.

Trade tensions between major economies, such as the United States, China, and the European Union, have escalated in recent years. The imposition of tariffs and trade restrictions has disrupted global supply chains and created uncertainty for businesses. Protectionist measures and trade disputes pose risks to global trade, investment, and economic cooperation.

Social inequalities, including income disparity, gender inequality, and access to education and healthcare, continue to be pressing global issues. Addressing these inequalities is not only a matter of social justice but is also essential for sustainable economic growth and stability. Promoting inclusive growth, reducing poverty, and enhancing social mobility are key areas of focus for policymakers and organizations.

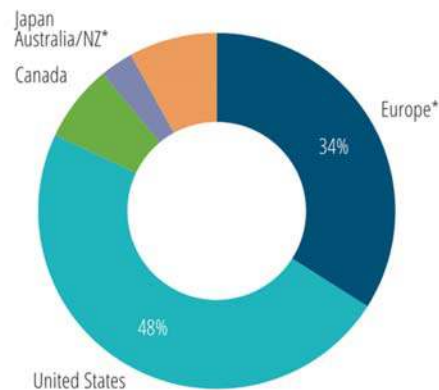
#### 4.2. How does ESG impact the present global economy?

In the last couple of years, across industries, geographies and company sizes, organizations have allocated more and more resources toward improving their ESG standards.

According to Pérez L, Hunt D. V, Hamid S, Nuttall R, Biniek K (2022) nowadays more than 90% of the S&P 500 companies such as Amazon, Microsoft, Nvidia, and Apple are publishing their ESG reports and making reporting either mandatory or under consideration.

The popularity of ESG which has become a hot topic across the globe, has become more evident in investments as well. Even though the rate of investments has recently been decreasing, inflows in the sustainable investment funds have increased from \$5 billion in 2018 to almost \$70 billion in 2021 and gained nearly \$120 net billion after the second quarter of 2022. In the middle of 2022, the sustainable assets were about \$2.5 trillion.

Figure no. 1 Proportion of global sustainable investing assets by region 2020



Source: Global Investment Sustainable Alliance

“While historically ESG investing was regarded as a niche category, there has been a dramatic shift toward mainstreaming ESG integration and engagement in the last few years” (Garrett R.H et al 2020). The environmental component of ESG and the responses to climate change across the globe have played a major part in ESG’s popularity. Apart from these 2 aspects, the social dimension was another component that has been gaining prominence. Also, the war in Ukraine and the human tragedy that followed as well as the entire geopolitical and economic aspects that came next helped the ESG importance to reach its peak.

As Lawder D. (2023) reported in Reuters, it is IMF that warns about geopolitical fragmentation that could raise financial stability risks and reduce cross-border investment and asset prices.

Another point of interest is the specific present issues resulting from the convergence of the global economy and ESG with a focus on key challenges faced in different sectors such as energy transition, responsible supply chain management, board diversity and corporate governance, labor rights and climate risks.

- Energy transition – A significant high-interest issue is represented by the transition to a low-carbon and sustainable energy system. Now the global economy relies on fossil fuels which have a huge negative contribution to climate change. The shift we need to take towards renewable energy resources, decarbonization and energy efficiency poses real challenges regarding infrastructure investments, technological progresses, and policy frameworks. Although the need for economic growth exists, balancing it with the need to mitigate climate change is a huge challenge for both the global economy and the energy sector. However, according to (UNFCCC Paris Agreement) by the year 2030, sectors responsible for more than 70% of global emissions could witness the competitiveness of zero-carbon solutions.
- Responsible supply chain management – Supply chain management is important to achieve business objectives. Though, responsible supply chains became a matter of interest as much as supply chains have become increasingly complex and globalized. They started to raise a

series of concerns regarding environmental and social impact, issues such as human rights abuses, pollution, deforestation, and child labor becoming the main reason that generated the need for responsible supply chain management. That's how ethics has become an increasingly important aspect of supply chain management, so much so that a set of principles called supply chain ethics was born. Ensuring transparency, traceability, and ethical practices throughout the supply chain is a pressing challenge businesses must face with. They also have the task along with the suppliers to identify and address sustainability risks and to promote responsible practices.

- Board diversity and corporate governance - According to Landaw J, Barington Capital Group LP (2020), board diversity and effective corporate governance are crucial for ensuring accountability, transparency, and long-term business success. The lack of diversity in corporate boardrooms, particularly in terms of gender and ethnic representation, remains a persistent issue. Enhancing board diversity and promoting inclusive decision-making processes can bring fresh perspectives, improve risk management, and enhance business performance. Strengthening corporate governance practices is essential for maintaining stakeholder trust and fostering sustainable economic development. Also, studies have shown that diverse personal experiences such as living or working abroad can bring new perspectives, higher productivity, and greater creativity. That's why companies should improve gender, racial and ethnic diversity on their corporate boards.
- Labor rights – As I already mentioned above, labor rights, fair wages, and decent working conditions are integral components of the ESG agenda and are an important issue of the present global economy. As Bourgeot R, Devine M, Panitsas K, Andretta C, Klaas de Vries, (2023) showed us in a paper, numerous challenges persist globally including forced labor, inadequate treatment of workers, and poor worker protection. Creating a proper balance between economic growth and respect for labor rights requires businesses to prioritize employee well-being, have a fair recruiting process, and maintain close relationships and a good dialogue with labor unions and advocacy groups. Respecting labor rights is essential for economic growth.
- Climate risks (Bloomberg M R., TCFD Status Report 2022) – Depending on the activity profile, climate changes can become a significant financial risk for both businesses and investors. Extreme weather conditions, natural calamities, and lack of resources along with risks associated with shifting regulations and market preferences can impact the stability and growth of a company. Assessing, identifying, and managing climate-related financial risks and incorporating them into decision-making are critical challenges for businesses or any financial institution.

#### **4.3. The economic risks and opportunities associated with climate change in the present global economy**

Like any change in the world, climate change presents both economic risks and opportunities and to address and overcome all the challenges the transition to a low-carbon economy by managing resource scarcity and adopting sustainable development practices is required. In the lines below we will explore the economic opportunities and risks associated with climate change and what sustainable practices can we adopt to overcome the risks.

Figure no. 2 The economic risks and opportunities associated with climate change



Source: Author's own elaboration

Among the major economic opportunities, there is to mention:

- Green Technologies and innovation. Opportunities for the development and adoption of green technologies, renewable energy, sustainable infrastructure, and energy-efficient solution are created by the transition to low-carbon economies. This is also an opportunity that can create new industries and generate more jobs.
- Cost Savings and efficiency. The development of sustainable practices such as energy efficiency measures, waste reduction and resource optimization can lead to cost savings for businesses worldwide. To reduce the dependence on volatile fossil fuel prices and to be able to provide long-term cost stability investments in renewable energy are examples of good practices.
- New markets and consumer preferences. To start driving demand for eco-friendly products and services, growing awareness, and concern about climate change among consumers is a must. We can already see that for businesses that are embracing sustainability and offer low-carbon alternatives, it is easy to tap into new markets, attract environmentally conscious consumers and build brand loyalty.
- Resource efficiency and security. What presents challenges but also drives innovation is resource scarcity, including water scarcity and raw material shortages. The adoption of sustainable practices that can optimize resources and reduce waste can mitigate risks from scarcity, improve long-term resilience and enhance resource efficiency. Resource scarcity, including water scarcity and raw material shortages, presents challenges but also drives innovation. Adopting sustainable practices that optimize resource use and reduce waste can enhance resource efficiency, mitigate risks from scarcity, and improve long-term resilience.

Among the major economic risks, there are:

- Physical risks. Extreme weather events such as hurricanes, floods, and droughts are results of climate change that can damage infrastructure, disrupt supply chains and lead to increased insurance costs and business interruptions.
- Transition risks. According to Thesing G (2023) article about the green investments made by global leaders, we can remind of the industries heavily reliant on fossil fuels which are at high risk due to the transition to a low-carbon economy. Considering all this, in the current global economy the profitability and competitiveness of businesses that fail to adapt are impacted by regulatory changes, carbon pricing, and shifting consumer preferences.
- Liability risks. If a company's operation contributes to climate change or if they fail to disclose climate-related risks to investors, they can face legal and financial liabilities. Lawsuits related to climate change impacts are on the rise, imposing significant financial risks on businesses.



#### **4.4. Transformative effects of emerging technologies in the present global economy**

Automation including RPA (robot process automation) had a big boom in the past couple of years. We all know the incredible story of UiPath the first Romanian unicorn back in 2018 that provided a platform that allows organizations to automate repetitive and rule-based tasks through software robots or bots. Overall automation technologies including robotics and process automation offer various benefits such as streamlining operations, cost reduction, and enhance productivity in multiple industries. One of the biggest benefits of automation is that it can produce repetitive tasks with higher precision than a human could ever do, freeing up human workers to channel their abilities on more complex and creative work than simple repetitive tasks. Among the industries that are already experiencing the biggest effects of automation, we can mention manufacturing, transportation, and logistics. Reskilling programs and lifelong learning initiatives become crucial to equip the workforce with the necessary skills for the evolving job market.

AI with its capabilities of automating processes, improving efficiency, and enabling new business models is revolutionizing industries worldwide. According to an article by Katzenstein K, Newman B, Robin J. S, Wilson J, (2023) 75% of companies already use AI tools and technology especially for HR purposes.

When we are thinking about the labor market AI artificial intelligence is the one reshaping it from scratch by automating routines and repetitive tasks. While some might think that this is leading to job displacements in some areas which is completely true it is also to consider that at the same time is leading to new job opportunities that can replace the old ones. AI trainers, explainability experts, and data scientists are just a few examples of new roles that will be in high demand.

Taking into consideration OECD Background report for the Canadian G7 Innovation Ministers' Meeting, (2018) blockchain technology is another important pillar that creates new job opportunities in the labor market in areas such as blockchain development, security, and governance. Regarding blockchain technology, there is also a huge gap between industry-specific requirements and technical knowledge that can be filled by people with experience in blockchain technology.

It has the potential to transform industries such as healthcare, supply chain, and finance by enabling secure and transparent transactions, eliminating intermediaries, and reducing costs. It can also enhance traceability and accountability by providing an immutable number of transactions.

#### **4.5. European Union legislation on sustainable investments**

According to the declaration of Popovici. D (2022) for the Wall Street Journal, with the advent of EU Regulations UE 2088/2019, ESG investments are growing exponentially as more and more investors and issuers use ESG tools and climate data to inform their decision-making investments.

Therefore, we can observe that the ESG stock indices performed better than the general indices of the market in the last 5 years. The big problem in making sustainable investments is given by the lack of information related to this topic. Under these conditions, several external data providers have emerged covering a number important of listed companies that have a significant input in the provision of relevant information about these companies.

One such data provider is MSCI, through its MSCI ESG Ratings service. Of course, besides this, there are other providers of ESG data. MSCI ESG Ratings are designed to help investors understand risks and ESG opportunities and integrate these factors into the construction and management process of their portfolio.

Graphic no. 1 S&P 500 ESG vs. S&P 500



Source: wall-street.ro

Graphic no. 2 MSCI ACWI ESG Leaders vs. MSCI ACWI



Source: wall-street.ro

## 5. Conclusions

In conclusion, ESG integration in the global economy has emerged as a catalyst for change, offering the potential to drive sustainable development, resilience, and responsible business practices. By considering the theoretical foundations and key concepts discussed in this paper, researchers, policymakers, and practitioners can better understand the importance of ESG integration and its role in shaping a more sustainable and responsible future.

ESG integrations also drive significant opportunities for promoting sustainable development, addressing societal challenges, and fostering responsible business practices. The research conducted underscores the importance of recognizing the business case for ESG integration, establishing robust regulatory frameworks, addressing challenges, and promoting stakeholder engagement. By integrating it, businesses and society can work together towards a resilient and responsible future, creating value for both present and future generations.

Technological progress also becomes an important factor that is reshaping the global economy and plays a significant role in catalyzing change and enabling ESG integration. Technological innovations are driving the development and adoption of sustainable solutions such as renewable energy technologies, energy-efficient systems, smart grids, and circular economy models.

All these progresses especially advancements in transportation, infrastructure, clean energy, and the optimization of resources are helping businesses worldwide to reduce their environmental impact and enhance sustainability.

Meanwhile, automation, artificial intelligence, and machine learning algorithms are not only reshaping various industries of the global economy, but they can efficiently analyze ESG data, identify patterns, and generate insights for decision-making. This enables both businesses and investors to make more informed and data-driven decisions.

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## ESG Reporting Standards in The Banking Sector: A Global Analysis

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### Abstract

*Integrating environmental, social and governance (ESG) factors into the banking sector is an increasingly important concern worldwide. This process involves adopting policies and practices that take into account the impact of banking activities on the environment, communities and corporate governance. The aim of this article is to analyse the state of alignment of the banking sector with ESG sustainability principles. To achieve this, we collected data from several countries, covering different regions and economies. Our research methodology involved selecting a number of major banks from different countries and regions, with a focus on the largest financial institutions worldwide and collecting the data from annual reports, sustainability reports and other public sources regarding the ESG practices of these banks. Our results provide a clear picture of the current state of alignment of the banking sector with ESG principles globally.*

**Key words:** banks, corporate governance, social responsibility, government policy

**J.E.L. classification:** G21, G34, M14, Q48

### 1. Introduction

In the context of growing global concern for sustainable development, the banking sector plays a crucial role in promoting economic, social and environmental sustainability. More and more banks worldwide are making commitments to improve their practices and integrate environmental, social and governance (ESG) factors into their activities. This ESG orientation is a strategic approach to ensure sustainable economic development and to address global challenges such as climate change and social inequalities.

Banks are increasingly aware of the importance of a responsible and sustainable approach to their business, given the long-term impact on their profitability and reputation. Integrating ESG into the banking sector brings significant benefits, such as reduced risks, improved financial performance and better relationships with investors and customers. However, the implementation of ESG practices is not without challenges, such as the lack of common standards and the difficulty in measuring social impact and long-term benefits. Through collaboration between banks, regulators and other stakeholders, common standards and methodologies need to be developed to ensure transparency and comparability in ESG reporting.

Our analysis focused on different aspects of ESG sustainability, including governance, strategy, risk management and disclosure. We assessed the level of commitment and implementation of ESG principles within each bank and compared the results with international standards and practices. In our study, we identify both banks that are leaders in adopting sustainable practices and areas where further progress is needed. This information can be valuable for financial institutions, regulators and other stakeholders to improve the ESG performance of the banking sector globally.

With this article, we aim to contribute to the development of knowledge about ESG sustainability in the banking sector globally and to highlight the importance of a responsible and sustainable approach to banking. Our methodology can be adapted and used in further research to assess progress and drive change in the banking sector towards more sustainable and responsible development.

In the following, we explore in detail the theoretical issues and review the relevant literature on ESG sustainability in the global banking sector and present our specific findings. In doing so, we hope to stimulate debate and constructive action for a more sustainable transformation of the banking sector globally.

Mainstreaming ESG in the banking sector is an essential step towards building a more sustainable, responsible and ethical economy.

## 2. Literature review

In recent years, addressing environmental, social and corporate governance (ESG) issues in the banking sector has become increasingly important. Studies in the literature highlight the positive link between ESG integration and banks' financial performance, as it can reduce the risks and costs associated with environmental and social factors. Investors and customers are taking a greater interest in ESG issues in their investment decisions and in their dealings with banks, giving financial institutions a competitive advantage.

Banks have started to adopt environmental policies and practices, including financing green projects and ESG reporting to ensure transparency and relevant information for investors. They are also getting involved in social issues, promoting social inclusion, gender equality and supporting local communities by funding social projects. In addition, banks are subject to strict corporate governance requirements, which cover transparency, accountability and board involvement.

However, implementing ESG practices in the banking sector is not without its challenges. These include a lack of common standards and metrics, difficulty in measuring social impact and long-term benefits, and resistance to change in organisational culture. However, there is a growing recognition of the importance of ESG and a positive development in addressing them in the banking sector, supported by government directives and regulations and the efforts of international organisations.

Private equity and environmental and social governance (ESG) investments have received increasing attention in the investment landscape, due to growing awareness of the importance of responsible investment practices. Traditionally, private equity firms have focused on maximising returns for their investors, but embracing environmental, social and governance (ESG) principles has become essential for firms to remain competitive and attract capital from investors who prioritise sustainable investments. According to C. Alfonso-Ercan's Sustainable Investing and ESG Reporting (2020), "ESG factors can impact a company's reputation, financial performance and long-term viability, making it essential for private equity firms to integrate ESG considerations into their investment decisions." Private equity firms recognise that incorporating ESG factors into their investment strategies can lead to better risk management and improved portfolio company performance. In addition, firms can enhance their reputation and differentiate themselves from competitors by demonstrating their commitment to sustainable investment. Private equity firms take a proactive approach to ESG investing by developing frameworks and guidelines to assess ESG risks and opportunities in their investments. Private equity firms recognise that ESG investment is not only a moral obligation, but also a strategic investment decision that can lead to long-term value creation for the benefit of both investors and society as a whole.

In general, private equity firms recognise the importance of ESG investing and incorporate these principles into their investment strategies. Adopting ESG principles can lead to better risk management, improved performance of portfolio companies and enhanced firm reputation. Private equity firms take a proactive approach to ESG investing by developing frameworks and guidelines to assess ESG risks and opportunities in their investments. According to C. Alfonso-Ercan, "ESG investing is not only a moral obligation, but also a strategic investment decision that can lead to long-term value creation for the benefit of both investors and society as a whole" (2020). Private equity firms should therefore continue to prioritise ESG investments and integrate these principles into their investment strategies to remain competitive and attract sustainable capital.

In the article "Environmental motivations: a classification scheme and its impact on environmental strategies and practices", Paulraj (2009) proposes a classification scheme of environmental motivations that can have a significant impact on environmental strategies and practices in companies. The four categories of environmental motivations identified by Paulraj are regulatory, financial, ethical and strategic. Regulatory motivations are driven by compliance requirements and environmental regulations. Financial motivations are related to cost reduction and competitive advantage. Ethical motivations are driven by moral and social values, while strategic motivations are linked to long-term business objectives. According to Paulraj (2009), understanding these motivations is important for businesses to develop effective environmental strategies and practices.

The impact of these motivations on environmental strategies and practices can be seen in various studies. For example, a study by Klassen and Whybark (1999) found that companies with regulatory motivations were more likely to adopt pollution prevention practices, while companies with financial motivations were more likely to adopt end-of-pipe treatments. Similarly, a study by Bansal (2005) found that ethically motivated companies were more likely to adopt proactive environmental strategies, while strategically motivated companies were more likely to adopt reactive environmental strategies.

In conclusion, the classification scheme proposed by Paulraj (2009) can help businesses understand their environmental motivations and develop effective environmental strategies and practices accordingly. As seen in various studies, different types of environmental motivations can have different effects on the adoption of environmental strategies and practices. It is therefore important for companies to take these motivations into account when developing their environmental strategies and practices.

The concept of corporate social responsibility (CSR) has become increasingly important in the banking industry in recent years. Burianová and Paulík (2014) conducted a case study of CSR practices in the commercial banking sector in the Czech Republic, focusing on three major banks in the country. The study found that these banks implemented CSR practices in various areas such as environmental protection, social responsibility and ethical business practices. For example, one of the banks has implemented a green policy that includes reducing energy consumption, implementing recycling programmes and using environmentally friendly products. In addition, banks have also contributed to social responsibility by supporting various projects related to education, culture and health. The study also found that these banks have adopted ethical business practices by promoting transparency, accountability and fair treatment of their customers. Overall, the study highlights the importance of CSR in the banking industry and demonstrates that CSR practices can benefit both society and business. It also highlights the need for more research on CSR practices in the banking sector to better understand their impact and benefits.

The study conducted by MA Rahman and J Islam in 2018 aimed to investigate the impact of corporate governance on the performance of Bangladeshi banks. The study used secondary data obtained from the annual reports of 30 commercial banks in Bangladesh for the period 2010-2016. The study used multiple regression analysis to analyze the data and found that corporate governance significantly affects the performance of Bangladeshi banks. The study found that board size, board independence, CEO duality and audit committee have a significant impact on bank performance. This finding is consistent with previous studies conducted in other countries such as the study conducted by Amran et al. (2014) in Malaysia. The results of the study have significant implications for policy makers and bank managers in Bangladesh. It highlights the importance of having a good corporate governance system to ensure better performance of banks in the country. In addition, the study provides evidence to support the argument that good corporate governance practices can lead to better financial performance and help banks mitigate risks and improve their reputation. Overall, the study provides valuable insights into the importance of corporate governance in the banking sector in Bangladesh and highlights the need for continuous improvement in banks' corporate governance practices to ensure their long-term sustainability and success.

### 3. Research methodology

The methodology used in this study combines elements from the baseline study and own analysis carried out in the final study. To assess banks' approach to sustainability, we started by selecting a sample of banks, in line with the baseline study, which included the largest banks in Africa, the Americas, Asia-Pacific and Europe in terms of total assets.

Data collection was done by reviewing public reports, such as CSR reports/annual reports and information available on banks' websites until July 2021. This information included data on banks' governance, strategy, risk management and sustainability disclosure/reporting.

The assessment matrix in the baseline study, covering aspects such as governance, strategy, risk management and disclosure/reporting, was adapted and used to assess banks' approach to sustainability. The assessment criteria were based on expectations set by the United Nations Environment Programme Finance Initiative (UNEP FI) and global financial regulators.

Each bank was assessed according to its level of compliance with the assessment criteria. Scores were awarded according to the degree of compliance with the criteria and were used to rank and group the banks according to the percentage of positive scores achieved.

Analysis of the data collected and the results obtained was carried out to identify relevant trends and patterns in banks' approach to sustainability. Information and graphs taken from the baseline study were integrated into the own analysis to support the arguments and conclusions.

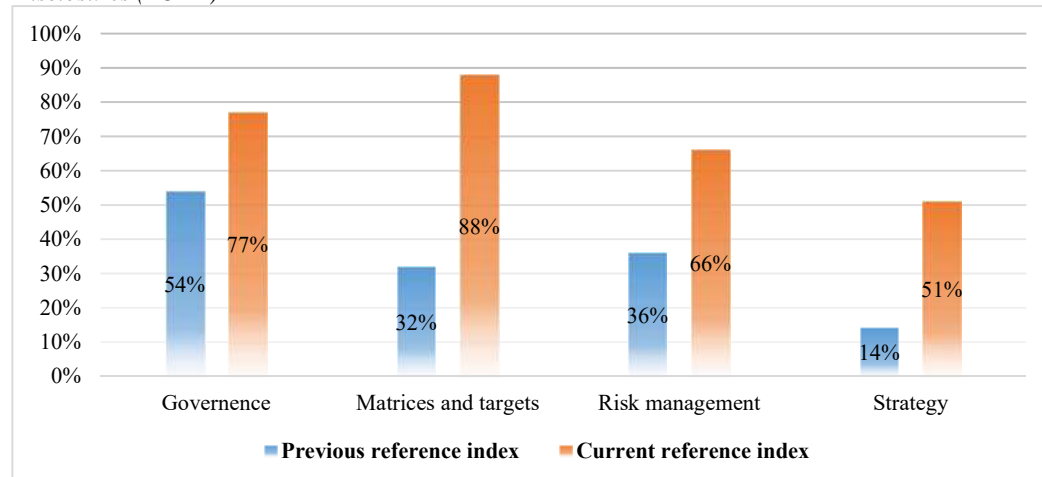
Based on the analysis of the data, conclusions were drawn on the banks' approach to sustainability. These findings have been integrated into the final study to provide a broad and relevant perspective on the subject.

This combined methodology provides a robust framework for assessing banks' approach to sustainability and for drawing relevant and valid conclusions in your study.

### 4. Findings

Disclosure and reporting standards on socio-economic and environmental issues provide banks with guidelines to demonstrate ESG impacts, the implications of these issues on business performance and how they are managed within the organisation. Banks also standardise disclosures, increasing transparency for external stakeholders.

*Figure no. 1. Status of alignment with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)*



Source: (Gomard, Ribes and Ngouadje, 2021)

According to the data presented, there is a significant improvement in the current benchmark compared to the previous one in terms of governance (from 54% to 77%), matrices and targets (from 32% to 88%), management risk (from 36% to 66%) and strategy (from 14% to 51%). These figures reflect a notable progress in the state of alignment with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

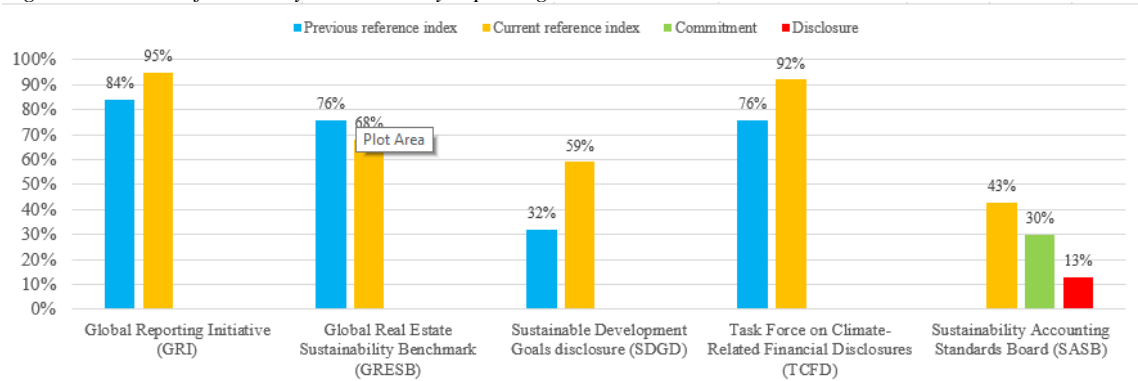
In terms of governance, there has been a significant increase in the degree of alignment with TCFD recommendations. This suggests that banks in Romania have paid more attention to governance structures and processes to manage climate change risks and opportunities. The improvement in this index reflects their efforts to ensure sound and responsible corporate governance on climate issues.

The higher index for matrices and targets shows that banks have made significant progress in identifying and setting relevant targets and indicators for managing climate-related risks and opportunities. This highlights banks' focus on developing coherent policies and strategies to address climate change and contribute to the transition to a low-carbon economy.

However, the indicators for management risk and strategy indicate that there is still room for improvement in addressing these issues within banks. More can be done to identify and manage climate-related risks more effectively and to develop long-term strategies that integrate environmental factors into banking decisions and operations.

Overall, the data suggest that Romanian banks have made significant progress in aligning with the TCFD recommendations in terms of governance, matrices and targets. However, there is still room for improvement in addressing risk management and strategy. It is important that banks continue to engage and take concrete steps to align with the TCFD recommendations and play an active role in managing climate-related risks and opportunities.

Figure no. 2. Use of voluntary sustainability reporting standards



Source: (Gomard, Ribes and Ngouadje, 2021)

Analysing the data provided on the use of voluntary global sustainability reporting standards, we see significant developments in the different benchmarks.

The current Global Reporting Initiative (GRI)/Global Reporting Initiative benchmark has increased to 95% from a previous benchmark of 84%. This indicates a strong commitment by organisations to adopt and use GRI standards for their sustainability reporting.

On the other hand, the current Global Real Estate Sustainability Benchmark (GRESB)/Global Real Estate Sustainability Benchmark index has fallen to 68% from a previous index of 76%. This may indicate a lower level of engagement by the real estate industry in using GRESB standards to assess and report their sustainability performance.

The current Sustainable Development Goals disclosure (SDGD)/Sustainable Development Goals benchmark has increased significantly to 59% from a previous benchmark of 32%. This indicates a growing commitment by organisations to report on their progress towards achieving the Sustainable Development Goals (SDGs) set by the United Nations.

For the Task Force on Climate-Related Financial Disclosures (TCFD), the current benchmark has increased to 92% from a previous benchmark of 76%. This shows a high level of commitment by companies to report climate-related financial information in line with TCFD recommendations.

For the Sustainability Accounting Standards Board (SASB), the current benchmark has dropped to 30% from a previous benchmark of 43%. However, it should be noted that 13% of companies are committed to implementing SASB standards, indicating a recognition of their importance in the context of ESG financial reporting.

Overall, we see a significant increase in engagement and disclosure in the use of voluntary global sustainability reporting standards, with the exception of the SASB standards, which have seen a decrease in the current benchmark. This indicates a positive development in the ESG approach and adoption of standards for reporting on companies' impact on environmental, social and governance factors.

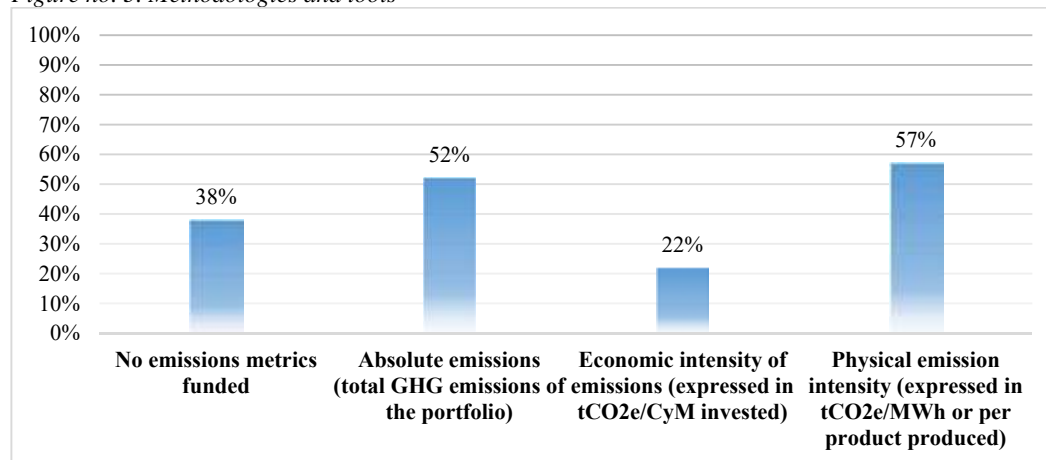
It can be seen that there is a growing commitment to the use of voluntary sustainability reporting standards in the banking sector worldwide. Companies and banks recognise the importance of transparent reporting on environmental, social and governance (ESG) issues and are adopting relevant standards to assess and communicate their impact on these issues.

The current benchmark for the Global Reporting Initiative (GRI) has increased, reflecting a high level of commitment to using GRI standards for sustainability reporting. However, the Global Real Estate Sustainability Benchmark (GRESB) has seen a decrease in the current benchmark, indicating the need for greater commitment from the real estate industry.

The use of voluntary reporting standards on Sustainable Development Goals (SDGs) and climate-related financial reporting as recommended by the Task Force on Climate-Related Financial Disclosures (TCFD) has seen a significant increase in current benchmarks, reflecting a greater recognition of the importance of these issues and the need for transparent reporting on them.

However, there are opportunities for improvement in the adoption and use of other standards, such as the Sustainability Accounting Standards Board (SASB), and indicators such as Weighted Average Carbon Intensity (WACI). In addition, the reporting of greenhouse gas (GHG) emissions associated with loans and investments under the Platform Carbon Accounting Financials (PCAF) has an increasing rate of use.

Figure no. 3. Methodologies and tools



Source: (Gomard, Ribes and Ngouadje, 2021)

Analysing the information on the metrics for measuring financed emissions in the banking sector, we can draw the following conclusions:

Funded emissions are not properly measured in 38% of cases. This suggests that there is a lack of clarity and consistency in the measurement and reporting of emissions associated with bank financing. Accurate measurement and reporting of financed emissions is essential to assess and control financial impacts on climate change.

Absolute emissions, i.e. total portfolio greenhouse gas (GHG) emissions, are measured in 52% of cases. This indicator provides insight into the total climate change impact of financing activities. Measuring absolute emissions is important for assessing emission reduction performance and setting appropriate reduction targets.

The economic intensity of emissions, expressed in tonnes of CO<sub>2</sub> equivalent (tCO<sub>2</sub>e) relative to the volume invested (CcyM - Currency in Circulation), is measured in 22% of cases. This indicator allows the assessment of financial efficiency and sustainability in relation to climate impact. With this indicator, banks can identify and implement measures to reduce emissions intensity and support climate-friendly transactions and investments.

Physical emissions intensity, expressed in tonnes of CO<sub>2</sub> equivalent (tCO<sub>2</sub>e) in relation to the amount of energy produced (MWh) or the product obtained, is measured in 57% of cases. This indicator provides an insight into the energy efficiency and climate impact of activities in the banking sector. Measuring and monitoring physical emissions intensity can help banks to identify and adopt measures to reduce energy consumption and support the transition to renewable energy sources.

Overall, we see that there is variation in the measurement of financed emissions and indicators used in the banking sector. It is important that banks adopt and implement common measures and standards to accurately measure and report emissions associated with their financing activities. This will contribute to a better understanding of their impact on climate change and to more informed and sustainable decisions in the financing process.

## 5. Discussion and conclusions

The review of data and relevant literature highlights the growing importance of integrating ESG principles in the banking sector worldwide. Recent studies and reports show that banks are increasingly aware of their impact on the environment and society at large, and the adoption of sustainability practices is becoming a strategic priority for them.

An important issue discussed in the literature is the positive link between ESG integration and banks' financial performance. Empirical studies reveal that banks that adopt sustainability practices and engage in ESG activities can reduce risks associated with environmental and social factors and gain long-term competitive advantages. This is partly due to increased demand from investors and customers for transparency and accountability in terms of their environmental and community impacts.

However, implementing ESG practices in the banking sector is not without its challenges. One of these is the lack of common standards and metrics for measuring ESG performance. Without a set of clearly defined criteria and indicators, it is difficult for banks to consistently and comparably report their ESG performance. In addition, measuring social impact and long-term benefits is an additional challenge as they involve subjective assessments and difficulties in quantifying social and governance aspects.

However, significant progress is being made towards the adoption of voluntary sustainability reporting standards in the banking sector. Standards such as the Global Reporting Initiative (GRI), the Global Real Estate Sustainability Benchmark (GRESB), the Task Force on Climate-Related Financial Disclosures (TCFD) and the Sustainability Accounting Standards Board (SASB) are increasingly being used by banks to report their ESG information. These standards provide a common framework and clear criteria for reporting and assessing ESG performance, which facilitates comparability between banks and promotes transparency of information.

There are also significant differences in the level of engagement and alignment with ESG standards between different banks and regions. Some banks and regions have made significant progress in ESG integration and have become leaders in sustainability practices, while others are facing difficulties in adopting these practices. This points to the importance of sharing best practices between banks and regions and the need to promote common standards and guidelines to ensure a consistent and coherent approach to ESG across the banking sector.

In conclusion, the integration of environmental, social and governance (ESG) factors into the global banking sector is increasingly important and a strategic priority for banks. Adopting sustainability practices can bring competitive advantages, reducing risks associated with environmental and social factors and contributing to better long-term financial performance.

However, implementing ESG practices in the banking sector is not without its challenges. Lack of common standards and metrics, difficulties in measuring social impact and long-term benefits, and resistance to change in organisational culture are obstacles that banks need to address in their ESG integration process.



There is significant progress in the adoption of voluntary ESG reporting standards in the banking sector, which facilitates transparency and comparability of ESG information. The use of standards such as GRI, GRESB, TCFD and SASB helps banks to consistently report and assess their ESG performance in a consistent way.

To ensure sustainable and responsible development, it is essential that banks continue to make progress in integrating ESG into their strategies and operations. Sharing best practices between banks and regions and promoting common standards will contribute to a consistent and effective approach to ESG across the banking sector.

Finally, ESG integration in the banking sector represents a significant opportunity for banks to play an active role in addressing environmental and social challenges and contributing to a more sustainable and inclusive global economy. By adopting sustainability practices and promoting transparency and accountability, banks can gain competitive advantages and contribute to the well-being of society as a whole.

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## Tax Pressure on People's Incomes

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### Abstract

*The tax system is an essential part of any country's economic structure as it provides the government with a significant source of revenue and plays a crucial role in economic policy-making. In Romania, a nation with a complex tax system and evolving economic conditions, understanding the effects of the tax burden on the population is essential for assessing the fairness, efficiency and sustainability of public finance policies.*

*The overall objective of the paper is to highlight that in recent years the issue of fiscal pressure on the population has received significant attention worldwide. As governments strive to maintain sustainable economic growth, there is a growing need to assess the impact of tax policies on individuals.*

*The purpose of this work is to delve into the multifaceted nature of the tax burden, examine its implications for the population and propose policy perspectives to address the challenges it raises.*

**Key words:** tax pressure, tax system, taxes, tax behaviour

**J.E.L. Classification:** H2, H24, H3

### 1. Introduction

The analysis of the tax burden on household income involves assessing the proportion of income that taxpayers pay in the form of taxes in relation to their total income. This analysis can be carried out by various methods, such as calculating the average tax rate or comparing the level of taxes with disposable income.

One indicator used in the analysis of the tax burden on household income is the average tax rate, which is the ratio of taxes paid to total income. A high average tax rate means a higher tax burden on household income, while a low average tax rate means a lower tax burden.

Other relevant issues in the analysis of the tax burden include:

Structure of the tax system: the analysis should take into account the structure of taxes, including direct taxes (such as income tax and property tax) and indirect taxes (such as value added tax and excise duties). Different levels and types of taxes can affect people's incomes differently.

Progressivity of taxes: If the tax system is progressive, higher income earners will pay a higher proportion of their income in taxes and the tax burden may be higher for this category of taxpayers. Conversely, proportional or regressive taxation may impose a higher tax burden on lower income earners (Bența and Bența, 2015).

Tax deductions and exemptions: The existence of tax deductions and exemptions may reduce the tax burden on certain categories of taxpayers or specific incomes.

Assessing the impact on disposable income: It is important to analyse the impact of the tax burden on the disposable income of the population, which is the total income after taxes. A high tax burden can reduce disposable income and affect the standard of living of the population.

The analysis of the tax burden on household income can be complex and needs to be considered in the broader context of fiscal, economic and social policy (Popa, Andrei, Barascu, and Ciobanu, 2019). Understanding the tax burden and its impact on the population can help to assess tax justice and formulate appropriate tax policies to ensure a fair distribution of the tax burden and promote economic development and social welfare.

## **2. Literature review**

The ratio of revenue to taxes payable is known as the tax burden. Society cannot function without taxes. The Constitution expressly mentions taxes, and historical facts demonstrate their importance. Regardless of the terminology used - taxation, tax burden, tax coefficient, tax pressure, compulsory levy rate, etc., the basic concept is always that of debt to the state and the resulting decrease in personal income (Brezeanu, 2009).

The ratio of all taxes and social contributions actually collected by the government to gross domestic product is known as the tax burden ratio or the compulsory levy ratio (Talpoș and Enache, 2001). Despite the fact that compulsory levies are reinvested in the economy in the form of public expenditure, the tax burden ratio emphasises their confiscatory element.

The tax burden rate serves as an indicator of the percentage of production revenue that is subject to government distribution requirements, rather than being left to private initiative and free choice.

Tax pressure suggests that taxpayers' ability to pay is limited. These constraints are imposed by the reactions of taxpayers, who may reject forced tax increases through evasion, fraud, reduced productive activity or even revolt. If the honest taxpayer pays tax up to a certain point, when taxes exceed certain tolerable limits, events occur that substantially undermine the state's incentive to collect these revenues (Dobrotă and Chirculescu, 2010). The taxpayer's behaviour becomes abnormal, with the taxpayer constantly trying to avoid paying tax by every conceivable means in order to minimise the tax burden.

Most public resources are compulsory levies, so it is essential to define the tax and explain its components from a technical, legal and economic point of view (Dobrotă, 2010).

There are several definitions of tax burden limits in the literature, most of which are based on the ratio of tax receipts (including social contributions) in a given period to gross domestic product in the same period. This is obviously the tax burden at national level, but it can also be measured at the level of economic agents or individuals. Ostensibly, the level of taxation is easy to determine and there should be no obstacle to a comparative analysis between countries. It is impossible, however, to obtain relevant results without taking into account a number of factors, such as the standards of living, the compulsory contribution structure, the social protection system, the budget deficit policy, the stability of tax revenues, the demographic structure, country-specific factors regarding the composition of tax revenues and the level at which they are taken into account, the structure of ownership, the level of democracy, the extent to which taxpayers view tax obligations as a means of meeting public needs rather than as a heavy burden, and the extent to which tax revenues are collected (Văcărel, Bistriceanu and all, 2008).

## **3. Research methodology**

The research method used for analysing the tax burden on the population may vary depending on the research objectives, available data and available resources. In general, there are several common approaches that can be adopted in this analysis, but the paper has been based on a literature review and analysis of tax data. Through this paper we have been able to carry out a review of existing literature on tax pressure and its impact on the population, as well as analysing available tax data, such as tax revenues collected from the population, tax levels, tax evasion and other relevant data. The analysis of the tax burden is a complex and sensitive subject and the results of the research have important implications for tax policies and the welfare of the population.

#### 4. Findings

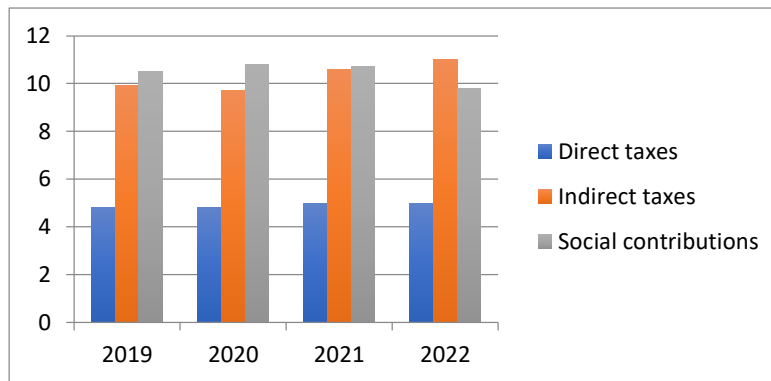
Further information on the share of the main types of taxes in GDP can be obtained by analysing the tax burden of the main components in Romania. First, we looked at the evolution of the tax burden on direct taxes, indirectly taxes and contributions. The shares of the direct taxes, of indirect taxes and of contributions in GDP reflect the values that these taxes have recorded in the years considered.

*Table no. 1 Comparative analysis of direct and indirect taxes and social contributions as a share of GDP*

ANUL	2019	2020	2021	2022
<b>Direct taxes</b>	4,8	4,8	5	5,1
<b>Indirect taxes</b>	9,9	9,7	10,6	11
<b>Social contributions</b>	10,5	10,8	10,7	9,8

Source: Ministry of Finance, Budget 2019-2022, available at <https://mfinante.gov.ro/ro/web/site>

*Figure no. 1 Evolution of the tax burden by main components*



Source: Own calculations based on data provided by the Ministry of Public Finance

In the case of direct taxes, an upward slope can be observed over the period considered, starting from 2020 to 2022. Direct taxes remain constant from 2019 to 2020, then increase by 0.2 percentage points from 4.8% in 2020 to 5% in 2021. The year 2022 brings a further increase on the previous year, from 5% to 5.1%.

Indirect taxes also undergo various fluctuations over the period 2019-2022. First a slight decrease can be observed from 2019 to 2020 when their share of GDP was 9.9% and 9.7% respectively. In 2021 there is a slightly more considerable increase of 0.9 percentage points, i.e. from 9.7% in 2020 to 10.6% in 2021. The year 2022 sees a further increase in the share of indirect taxes in GDP to 11%.

Social contributions are not unchanged either. They show increasing percentages between 2019-2020 followed by a slight decrease in 2021 and another downward trend until the following year, 2022. Their share of GDP over the above-mentioned period rises from 10.5% to 10.8%, then rises to 10.7% and falls to 9.8% at the end of the period.

*Table no. 2 Analysis of wage and income tax and corporate tax (%GDP)*

Anul	2019	2020	2021	2022
<b>Income tax</b>	2,2	2,3	2,4	2,6
<b>Tax on profit</b>	1,6	1,5	1,7	1,9

Source: Ministry of Finance, Budget 2019-2022, available at <https://mfinante.gov.ro/ro/web/site>

Table no. 3 Absolute amounts of taxes on wages and income and corporate income tax (million Lei)

Anul	2019	2020	2021	2022
<b>Income tax</b>	23,201.4	24,333.8	28,017.1	33,707.6
<b>Tax on profit</b>	17,702.2	15,988.1	20,044.6	26,664.8

Source: Ministry of Finance, Budget 2019-2022, available at <https://mfinante.gov.ro/ro/web/site>

In 2019, Romania reduced the flat personal income tax rate from 16% to 10%. This measure aimed to stimulate consumption, improve disposable income and attract foreign professionals.

The corporate tax rate has remained at 16% throughout this period, maintaining Romania's competitive position in attracting foreign direct investment.

According to data provided by the Ministry of Finance, a steady increase in payroll and income taxes can be observed. From the beginning to the end of the period considered, the difference between the absolute values of this type of tax levy is 10,506.2 million lei.

The income tax initially records a decrease between 2019-2020 followed by a somewhat more accelerated increase in the next 2 years considered. As a percentage of GDP it goes from 1.6% in 2019 to 1.5% in 2020, when the minimum of the period considered is recorded, then it rises to 1.7% in 2021, and then we can observe the maximum of the chosen range of 1.9% in 2022.

Table no. 4 Analysis of VAT, excise duties and other taxes (%GDP)

Anul	2019	2020	2021	2022
<b>VAT</b>	6,3	5,8	6,7	6,6
<b>Excise duty</b>	3,0	3,0	2,9	2,5
<b>Other taxes</b>	0,5	0,4	0,4	1,3

Source: Ministry of Finance, Budget 2019-2022, available at <https://mfinante.gov.ro/ro/web/site>

Table no. 5 Absolute amounts of VAT, excise duties and other taxes

Anul	2019	2020	2021	2022
<b>VAT</b>	65.420,6	60.816,9	79,350.9	94,090.6
<b>Excise duty</b>	31.463,3	30.715,3	34,484.8	35,312.8
<b>Other taxes</b>	5.233,7	4.523,2	5,479.7	19,163.8

Source: Ministry of Finance, Budget 2019-2022, available at <https://mfinante.gov.ro/ro/web/site>

Romania has maintained a standard VAT rate of 19% for 2019-2022. This rate applies to most goods and services.

A lower VAT rates of 9% has been maintained during this period for certain goods and services such as food, books and hotels. In addition, a special low VAT rate of 5% was made applicable for certain products, including pharmaceuticals and medical equipment.

Excise duties apply to various goods, including alcohol, tobacco and fuel. There were no significant changes in these rates during the period specified.

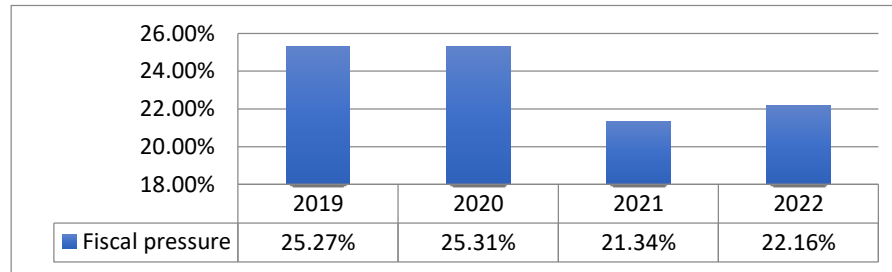
The data presented in the table above shows that all three categories of indirect taxes suffer a decrease in 2020 compared to 2019, and then increase successively in 2021 and 2022.

As for percentage differences, according to the Ministry of Finance, in 2020 compared to 2019 the amounts collected with VAT decreased by 7.0% and the difference in excise duties was also negative (-2.4%), as well as for other taxes (-13.6%).

Between 2020 and 2021 there were increases. For VAT this was 30.5%, for excise duties 12.3% and for other taxes 21.3%.

The differences between the amounts collected in 2022 and 2020 are also positive. VAT has a difference of 18.4%, excise duties have increased by a slightly smaller percentage of only 2.4%, but a considerable difference is represented by the amounts collected with other taxes which have had a percentage increase of 249.7%.

Figure no. 2 Evolution of the overall tax burden



Source: Own calculations based on data provided by the Ministry of Public Finance

From the above figure it can be seen that from 2019 to 2020 the tax burden in Romania did not change significantly, and its maximum level was recorded in 2020 with a percentage of 25.31%. In 2021 it decreases reaching the minimum level of the period analyzed of 21.34%. 2022 comes with a new increase to 22.16%. Thus, according to the values obtained, Romania is close to the European average in this chapter.

## 5. Conclusions

This paper explored the concept of fiscal pressure in Romania, focusing on the analysis of income levels and the burden of tax policies in the country. Through a comprehensive examination of available data and academic research, significant insights were gained into the complex dynamics and challenges associated with tax policies and their impact on the welfare of the Romanian population.

First, the 2005 tax reform in Romania played a crucial role in reshaping the country's tax system. By reducing the number of tax brackets and adjusting tax rates, the reform aimed to stimulate economic growth, attract investment and simplify the tax code. While the intentions behind the reform were laudable, its implementation faced various obstacles and its impact on income distribution and poverty reduction was limited.

The findings of this study indicate that Romania has experienced a multi-faceted relationship between the level of revenue and the tax burden. Income inequality has persisted in the country, with part of the population facing stagnating or declining incomes. This income disparity has limited the ability of many individuals and families to improve their living standards and escape poverty, thus exacerbating the challenges associated with fiscal pressure.

In addition, the tax burden on Romania's population has remained substantial. The analysis reveals that the tax system in Romania has continued to exert considerable pressure on individuals, especially on those with lower incomes. Despite efforts to streamline the tax code and reduce tax rates, overall tax revenues as a percentage of GDP remain relatively high. As a result, the tax burden on vulnerable segments of society, such as low-income earners and small businesses, hinders their economic progress.

In the light of these findings, it is clear that a comprehensive approach to the tax burden in Romania is needed. Policy makers must prioritise income redistribution measures that promote greater equity and social justice.

In conclusion, the analysis of the tax burden in Romania, with a particular focus on income levels and the tax burden, highlights the need for comprehensive and targeted policy interventions. By addressing income inequality, reducing the tax burden on vulnerable populations and implementing effective social assistance programmes, Romania can create a fairer society that offers opportunities for prosperity to all its citizens. Through these concerted efforts, Romania can build a brighter future where fiscal policies contribute to sustainable development.

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# Impact of COVID-19 on Cryptocurrency Markets

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## Abstract

*The pandemic has caused enormous economic costs by affecting banks, governments and financial markets. In this context, the main purpose of this paper is to show that cryptocurrencies have become one of the most traded financial assets in the last decade.*

*The overall objective pursued in the paper was the major effect on the global economy and financial markets that the COVID-19 Pandemic had and which was the first real global shock since the first cryptocurrency was launched in 2009 until now. Natural disasters and pandemics are a source of contagion in global financial markets and an emerging line of research. Financial contagion can be the result of both financial and non-financial events, but in both cases, assessments require defining a timeframe.*

**Key words:** cryptocurrencies, financial markets, stock exchanges, stock trading

**J.E.L. classification:** B27, G01, G1, G15

## 1. Introduction

The transitional environment is constantly evolving, so people are becoming more and more interested in other ways to invest money more easily even from the comfort of their own home. So people are turning to cryptocurrencies for easy investments.

There are only two options in the cryptocurrency market, one of them is to buy cryptocurrencies on the stock market where you own the asset, this can also be considered as a longer term investment because you have to wait for the cryptocurrency price to rise before selling it in order to make a more significant profit. Or the second option would be to buy CFDs on cryptocurrencies, as this is a financial instrument that allows for larger trades, thus providing exposure to a wider financial market.

When trading cryptocurrencies, they are stored in a virtual wallet, unlike CFDs which at the time of trading their position is held by the trading account, which in turn is held by a financial authority.

Among the top advantages for cryptocurrency investors are the simplicity with which customers can reach crypto investment services, and the speed of investing that is just a click away. Investing in cryptocurrency is among the most profitable ways to invest in the world, however the surprise comes from the fact that not bitcoin is the most profitable variant of cryptocurrency, but the cryptocurrencies that will be launched in the future with the help of ICO, are among the most profitable variants. Investing in newly emerging cryptocurrencies can yield returns as high as 425,000%.

Cryptocurrencies are digital currencies that use cryptography, this cryptography is a way of encrypting data for those who do not have passwords so that they cannot access it. The duty of cryptography is to make cryptocurrencies impossible to counterfeit, although their security depends on a few factors. Cryptocurrencies are based on decentralised systems that rely on blockchain technology.



This in turn has a database structure that can be distributed, it was first described by David Chaum a cryptographer, in his 1982 dissertation. Bitcoin is not the first digital currency, nor is it part of the first attempt to implement blockchain technology, nor is it the first use of cryptography with a public key to attempt to keep data secure, but all of this put together has resulted in a single system to what we know as a modern cryptocurrency.

As far as the research objectives are concerned, we can say that they are the following: establishing consumers' view of the crypto market, identifying the credibility of cryptocurrencies among citizens, identifying losses or gains from investing in crypto, the main age groups of people influenced by the crypto market, and the concerns and backgrounds of people influenced by the crypto market.

## 2. Literature review

At the end of 2019, the world woke up to a new reality. What began as a local event, the local health situation in China, quickly turned into a dangerous pandemic with a mysterious viral disease COVID-19 wreaking havoc across the globe. The damage caused by the virus was (and still is) overwhelming: internationally, international borders were closed; education was halted or severely disrupted; public gatherings were banned or restricted; airlines cancelled flights (some to the point of bankruptcy); and financial markets collapsed. On 11 March 2020, the World Health Organization (WHO) declared the virus a pandemic (Almeida, D. Dionísio, A.; Vieira, I.; Ferreira, P., 2023). Two days later, a national state of emergency was declared. Despite medical breakthroughs in the form of COVID-19 vaccines and (more recently) drugs, the COVID-19 health crisis seemed far from over.

It is therefore essential to understand the consequences of this global disease disruption, which has not only health but also financial implications. The insights that emerge can be used to advance policy making and shape appropriate regulations that can help stabilise financial markets and prevent them from collapsing in times of instability. In particular, the COVID-19 pandemic provides an interesting test case for observing investor behaviour and assessing evidence on how markets respond during a crisis. Naturally, this can be done by analysing empirical data and looking for meaningful data (Akbar, A.A.; Ashar, M.S. & Simonson, J., 2021).

On average, the discovery of each new COVID-19 case has corresponded with a substantial increase in both the value of cryptocurrencies (measured by their market capitalisation, the price of the cryptocurrency multiplied by the number of tokens circulating in the market) and trading volume. Specifically, for each additional COVID-19 case, each cryptocurrency earned roughly between \$32,000 and \$59,000, which translates to billions of dollars.

Despite the average cryptocurrency rise, a more refined look shows that investors actually took a U-turn: in the early days of the pandemic, investors rushed to cryptocurrencies, but at some point the trend reversed and investors abandoned cryptocurrencies. This inverted U-shaped relationship (first rise, then fall) seems particularly important from a policy perspective, as it is consistent with various market dysfunctions (Easop, A.B., 2022).

A correlation is observed between cases and cryptocurrency trading (cryptomarket), the effect is much stronger when deaths are taken into account. In other words, each new death led to significant increases in both trade and value of cryptocurrencies much more than the effect of a new case. Specifically, while the deaths may have indicated that the virus is more dangerous than originally anticipated, they could just as easily have been a random consequence, considering whether the infected person was elderly or had a previous medical condition.

Our empirical findings point to an initial crypto-rupture in the early days of the pandemic: on average, the outbreak of the COVID-19 epidemic led to an increase in market capitalization and volume of traded cryptocurrencies. Given that traditional currencies collapsed during this period, a plausible explanation for our findings is that investors withdrew their money from traditional markets and redirected it to cryptocurrencies. However, it is difficult to disentangle the exact factors that have driven this behaviour, as it is consistent with both rational and behavioural explanations. On the rational side, investors may have logically turned to the crypto-market as a substitute based on the information available to them at the time. In particular, recall that the common perception prior to the pandemic was that the cryptomarket was a safe haven, so investors

may have rationally believed that buying cryptocurrencies was a safer option when traditional markets became unstable. However, from a behavioral standpoint, investors may have simply piled in. That is, some investors decided to buy cryptocurrencies, and everyone else followed suit without conducting a meaningful cost-benefit analysis of the investment strategy (McGinty, E.E.; Presskreischer, R.; Han, H. and Barry, C.L., 2020).

However, this avalanche of cryptocurrencies does not necessarily indicate, by itself, any kind of market failure. What does suggest that a failure may have occurred is that at some point the trend reversed and the market collapsed, leading to the inverted U-shaped relationship mentioned above.

To better understand what happened, it is illustrative to compare the trend in the cryptocurrency market with the spread of COVID-19 cases. This reveals that the tipping point of the cryptocurrency market occurred when there were approximately 50,000 cases in total, which is roughly the same time when the number of incoming cases started to slow down. Thus, a plausible explanation would be that investors noticed a slowdown in the velocity of COVID-19 and interpreted this as a positive signal for a return to traditional market trading, causing investors to move away from cryptocurrencies and back to traditional assets. Towards the beginning of March though the trend in the cryptocurrency market did not reverse again and continued to collapse. This suggests that a market failure may be in play (Posetti, J. and Bontcheva, K, 2021).

Another interesting aspect is that the inverted U-shaped relationship appeared in most, if not all chips. This seems inconsistent with rational behaviour, which would usually require distinguishing between the values of different tokens and treating them differently. This further indicates a possible market failure.

The law and economics literature usually divides market failures into four different categories: excessive market power, information asymmetry, externalities and behavioural market failures. The market power problem arises when the quantity of products sold in equilibrium is too small and the price is too high, because sellers with market power have the ability to control the price. In this case, the problem is not a shortage of cryptocurrencies bought (Toussaint, E., 2020). However, one may wonder whether the changes in the market were driven by sellers who had very high power in cryptocurrencies, so their trades affected the market price.

### **3. Research methodology**

In this paper we have chosen as research method the questionnaire. The questionnaire is defined as the data collection tool that depends on the success of the research. When creating this questionnaire, the research purpose, main research objectives were taken into account in the first place and open, closed, mixed, opinion questions, etc. were used. The questionnaire has a series of 15 questions, and in these applied questions, details regarding age segment, background, education level, occupation and knowledge about the cryptocurrency market were found. The quantitative method was used in the research of the chosen questionnaire, using the survey that has the questionnaire as a tool.

### **4. Findings**

The COVID-19 pandemic has adversely affected almost all aspects of human life, various sectors of activity and regions of the world. The flow of human activities has stopped for several months and are now being carefully redefined to align with guidelines and recommendations to avoid the spread of the new coronavirus. Unlike other pandemics the world has witnessed in the past, technological advances in the current era are an asset that can play a key role in protecting humanity. In this paper, we highlight the general challenges that emerged during the COVID-19 pandemic.

The unprecedented transmission of this virus has given rise to a myriad of challenges that are shaking the roots of human civilisation today. Countries that have imposed travel closures and restrictions face the challenge of limiting physical human interaction when socialising is so natural to human beings. Continuing to provide essential services and ensuring a constant supply of medicines and medical equipment is becoming increasingly difficult. Many national and international organisations, as well as individuals, tend to provide financial support to support these

needs, but the major challenges are ensuring adequate distribution and ensuring transparency for organisations and donors. Another major challenge is the infodemics (or "disinfodemics") of false information that exacerbate the pandemic. Technology giants and government regulators are finding it difficult to recognise and combat disinformation. These challenges are being seen by many countries that have been affected by COVID-19 and urgent efforts are needed to address them. Technological advances are one of the strengths of the current era that can help us overcome the challenges posed by COVID-19.

Emerging technologies such as artificial intelligence (AI) and machine learning (ML), the Internet of Things (IoT), blockchain, robotics and unmanned aerial vehicles (UAVs), 3D printing, nanotechnology and synthetic biology, 5G communications, cloud computing and edge computing, and Big Data can be harnessed to develop smart emergency management strategies for the COVID-19 pandemic. In particular, blockchain has been identified by the European Parliament Research Service (EPRS) as one of the ten key technologies to combat COVID-19. Blockchain provides a decentralised computing service architecture that eradicates most of the limitations associated with centralised computing ecosystems.

Blockchain is a collection of compute nodes that are connected in a peer-to-peer (P2P) fashion and that mutually verify transactions executed within the network. In blockchain, each block cryptographically seals a set of transactions and is linked to the previous block to form a hash-based (cryptographic) blockchain.

Nationwide closures and social distancing rules have a huge economic impact on businesses around the world. Governments and financial organisations have a responsibility to help businesses by providing loans and other financial bailouts. However, using traditional paper-based procedures to help large numbers of businesses will be time-consuming and inefficient. Aid agencies are therefore looking for fast, reliable and scalable solutions.

Blockchain with smart contracts can be used to simplify the complicated processes of applying for and approving loan and insurance applications. Using smart contracts as policy agreements can eliminate the processing delays inherent in traditional paper-based policies. In addition, blockchain can eliminate third-party intermediaries. The benefits of such a system include faster processing time, lower costs, reduced operational risks and faster settlement for all parties involved.

Sharing relevant data among health collaborators is of paramount importance when dealing with the COVID-19 pandemic. Global data sharing among the international research community would help formulate strong data sets that can play a fundamental role in COVID-19 research. These data sharing mechanisms must take care to avoid violating national and international data sharing regulations. Patient privacy is the most important concern and is one of the impediments to the implementation of health data sharing and its widespread adoption. National and international bodies apply robust controls, such as HIPAA, that define data access and data control policies. In addition, detailed patient information such as blood oxygen levels, heart rates and medication doses can be collected through integration with medical IoT (MIoT) devices. The decentralised storage offered by blockchain could greatly improve the security and privacy of healthcare data.

In addition, patients and hospitals can have more control over their data thanks to the elimination of costly middlemen in the form of centralised databases. In addition, blockchain could break down traditional medical records silos and make the sharing process between hospitals and doctors across the country and even around the world significantly easier.

In fact, blockchain can enable real-time data sharing. Uploading MIoT data directly into a blockchain-based system can eliminate issues such as data tampering and alterations. The added transparency around data collection, storage and sharing helps build and maintain trust between stakeholders and protects patient confidentiality.

The unprecedented global spread of COVID-19 has led many countries to close all immigration checkpoints, be they airports, seaports, bus stations, rail or river stations. Sooner or later, these restrictions will either be relaxed or lifted completely. It is thus clear that both immigration and emigration will be critical both now and in the near future. In this context, various impediments are expected, including the need for travellers to share medical history, travel history and real-time location, in line with government policies. In addition, this data will need to be shared at the time of immigration checks when crossing international borders. Data sharing platforms can be created between countries, powered by blockchain, to manage immigration and emigration processes in a

smarter way. Various integral features of blockchain systems with strict smart contracts, such as immutability, access control, auditability and provenance, are vital for such applications. These important features can pave the way for a secure, decentralized and collaborative immigration ecosystem.

In the near future, we may see countries establishing consortium-style blockchain-based immigration systems that connect all immigration checkpoints. Such systems will have well-defined interoperability with similar systems in other countries.

The world is witnessing serious supply chain disruptions due to the ongoing pandemic. Industrial production activities are at a standstill, either because shutdowns have been imposed or because factories are not equipped or designed to follow the new paradigm of social distancing and working with minimal physical contact. In addition, import and export bans have affected the global supply chain. At present, it is difficult to analyse the exact level of disruption that COVID-19 has caused in the global supply chain, however, it has led to serious supply and demand crises. Depending on the type of commodity, there is either high demand or high supply. Panic buying has led to an increase in demand for household commodities. Similarly, medical and pharmaceutical supply chains are finding it difficult to keep the whole chain intact and meet high demand.

Blockchain technology can play a key role in building a more resilient supply chain. Blockchain can anonymously unite all stakeholders, establishing a secure environment. Immutable log records support auditability, provenance and transparency, while well-designed smart contracts provide a high level of access restrictions and automation. For this particular use case, we are likely to see a combination of public and consortium blockchain systems.

For now, the only way to beat the COVID-19 pandemic is to cultivate habits such as social distancing, minimal touching, wearing masks, and self-management of symptoms such as fever, coughing, and shortness of breath. However, adopting these behaviours seems challenging, especially as they do not align with the natural behaviours of human beings. This mismatch implies that some level of continuous, automated surveillance is required for alerts to save countless lives. Furthermore, the current situation requires non-contact (robotic) delivery of essential supplies (food, medicine, etc.) to people in isolation, especially in areas with very high transmission rates, where sending a person for home delivery may be impossible. UAVs (Unmanned Aerial Vehicles) and blockchain-powered robots are very suitable technologies to support this use case. Increasing use of UAVs has already been observed, with many countries using them for public announcements, surveillance, symptom testing (such as temperature) and non-contact delivery. Although UAVs have the unique ability to manoeuvre with precision and perform tasks without human intervention, they are prone to security attacks. Such attacks can alter the intended function or allow data theft.

Blockchain, together with smart contracts designed in line with government or healthcare policies, can enable UAVs to operate securely, provide restricted access to captured data, integrate digital payment systems, etc.

Many countries have closed their schools and universities for an extended period. However, the current situation should not stop the process of teaching education, which is indispensable for individual development and ultimately leads to the growth of a nation. Online education has become the most viable way forward, but online education systems are not well established and face many challenges. These include the lack of secure learning tracking, the threat of data theft (for students and instructors), poor collaboration between platforms, and the difficulty of verifying the authenticity of student credentials (diplomas, transcripts, and other certificates). Blockchain-based online education platforms can offer a wide range of opportunities to mitigate these issues.

For example, such systems allow secure cross-platform sharing of online content and encourage automatic standardisation between educational institutions. Smart contracts and tokens can be used to set up a fair payment system based on accurate content usage. Decentralised blockchain-based storage enhances the security of student data while ensuring that it remains available to authorised users. Finally, blockchain enables the fast, efficient and secure issuance and sharing of verifiable educational credentials. Once an institute's issuing authority uploads a credential to a blockchain-based system, the entitled student gains full control of the credential. Students can then provide access to subsequent viewing to recruiters, teachers or universities as they wish.

Demand for commodities such as disinfectants, face masks, tests, PPE and disinfectants has risen sharply with COVID-19. To meet demand, many companies have to outsource production to third parties because they do not have sufficient production capacity. This gives rise to serious concerns as these third parties may not meet quality standards or comply with hygiene compliance guidelines. Most importantly, COVID-19 medicines and vaccines will become important commodities in the near future. Many small factories and micromanufacturing units will need to operate simultaneously and collaboratively to meet global demand. Given the exponential growth in COVID-19 cases, establishing traditional time-consuming paper-based collaborations may not be feasible. Thus, an integrated, robust and collaborative compliance monitoring framework is needed to facilitate and govern the manufacturing process. Blockchain-based IoT systems can be used to validate manufacturing integrity. With IoT, quality measurements can be obtained at different stages of production: raw material collection, manufacturing, storage, transportation, etc. Blockchain nodes can be deployed in factories to connect with their main production line. In this way, IoT systems embedded in blockchain enable secure recording of production data in an immutable and decentralised manner. Furthermore, smart contracts can hold the logic needed to perform audits to monitor non-conformance rates. Future COVID-19 vaccines and drugs could be manufactured globally using cloud-controlled, blockchain-enabled manufacturing ecosystems. Smart contracts could be used to manage royalties and other intellectual property rights in such decentralised manufacturing environments.

E-government, or digital government, refers to the substantial use of information and communications technology (ICT) to support the delivery of public and government services to a country's citizens. These services include essential public utilities (water, gas, electricity, sanitation, etc.), payroll, tax collection, marriage and divorce services, land registration, elections, visa processing and so on. The e-government concept proposes digitising all or parts of these services. The use of blockchain for e-government can ensure security by strengthening the integrity, immutability, confidentiality and consistency of data between organisations. In addition, its use improves efficiency by reducing processing delays and operational costs. Key features of blockchain, such as notarisation, shared database and workflow automation, are useful when implementing various operational features in e-government systems. Such systems can automatically detect the spot for possible errors and counterfeit attempts.

Agriculture and food distribution are essential to human life and must continue to function smoothly. However, strict disease control measures such as travel bans, export restrictions, closure of informal labour sectors, closure of local markets, etc. have led to numerous challenges for farmers, suppliers, producers, distributors, retailers and consumers. Farmers find it difficult to sell their produce at a good price because producers are not able to operate their facilities at full capacity. Distributors find it difficult to cross state and country borders because of the time it takes to obtain official permits. In addition, because of COVID-19, humanitarian service organizations such as WFP are facing a severe financial crisis as well as difficulties in keeping the food distribution cycle intact. In this context, blockchain can provide pragmatic solutions with agility. Automation based on smart contracts can replace paper-based, long-standing agreements with a trusted digital marketplace, where buying and selling can be fast without compromising ownership. Because blockchain allows two parties to transact directly, producers can purchase raw materials directly from farmers. This would help farmers get better prices for their produce and reduce the overall price of food. Using blockchain technology, international or national humanitarian organisations can remotely and securely help people in need buy free or subsidised food from local vendors. What's more, more donors may tend to donate to good causes, as blockchain-based systems offer transparency as well as anonymity.

## **5. Conclusions**

In conclusion, we can say that the exposed analysis of the cryptocurrency market at COVID-19 reveals interesting patterns consistent with various types of market failures, including information asymmetry in combination with market power, and externality issues, especially those related to systemic risk. In particular, we observe an avalanche of cryptocurrencies at the very beginning of the crisis, implying a positive effect and a positive correlation between COVID-19 cases and the

cryptocurrency market, but also a reversal trend at some point, generating an inverted U-shaped relationship between the overall evolution of the virus and the cryptocurrency market.

Pointing to alternative explanations, we outline how market intervention can correct each type of market failure, including disclosure rules, trading halts, or other types of intervention. At the same time, we have highlighted the difficulties of such interventions at both institutional and practical levels, given the technological challenges.

Focusing on the early days of the pandemic allows us to see how the initial shock affected investor behaviour. While we leave exploration of the later days of the pandemic for future research, some recent evidence further supports our finding that COVID-19 and the cryptocurrency market are closely linked. Namely, the emergence of the Omicron variant appears to be partly responsible for a crash in the cryptocurrency market, according to press reports. Whether this is true under careful investigation remains an open question, and the current fallout reflects the passage of time and various government policies adopted later in the pandemic. Precisely for this reason, our focus on the early period of the pandemic provides a clearer result that can help with a better understanding of the ways in which cryptocurrencies function during a crisis.

While we consider a specific event, how cryptocurrencies reacted to the COVID-19 outbreak, the fact that people switch from traditional markets to cryptocurrencies is possible during any type of financial instability, not just during a pandemic.

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## **The Impact of Sustainability in Research-Development-Innovation Activity**

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### **Abstract**

*In our scientific approach, we aimed to emphasize the significance of sustainability in the research-development-innovation (RDI) activity. This activity should align with other economic activities and prioritize the utilization of renewable resources whenever feasible. In cases where renewable resources are not available, the use of non-renewable resources should be extended over a longer timeframe, allowing for the identification and exploration of renewable alternatives. The transfer of scientific knowledge (TSK) was also addressed, which should lead to an implementation of the results of scientific research in the economy, and the ratification of this transfer can be done both through qualitative and quantitative measures, with a greater emphasis on qualitative measures. This transfer of knowledge must constantly adapt, especially when there are external factors, such as the COVID-19 pandemic and the war in Ukraine in recent years.*

**Key words:** RDI activity, sustainability, non-renewable resources, renewable resources, TSK

**J.E.L. classification:** D24, G32, M41

### **1. Introduction**

In 1980 Mrs. Gro Harlem Brundtland, Prime Minister of Norway, defined sustainability as the means of "meeting the needs of today without compromising the needs of future generations". A few years later, in 1987, the United Nations established the definition of sustainable development, because sustainability starts from the idea that natural resources are limited and that our role is to protect them, to use them carefully and to ensure that they are sufficient for those who will come after us. This means that a sustainable society knows how to be responsible, focused on protecting the environment and the balance between its various (eco)systems.

Sustainability is a process through which the current needs of the population can be met, without affecting the resources that future generations will need. This means nothing more than the fact that sustainability can be considered a real goal, but it cannot be achieved if it does not take into account a sustainable development, made up of three main pillars: economic, environmental and social, that is, it must take into account profit, planet and people (Zaman and Geamănu, 2014, p. 63).

To make a profit a business must be solid, produce an income that generates as little expenses as possible and, as far as possible, this business has a continuity in the future. If it is the simplest form of sustainability, its challenge lies in achieving a balance – that of generating profit taking into account the other two principles of sustainability above. Which means focusing on more complex goals, not just making money by any means.

## 2. Theoretical background

Sustainability science emerged as a distinct field of scientific research during the "Challenges for a Changing Earth 2001" World Congress held in Amsterdam. This event, organized by the International Council for Science, International Geosphere-Biosphere Program, International Human Dimensions Program on Global Environment Change, and World Climate Research Program, marked the official launch of sustainability science in 2001 (Zaman and Geamănu, 2014, p. 64).

Sustainability science focuses on the advancement, integration, and practical application of knowledge related to Earth Systems. This knowledge is obtained through comprehensive and historical approaches to disciplines such as geology, ecology, climatology, earth physics, and oceanography, among others. The field of sustainability science recognizes the interconnectedness and interdependence of this scientific knowledge with social and human knowledge, promoting a holistic understanding of sustainable development.

The overarching aim of sustainability science is to evaluate, mitigate, and minimize the effects of human activities on planetary systems at various scales, ranging from local to global, and their impact on society. This encompasses both present and future generations. The goal is to enable humanity to adopt a responsible role as stewards of the Earth, protecting and managing its diverse forms of life in a sustainable manner (Zaman and Geamănu, 2014, p. 65).

A real structuring of knowledge within the science of sustainability is a complex and, at the same time, open, adaptable problem, as well as a major challenge for the main actors of the economy, governments, industrial sectors, Research- Development-Innovation (RDI) sector, as well as universities. All these actors must contribute, within the framework of the science of sustainability, to combat pollution and channel the economy towards sustainable development, which requires the development of systems of indicators and a metric of Sustainable Development, an outline of the transition paths towards sustainable development based on the implementation of sustainable governmental traits, a setting of methodological instructions for the development and implementation of Sustainable Development Strategies and, most importantly, an inventory of sustainability problems.

In the digital age we live in, advances in technology and innovation are constant, and research and development plays a key role in directing and shaping these developments. However, the impact that this rapid and expansive innovation has on the environment has become a growing concern. It is against this background that the concept of sustainable research, development and innovation (RDI) has emerged, integrating the principles of sustainable development into all aspects of RDI. This approach aims to steer technological progress in a way that protects and improves the environment and society.

The effects of sustainability in RDI can be seen in many areas, from the digital economy to tourism. Micu et al. (2021, p. 133) point out that sustainability has become a new challenge in the digital economy, especially in neuromarketing applications on social networks. New technologies and massive data generate huge opportunities for research and innovation, but also imply significant challenges in terms of data and environmental protection. In tourism, the relevance of sustainability impacts is even greater. Stan et al. (2021a, p. 628) analyse stakeholder perceptions of the environmental impact of coastal tourism in the Black Sea coastal area of Romania. They show that while tourism generates significant economic benefits, it can also have negative environmental impacts, thus requiring innovative approaches to ensure sustainable development.

Aivaz (2021a, p. 8) explores the impact of information and communication technologies (ICT) on education and living standards in Constanta County, Romania. The author highlights the potential of ICTs to contribute to sustainable development, but also stresses the need for continued research to understand and address issues of accessibility and the digital divide. The same author, in another paper, studies the correlations between infrastructure, health workforce and financial indicators of companies operating in health and social services in Constanta County, Romania (Aivaz, 2021b, p. 22), showing the importance of investments in infrastructure and education as a way to promote sustainability in the health sector. A whole series of studies discuss the interaction between tourism, underwater cultural heritage and environmental protection, and highlight the potential of sustainable maritime spatial planning to harmonise these interests and promote



sustainable development (Aivaz, Stan and Ionițiu, 2021, p.4; Stan et al. 2021b, p.139) and analyse the dynamics of the impact of labour expenditure on the profitability of HORECA companies in the Romanian coastal area. They stress the importance of a sustainable approach, balancing economic needs with social and environmental needs (Aivaz et al., 2021, p.24).

All these studies are clear examples of how integrating sustainability principles into RDI can lead to more sustainable and efficient solutions that protect and improve the environment and society. However, it is clear that there is much more to be done to fully embed sustainability in all aspects of RDI, and it is essential to continue research and innovation in this direction. This is a long and challenging road, but it also offers huge opportunities for a better and more sustainable future.

### **3. Research methodology**

Our scientific inquiry employed the analytical research method, which aims to uncover pertinent information regarding a given topic. The initial step involved collecting the existing data on the subject, which was subsequently examined to either test a hypothesis or substantiate a particular concept.

The analytical method played a significant role in our research by collecting evidence that strengthens the validity of ongoing investigations, encouraging their credibility, and fostering the development of fresh ideas related to the subject matter.

As part of this research methodology, we conducted a comprehensive literature review on the topic, which involved analyzing previously gathered data related to the subject under investigation.

One crucial aspect to acknowledge regarding the analytical research method is its inherent susceptibility to change as new data is acquired or when data forms the foundation of further research. This characteristic applies to varying degrees across all scientific methods, but it is particularly prominent within the analytical approach.

The challenge lies in the fact that unlike other methodologies like the experimental method, which can establish causality and provide robust evidence on the factors causing a phenomenon, the analytical method does not afford such certainty. Regardless of the abundance of data available on the subject of study, it will inevitably remain incomplete.

### **4. Findings**

As mentioned earlier, sustainability encompasses, in fact, all aspects of human life, establishing according to them, a metric and a series of specific indicators, giving great importance to the notions of eco-efficiency and social efficiency based on specific knowledge. Therefore, sustainability only shows us the need to combine economic efficiency and profitability with solidarity, equity and social justice, at micro and macroeconomic levels, in the short, medium and long term.

The two factors, eco-efficiency, and social efficiency, depend very much on the pace and mode of consumption of non-renewable and renewable natural resources, that is, on the complexity of technical progress on the environment.

If for non-renewable sources the advice of specialists is that their use should be as small as possible to none, in the case of renewable sources a correlation must be established between their use and the pace of their recovery, that is, their consumption should be consistent with their restoration. This can be traced in Table no. 1.

*Table no. 1 The ratio of the consumption of renewable resources, the state of the environment and sustainability*

<b>Consumption of renewable resources</b>	<b>State of the environment</b>	<b>Sustainability</b>
Over the possibility of nature to recover	Environmental degradation	Unsustainable
Equal to the possibility of nature to recover	Ambient balance	Economy in stable condition
Less than nature's ability to recover	Environmental renewal	Sustainable development

*Source:* (Zaman and Geamănu, 2014, p. 71)

The science of sustainability highlights the fact that a substitution between natural capital, social and economy can be made within certain limits because beyond these limits the economic system, as well as the social one, faces a major risk, which can push it towards generalized collapse. Setting these limits is not easy, it is a difficult job that involves research in multi and interdisciplinary teams, which aim to affect testing and hypothesis verification over relatively long periods.

Research development innovation (RDI) in the field of sustainability and sustainable development can only take place thanks to the efforts of professionals in several fields, as different as possible, and scientific disciplines, due to the increasing complexity of current economic and social processes and phenomena, as well as due to the need to respond to new and more complex challenges.

This multidisciplinary is nothing more than a combination of scientific disciplines, but in this multidisciplinary each discipline must maintain its own methodologies and working hypotheses that can interfere with the methodologies of the other fields.

Multidisciplinarity and interdisciplinarity diverge in how the relationship between scientific disciplines is manifested, particularly in terms of the utilization or adoption of theories, methods, or hypotheses. In multidisciplinary interactions, cooperation between disciplines can be reciprocal and summative but lacks true interactivity (Augsburg,2005).

Nowadays, in the contemporary society and, implicitly, in the contemporary economy, there is an unprecedented increase in the importance and role of RDI in the process of accelerating the transition of humanity to a sustainable development, that is, it represents one of the primary production factors of well-being from the point of view of sustainability.

According to strict "conventional" classifications in the literature, the national or socio-human economies, in terms of generation and application (dissemination) of scientific knowledge and results of RDI, are divided into science generators (science makers) and beneficiaries, science users (science takers). The specialized institutions of the European Commission (EUROSTAT) groups the EU member countries, from the perspective of global indicators of RDI, into innovators-leaders, innovators-followers (followers) and modest innovators, previously calling them "catching-up". Undeniably, these classifications, rather mainly Scholastic, are invalidated by the fact that, at the present, all countries, clearly, in various proportions, are simultaneously both generators and beneficiaries (users) of scientific production within RDI systems (Cohen, Winn, 2007, p.45).

Therefore, RDI's activity within the science of sustainability leads to a transfer of scientific and technological knowledge (TCS) at both national and international levels and this represents a main factor of economic growth and, implicitly, profit.

The transfer of scientific knowledge can be measured both quantitatively and qualitatively as can be seen from Table no. 2.

Table no. 2 Framework scheme of the transfer of scientific knowledge

TSK mechanism	Quantitative measurement	Qualitative measurement
Networks	Number of people who meet at events that generate other TSK activities	Share in total scientific events of those that led to TSK activities
Continuing professional development, continuing education	Revenues from courses held to raise the professional level and the number of people and companies participating	Share of returning companies and customer feedback
Consulting	Value / revenues from contracts as a share in total revenues from RDI, share in the market, duration of the relationship with the client	The share of returning firms, customer feedback of the company, the importance of customers for the company
<i>Collaborative research</i>	Value of contracts, market share, share of revenues from collaborations in total revenues, duration of the relationship with the client	Share of returning companies, customer feedback, share of successful products
Research contracts	Value of contracts, market share, share of revenues from collaborations in total revenues, duration of the relationship with the client	Share of returning companies, customer feedback, share of successful products
Licensing	License revenues, products created through licenses	Customer Feedback, the quality of the firm that bought the license, the share of licenses that generate revenues
<i>Spin-outs</i>	Number of spin-outs, revenue generated, external investment induced, market value at IET (IPO or commercial sale)	Survival rate, investor quality, investor or customer satisfaction, growth rate
Teaching courses	Share of graduates in total students, student occupancy rate	Student satisfaction( after employment), employer satisfaction with the quality of the student employed
Other measures	Migration of students to industry, publications as a measure of research	

Source: (Zaman and Geamănu, 2014, p. 91)

This framework scheme for the transfer of scientific knowledge must be constantly adapted, especially according to external factors, such as the COVID-19 pandemic or now the war in Ukraine.

The effectiveness of TSK depends on several factors, such as the inability of the market to internalize positive and negative externalities, the complexity of intellectual property law, information asymmetry, which can be mitigated, in particular, by public interventions, and last but not least, the inability of market mechanisms to have an overall view, leading to a practical implementation of research results in all areas, especially since important steps are being taken in areas that were affected by the Ukrainian war (Vac *et al.*, 2023).

Making a brief analysis of TSK, we note that more attention should be paid to the qualitative measures of evaluation of TSK as it is useless to pursue only the profit, which lies in the quantitative measures, if the final result leads us to the exhaustion of resources that can no longer be regenerated (Stanley *et al.* 2006, p. 335).

## 5. Conclusions

If a certain number of years ago there was more and more talk about stimulating the research-development-innovation activity for economic development, in the current situation this activity should be related to sustainability and sustainable development (Rus, 2016, p. 189).

There is a particular emphasis on renewable resources and, we must admit, in the field of energy the results are seen. Thus, renewable energy is increasingly taking the place of conventional energy, through the use of solar energy, energy generated by wind, water, natural springs, etc.

We need to get used to the science of sustainability being part of our lives, be more careful with the use of resources, protect the environment and try to use the circular economy as much as possible. A future study will address more on the concept of circular economy.

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# Evaluating the Impact of Emerging Technologies on the ECB's Mandate: Can the European Central Bank Use Distributed Ledger Technology and Digital Euro to Advance Financial Inclusion in Europe?

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## Abstract

*There is a noted rise in research examining the influence of digital transformation—specifically the application of Distributed Ledger Technology (DLT) on the progression of the financial sector. This paper presents conclusions from a study on participants' awareness, understanding, and intentions regarding cryptocurrencies and the Digital Euro. Participants have a relatively high awareness of digital assets and Digital Euro, but better understanding is needed through effective communication and educational initiatives. While recognizing cryptocurrencies as valuable investments, participants are skeptical about their use for payments due to concerns about illicit activities. Regulatory frameworks are deemed important to address these concerns. Participants support the introduction of the Digital Euro and intend to use it for various purposes, suggesting potential demand. Desired characteristics include privacy, ease of use, and cross-border usability. These findings inform the strategies for introducing and accepting the Digital Euro, promoting financial inclusion, and enhancing accessibility in Europe's digital economy.*

**Key words:** financial inclusion, European Central Bank, Distributed Ledger Technology, Digital Euro, emerging technologies

**J.E.L. classification:** G11, G14, G15

## 1. Introduction

The onset of the fourth industrial revolution has sparked widespread adoption of digital technologies across sectors like the internet, social networks, blockchain, including finance. The swift evolution of new technologies has profoundly impacted the financial sector, including the form of money. Digitalization acts as a managerial instrument, and digital transformation (DT) signifies the process of incorporating digital technologies into the chain of value-creating activities. This process enhances value for customers and other stakeholders, leading to an improvement in organizational performance (Wunderlich & Beck, 2017). Additionally, digitalization plays a significant role in promoting sustainable development, highlighting its strategic importance for stakeholder benefits (Luo et al., 2022).

The integration of emerging technologies into the financial sector yields unique value creation opportunities, including innovative offerings, transformative business models, and the restructuring of value chains and ecosystems (Åström et al., 2022). Consequently, this supports enhanced operational efficiency and effectiveness within financial institutions, thereby facilitating a more comprehensive and sustainable development (Tanuchev, 2022). The process of digital transformation plays a pivotal role in driving societal advantages by augmenting financial inclusion, thereby enabling the provision of tailored financial products and user-friendly digital access channels (Mhlanga, 2022).

The utilization of cryptocurrencies as a decentralized digital means of value exchange presents burgeoning prospects for businesses by fostering trust-enabled environments through network-based mechanisms. Moreover, the market value of cryptocurrencies has witnessed a substantial surge, reaching a remarkable peak of \$2 trillion in 2021, fuelled by the existence of more than nine thousand crypto assets (Coinmarketcap, 2023). While ongoing debates persist regarding the intrinsic value and legal implications of crypto assets (Kiviat, 2015), their escalating prominence continues to captivate the interest of scholars, investors, and central banks worldwide (Lo et al., 2014; Auer et al., 2022).

In recent years, Distributed Ledger Technology (DLT) has gained substantial traction across diverse sectors, marking its widespread adoption. This trend has engendered a surge of scholarly and practical interest, particularly within the financial domain, as researchers and practitioners recognize the potential of this nascent technology.

DLT, commonly referred to as blockchain technology, has garnered considerable attention and interest within the financial sector. Its appeal extends to multiple stakeholders, including those engaged in payment, clearing, and settlement procedures. The impetus behind this fascination lies in the perceived benefits of DLT, which encompass heightened operational efficiency and fortified resilience in financial activities. However, a critical question arises regarding the extent of inclusivity inherent in DLT's implementation (Barr et al., 2021).

So, is this new technology adopted by the Central Banks inclusive enough? Scholars have observed a notable upsurge in scholarly investigations focused around the impact of blockchain technology on the financial sector, primarily driven by the impetus of digital transformation. However, academic research examining the link between the adoption of blockchain technology in central banking and the growth of financial inclusion remains limited.

This research aims to discern patterns in the financial inclusion of European Union (EU) countries, employing their respective financial inclusion scores (FIS) as a basis for analysis. The FIS scores serve to categorize nations into four distinct groups: leaders, high performers, aspiring performers, and laggards, with the leaders establishing the performance standards for others to emulate (Pytkowska et al., 2016). Additionally, this study delves into the advancements in financial inclusion within the financial sector facilitated by the digital transformation of the euro. This transformation, propelled by the introduction of ground-breaking technologies and solutions, particularly digital payments, is manifested through enhanced operational efficiency.

## 2. Literature review

The European Central Bank (ECB) serves as the central monetary authority for the Eurozone, comprising 19 member states that have adopted the euro as their shared currency. Its primary responsibility entails the preservation of price stability within the euro area, chiefly through the maintenance of low and stable inflation rates in the medium term.

In addition to its price stability mandate, the ECB aligns itself with the broader economic policies of the European Union (EU) to foster sustainable growth and stability across the euro area (European Central Bank, 2023). Although secondary in nature, the ECB's endeavours to contribute to these objectives by implementing monetary policy tools such as interest rate management, liquidity provision to banks, and other measures designed to shape economic conditions.

The ECB assumes a pivotal role in the European economy by making consequential decisions that influence the money supply, interest rates, and financial stability within the Eurozone, while also overseeing the banking system and collaborating with regulatory entities to ensure financial integrity and stability (Dabrowski et al., 2016).

In relation to TARGET2 transactions, TARGET2, denoting the Trans-European Automated Real-time Gross Settlement Express Transfer System, serves as a payment framework administered by the Eurosystem, encompassing the European Central Bank (ECB) and the national central banks of Eurozone nations. This system facilitates the instantaneous settlement of cross-border payments within the Eurozone, fostering expeditious and secure monetary transfers. (Jobst et al., 2012)

The ECB assumes a critical role within the realm of TARGET2 transactions, entailing the assurance of seamless operational functioning of the payment system while propelling the efficacy and safeguarding of cross-border transactions (Yvon, 2008). It assumes the responsibility of

oversight and the formulation of regulations governing the functioning of TARGET2, ensuring its optimal operation and contribution to the overall stability of the Eurozone's financial landscape

By exercising supervision over TARGET2 transactions, the ECB contributes to the unimpeded circulation of financial resources throughout the Eurozone, fortifying economic endeavours and trade activities within the region. Furthermore, it plays a vital role in upholding financial stability by vigilantly monitoring and addressing prospective risks or disturbances that may arise within the payment system (Tarasiuc, 2018).

Following the decline in transaction volumes during the financial crisis, there was a subsequent recovery in TARGET2 traffic, displaying a positive trend from 2010 to 2013, as depicted in Figure no 1.

Figure no. 1. TARGET2 traffic

(left-hand scale: number of transactions in millions; right-hand scale: percentages)



Source: (European Central Bank): (TARGET Annual Report, 2022, pp. 13)

Transaction levels in TARGET2 initially declined after the financial crisis but saw an increase of four million transactions, followed by a temporary decline in 2014 and 2015 due to the migration to SEPA instruments, stabilizing at around 88 million transactions annually, until 2022 when it reached a record high of over 102 million transactions, surpassing levels seen since the establishment of the euro (ECB, 2022).

Distributed Ledger Technology (DLT) is a paradigm grounded in a decentralized framework for the storage and dissemination of data. It entails the establishment of a mutually agreed-upon and collectively maintained repository of digital information that is dispersed among multiple entities (Del Rio, 2017). DLTs are distinguished by three fundamental attributes: the ledger is stored in numerous locations, mechanisms are in place to authenticate data accuracy, and cryptographic safeguards are employed to enhance security (BIS, 2018).

DLT, notably exemplified by blockchain technology popularized through cryptocurrencies like Bitcoin, transcends its initial application and presents disruptive possibilities in diverse sectors, particularly the conventional financial market. Its impact manifests in several notable ways, like heightened efficiency, augmented transparency, enhanced security, disintermediation and cost reduction, access to financial services. The implementation of Distributed Ledger Technology (DLT) presents transformative prospects for the domain of recordkeeping. Traditional recordkeeping practices were largely centred around a centralized framework, which hinged upon trust in a singular authoritative entity (Bacon et al., 2018). However, the emergence of DLT has significantly diminished, and in certain instances, entirely eradicated the reliance on such central intermediaries. By harnessing the intrinsic features of shared consensus and cryptographic mechanisms, DLT facilitates a decentralized and trust-agnostic paradigm for recordkeeping (ITU, 2017).

Distributed ledgers can be broadly classified into two primary categories: permissionless and permissioned. Permissionless ledgers operate in an unrestricted manner, allowing participation from all entities without any limitations. Permissioned ledgers adhere to a restricted consensus process,



where only approved entities possess the ability to add entries to the ledger. The validation of ledger entries is conducted by trusted entities within the system, rather than relying on consensus among all participants as observed in open or permissionless systems. Both private and public distributed ledger technologies commonly incorporate a consensus mechanism to authenticate and validate transactions. A consensus mechanism refers to a methodology employed to verify the value or transaction on a blockchain or distributed ledger without relying on trust in a central authority. Although specific mechanisms employed may differ based on the design of each distributed ledger, the purpose remains consistent.

By necessitating consensus, the ledger can ascertain the legitimacy of transactions. Consensus plays a vital role in preventing conflicting entries, ensuring accurate sequencing of entries, and safeguarding against malicious actors attempting to gain control over the DLT (Vukolić, 2006).

DLT optimizes intricate financial processes, such as settlement and clearing, by eliminating intermediaries and reducing the time and expenses entailed in manual reconciliations. It enables nearly instantaneous transactions and real-time updates to the shared ledger (Schuldt et al., 2023). Also, it furnishes a transparent and auditable transaction and ownership record. Each participant gains access to identical information, fostering increased trust and mitigating fraud or manipulation risks. Such transparency can facilitate regulatory compliance and bolster the integrity of financial markets (Ni et al., 2020).

The decentralized nature of DLT's fortifies security by eliminating single points of failure and curbing data breaches or cyber-attacks (Crosby et al., 2016). The cryptographic algorithms employed in DLT confer robust safeguards for transaction integrity and confidentiality of sensitive information. Moreover, DLT harbours the potential to disrupt established financial intermediaries like banks and clearinghouses through peer-to-peer transactions, obviating the need for intermediaries (Habib et al., 2022). This transformation can yield cost savings for participants and stimulate heightened competition, and it holds promise for extending financial services to unbanked or underbanked populations, particularly in developing nations, by furnishing a secure and accessible platform for transactions and promoting financial inclusion (Iansiti et al., 2017).

Nevertheless, it is imperative to acknowledge that while DLT harbours considerable potential, it necessitates addressing challenges and considerations encompassing scalability, regulatory frameworks, interoperability, and privacy apprehensions. Successful adoption and integration of DLT within the traditional financial market require meticulous evaluation and collaboration among various stakeholders to ensure its efficacious implementation and the maximization of its prospective benefits (Kshetri, 2021).

Distributed Ledger Technologies (DLTs) has the potential to transform financial market data management and standardize procedures, but uncertainties remain about their adoption and efficacy in addressing inefficiencies due to their early stage of development. The T2S Advisory Group's Distributed Ledger Technologies Task Force (DLT-TF) is investigating the impact of DLTs on post-trade securities and harmonization efforts, with challenges including reconciling KYC and AML requirements and ensuring data security across DLT networks and interconnected systems (Auer et al, 2021).

### **Can the DLT and Digital Euro influence financial inclusion in Europe?**

Financial inclusion, which aims to provide access to affordable and quality financial services for all individuals and businesses, is crucial for fostering economic growth and reducing poverty. However, traditional financial systems often leave certain populations underserved or excluded, particularly those who are unbanked or underbanked. We believe that DLT and the Digital Euro have the potential to address these challenges and significantly enhance financial inclusion in Europe (Allen et al, 2016).

DLT, which includes blockchain technology, can facilitate peer-to-peer transactions without the need for intermediaries like banks. This decentralized nature of DLT allows individuals to directly transact with each other, eliminating barriers and reducing costs associated with traditional financial intermediaries. This technology opens new possibilities for financial inclusion, especially for underserved populations who lack traditional access to financial services (Mbaye, 2021).



One of the key advantages of DLT is its ability to enable cross-border payments quickly and inexpensively. Traditional cross-border transactions are often costly and time-consuming, making them inaccessible for many individuals and small businesses. DLT can revolutionize cross-border payments by providing a faster, more efficient, and cost-effective alternative. With DLT, individuals and businesses can send and receive payments across borders with ease, promoting international trade and economic opportunities (Böhme et al, 2015).

The Digital Euro, as envisioned by the European Central Bank (ECB), is a form of central bank digital currency (CBDC) that has the potential to drive financial inclusion in several ways. By providing an electronic form of central bank money, the Digital Euro would be universally accessible to all citizens and firms, irrespective of their location. This accessibility would be like banknotes but in digital form, enabling individuals without traditional banking access to participate in the digital economy (World Bank, 2020).

The Digital Euro would offer a secure and convenient digital payment infrastructure, allowing individuals who are currently unbanked or underbanked to make electronic payments and manage their finances more efficiently. This accessibility to digital payments is crucial, as cash transactions are becoming less prevalent and digital transactions are increasingly becoming the norm. The Digital Euro can bridge this gap and ensure that everyone has the means to participate fully in the evolving digital economy.

Moreover, the Digital Euro has the potential to reduce transaction costs, particularly for cross-border payments within the Eurozone (ECB, 2021). The high costs associated with cross-border transactions have been a significant barrier to financial inclusion, hindering the ability of individuals and businesses to engage in international economic activities. By leveraging DLT and the Digital Euro, the costs of cross-border transactions can be significantly lowered, making them more accessible to a wider range of people and promoting greater financial inclusion.

DLT can also make financial services more accessible to underserved populations using cryptocurrency wallets. Even without a traditional bank account, individuals can participate in the digital economy by utilizing cryptocurrency wallets that leverage DLT. These wallets enable individuals to store, send, and receive digital assets, providing access to financial services that were previously out of reach for the unbanked or underbanked. This innovation opens new avenues for financial inclusion and economic empowerment.

Another potential benefit of the Digital Euro is its offline transaction capability. Offline transactions would enable peer-to-peer transactions even in situations where internet connectivity is limited or unavailable. This feature is particularly relevant in remote or underserved areas where connectivity challenges persist. By allowing offline transactions, the Digital Euro can overcome one of the significant barriers to financial inclusion and ensure that individuals in remote areas can engage in financial transactions without relying on stable internet access.

Furthermore, the implementation of DLT and the Digital Euro can foster financial innovation and competition. DLT's transparency and immutability can increase trust in financial systems, reducing fraud and making individuals more willing to participate in these systems (Deloitte, 2021).

### **3. Research methodology**

The objective of this study is to ascertain the following aspects:

1. Prevalent types of cryptocurrencies and the extent of comprehension regarding them, as well as ownership of such assets;
2. The degree of understanding pertaining to the distinctive features of cryptocurrencies;
3. What is the level of desirability of the Digital Euro;
4. Significance of the characteristics associated with the Digital Euro;
5. Probable circumstances in which the Digital Euro is expected to be utilized;
6. The means by which the Digital Euro could be obtained;
7. Investigation of the methods utilized for the storage of the Digital Eur

For this quantitative study, researchers employed self-report surveys to collect data, constructed based on a validated five-point Likert scales. The surveys consisted of a total of 13 questions related to the Digital Euro, with 6 of them focusing on socio-economic profile variables.

All the questions were published in English using an online questionnaire (Google Forms), that was sent out to the different age groups through an international network for students, as well as professional networks for different age groups. This research has adopted a web-based survey as a data collection method as it is a method that is efficiently administered and widely used globally.

To choose an appropriate sample size of minimum recommended sample size of 97, the study uses the standard calculation of the sample size, based on a population size of 438.823 crypto users in the EU (17% of 746.000.000 total EU population), with a confidence level of 95% and a margin of error of 10%. In this regard, this study managed to collect data from 99 respondents, which exceeded the minimum recommended sample size of 97. Data was collected between 1st and 16th of June 2023, using a questionnaire survey from the study area. We distributed the questionnaire to the respondents through an online google doc and explained the main objective of data collection. A total of 8000 questionnaires with 99 were received from the digital currency market, indicating a response rate of 1.2%. Ethical approval was not applicable for this research because authors' institutions are not concerned about the present research.

#### 4. Findings

The analysis of the demographic profile, as presented in Table 1, indicates a relatively uniform age distribution among the respondents, except for individuals below the age of 20, who constitute a significantly smaller proportion compared to the other age categories. The findings from the age demographics suggest a widespread interest in gaining further knowledge about the digital Euro. Furthermore, Table no. 1 reveals a higher percentage of respondents with academic degrees, with 47 individuals holding a master's degree and 27 individuals possessing a bachelor's degree. In contrast, the number of respondents with a High School degree is 24, while only one respondent has a PhD, indicating a relatively lower representation.

Regarding employment status, the predominant categories include Full-time employees (53%), Self-employed individuals (13%), and Business owners (12%). Conversely, Retired individuals (9%), Students (8%), Unemployed individuals (3%), and Part-time employees (1%) constitute significantly smaller proportions within the sample.

Regarding income status, most respondents (67%) report earning up to 50,000 euros per year, while 27% report earning between 50,000 and 150,000 euros. A notably smaller percentage (2%) of respondents indicate an income exceeding 150,000 euros.

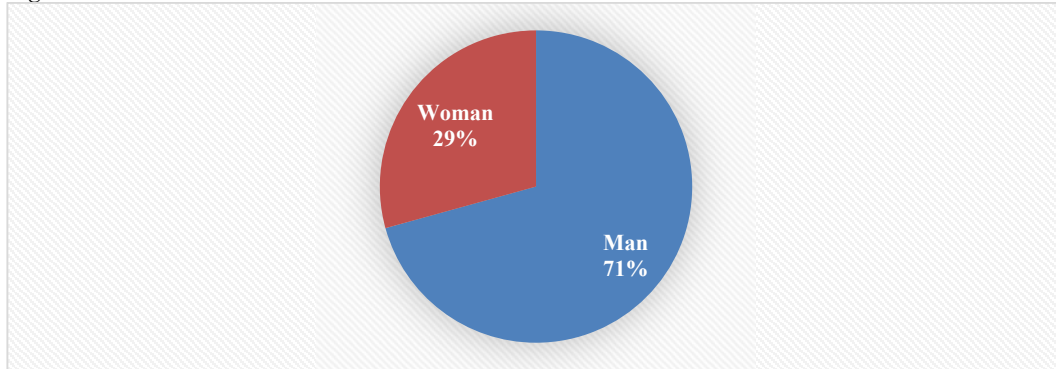
*Table no. 1 The total number of respondents age, academic degree, employment, and income*

Age		Academic degree		Employment		Income	
Below 20	2	High School degree	24	Full-time employee	53	Below 10,000 euros / year	33
Between 20 – 30	13	Bachelor's degree	27	Part-time employee	1	Between 10,000 – 50,000 euros / year	37
Between 30 – 40	32	Master's degree	47	I own my own company	12	Between 50,000 – 100,000 euros / year	17
Between 40 – 50	30	PhD	1	Self-employed	13	Between 100,000 – 150,000 euros / year	10
Above 50	22			Student	8	Above 150,000 euros / year	2
				Unemployed, currently looking for work	3		
				Retired	9		

*Source:* (Developed by the author based on data collected by author in June 2023)

Figure no. 2 shows the gender number. It describes the total number of males as 237, and female, 43.

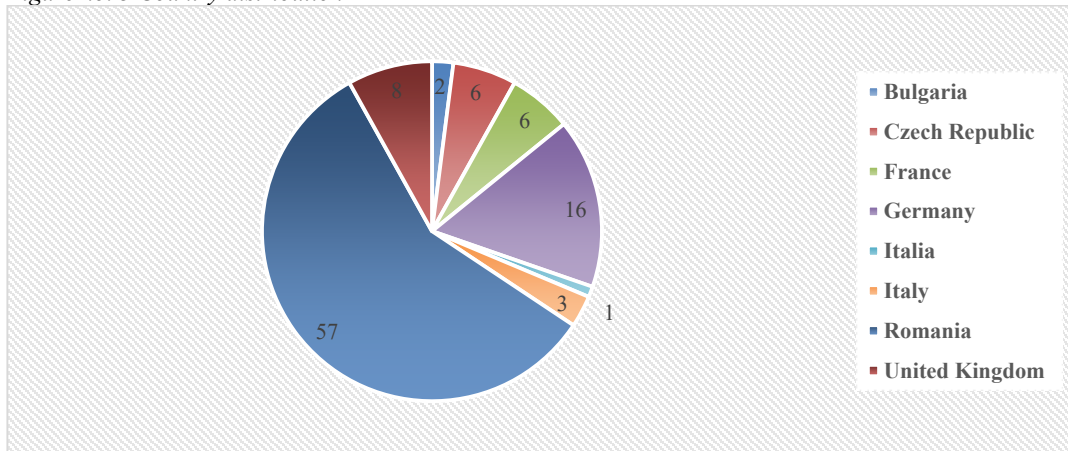
Figure no. 2 Gender distribution



Source: (Developed by the author based on data collected by author in June 2023)

The Figure no. 3 shows the number of respondents from various countries. Among the surveyed individuals, the highest number of respondents came from Romania, with a total of 57 participants. Germany had the second-highest representation, with 16 respondents. The Czech Republic and France both had 6 respondents each, while the United Kingdom had 8 respondents. Bulgaria, Italy, and Italy (presumably a duplicate entry) had 2, 3, and 1 respondent(s) respectively.

Figure no. 3 Country distribution



Source: (Developed by the author based on data collected by author in June 2023)

Analysing the answers to the direct questions, we obtained the following findings and results:

- **The first question** posed to the respondents inquired about their awareness of cryptocurrencies, central bank digital currencies (CBDCs), and stablecoins, as well as their understanding of these concepts. Results indicate that 90.9% of participants strongly agreed or agreed to have heard about cryptocurrencies, while 61.6% acknowledged having some familiarity with CBDCs, and 58.6% were acquainted with stablecoins. However, despite these concepts being recognized by the general public, only 51.5% demonstrated a comprehensive understanding of them, and a mere 38.8% reported possessing cryptocurrencies and/or stablecoins.
- **The second question** asked the participants to express their level of agreement regarding the primary characteristics of cryptocurrencies. The findings indicate that 58.6% of respondents strongly agreed or agreed that cryptocurrencies hold greater value as an investment rather than as a medium of payment. Additionally, 45.4% of participants believed that cryptocurrencies can be easily converted into cash. However, only 41.4% agreed that the government regulates cryptocurrencies, while 47.5% concurred that cryptocurrencies facilitate illicit activities. Interestingly, a higher percentage of 59.6% agreed that the current time is opportune for purchasing cryptocurrencies. Conversely, only 47.5% considered cryptocurrencies to be both secure and user-friendly.

- **The third question** aimed to gather the participants' viewpoints on the Digital Euro. A notable majority of 75% indicated awareness of the Digital Euro's existence, although only 40.4% possessed a clear understanding of its nature. Nonetheless, 58.6% expressed support for the introduction of the Digital Euro in 2026, while 54.5% expressed their intention to utilize it from that year onwards.
- **The fourth question** aimed to ascertain the participants' perception of the importance associated with the key characteristics of the Digital Euro. A significant majority of 76.7% regarded it as highly important for the Digital Euro to be accessible free of charge. Furthermore, 86.9% emphasized the significance of maintaining the privacy of payment information, while an equal percentage of 86.8% stressed the importance of ensuring the safety of data in terms of protection. Ease of use was highlighted by 77.8% of respondents as an important characteristic. Regarding the usability of the Digital Euro, a substantial 86.9% of participants underscored the importance of it being accepted across all European Union (EU) countries. Additionally, 79.8% considered the ability to use the Digital Euro at point-of-sale (PoS) terminals as a significant aspect. Furthermore, 77.8% of respondents emphasized the importance of the Digital Euro not being reliant on internet access for its usage. Instant crediting to the recipient was deemed important by 88.8% of participants. Compatibility with chip cards was valued by 79.8% of respondents, while 85.9% stressed the importance of the Digital Euro being usable with smartphones.
- **The fifth question** sought to ascertain the participants' anticipated utilization of the Digital Euro. 50.6% of respondents expressed their intention to utilize the Digital Euro within a crypto wallet. Additionally, 68.7% revealed their plan to employ the Digital Euro for e-commerce transactions. Moreover, 62.6% stated their intention to use the Digital Euro at point-of-sale (PoS) terminals. Regarding peer-to-peer transactions, 66.7% of participants indicated their preference to utilize the Digital Euro for payments between individuals. Furthermore, 36.4% expressed their inclination to employ the Digital Euro for government-related payments. In terms of cross-border transactions, 62.6% of respondents revealed their intention to use the Digital Euro for such purposes.
- **The sixth question** aimed to explore the participants' anticipated methods of obtaining Digital Euro. A significant proportion of 68.7% of participants envisioned obtaining Digital Euro through a direct link with their bank account. Additionally, 73.8% anticipated acquiring Digital Euro by making payments with a card. Regarding alternative methods, 50.5% of respondents expected to obtain Digital Euro through ATM fiat ramp-up. Moreover, 75.5% anticipated receiving Digital Euro through direct debits to their Digital Euro account, such as salary or individual payments. Furthermore, 56.6% of participants expressed their expectation of receiving Digital Euro through direct credits to their Digital Euro account, such as loans.
- **The seventh question** aimed to inquire about the participants' preferred storage methods for Digital Euro. A notable percentage of 63.5% expressed a preference for centralized storage, where the Digital Euro would be recorded in the central bank's ledger. Additionally, 50.5% of participants indicated a preference for decentralized payment cards as a means of storing Digital Euro. Furthermore, 58.6% expressed a preference for decentralized smart devices as a storage option for Digital Euro. On the other hand, 38.4% indicated a preference for decentralized cold wallets for storing Digital Euro. Interestingly, 41.4% of respondents expressed a preference for a combined approach, utilizing both centralized and decentralized methods for storing Digital Euro.

## 5. Discussions and conclusions

Based on the presented scenario and the data analysis, several follow-up conclusions can be drawn regarding the participants' awareness, understanding, opinions, and intentions related to cryptocurrencies and the Digital Euro. These conclusions provide valuable insights into the potential adoption and acceptance of the Digital Euro and can inform future research, policy decisions, and implementation strategies.

Firstly, the findings indicate a relatively high level of awareness among the participants regarding cryptocurrencies, CBDCs, and stablecoins. The majority of respondents have heard about these concepts, suggesting that they have gained some prominence in public discourse. However, a comprehensive understanding of these digital assets remains limited, with only about half of the

participants demonstrating a clear understanding. This emphasizes the need for educational initiatives and awareness campaigns to enhance public knowledge and comprehension.

Furthermore, the participants' opinions on the characteristics of cryptocurrencies reveal a diverse range of perspectives. While many recognize cryptocurrencies as valuable investments, there is some skepticism regarding their use as a medium of payment. The perception of cryptocurrencies facilitating illicit activities also raises concerns and highlights the importance of addressing regulatory frameworks and promoting responsible use within the digital asset ecosystem.

Regarding the Digital Euro, the findings suggest a significant level of awareness among the participants, with three-quarters of them having heard about it. However, there is a gap in understanding, as less than half possess a clear comprehension of its nature. This highlights the need for effective communication and educational campaigns to ensure a better understanding of the Digital Euro's benefits, functionalities, and implications.

Encouragingly, most participants express support for the introduction of the Digital Euro in 2026, indicating a positive reception and willingness to embrace this digital currency. Additionally, more than half of the respondents intend to utilize the Digital Euro from 2026 onwards, indicating potential demand and adoption. These findings indicate a favourable environment for the successful implementation and acceptance of the Digital Euro in the future.

The participants' perceptions of the important characteristics of the Digital Euro provide valuable insights for its design and implementation. Accessibility, privacy of payment information, data protection, ease of use, cross-border usability, and instant crediting to the recipient emerge as key priorities for the participants. These findings highlight the importance of designing the Digital Euro with user-friendly features, robust security measures, and seamless interoperability to meet user expectations and ensure widespread adoption.

The anticipated usage patterns of the Digital Euro reflect its potential versatility and utility across various domains. The participants express intentions to utilize the Digital Euro for e-commerce transactions, point-of-sale payments, peer-to-peer transfers, government-related payments, and cross-border transactions. These findings underscore the potential role of the Digital Euro in facilitating seamless and efficient digital transactions across different sectors of the economy.

Regarding the methods of obtaining and storing the Digital Euro, the participants exhibit preferences for convenience, ease, and security. Direct links with bank accounts, card payments, and direct debits or credits to Digital Euro accounts emerge as the most anticipated acquisition methods. Moreover, a mix of centralized and decentralized storage methods is preferred, with participants showing interest in centralized ledger records, payment cards, smart devices, and cold wallets. These preferences highlight the importance of providing diverse options and ensuring a seamless user experience in acquiring and storing the Digital Euro.

In conclusion, the findings suggest a growing awareness and interest in cryptocurrencies and the Digital Euro among the surveyed participants. However, there is a need for continued educational efforts to improve understanding and address concerns. The overall positive attitudes, support for the Digital Euro, and anticipated usage patterns indicate a promising environment for its adoption and integration into the digital economy. The insights from this study can guide policymakers, central banks, and developers in shaping the design, implementation, and communication strategies for the successful introduction and acceptance of the Digital Euro.

The findings from the data analysis shed light on various aspects that indicate the positive impact of the digital euro on enhancing financial inclusion and accessibility for individuals across different demographics.

Firstly, the widespread awareness of cryptocurrencies, CBDCs, and stablecoins among the participants suggests a growing interest and engagement with digital financial assets. This indicates a general openness towards digital forms of money and a willingness to explore alternative financial instruments beyond traditional banking systems.

Furthermore, the participants' intentions to utilize the digital euro for various purposes, such as e-commerce transactions, peer-to-peer payments, and cross-border transactions, indicate the potential of the digital euro to facilitate seamless and efficient financial interactions. This can particularly benefit individuals who have limited access to traditional banking services or face barriers in conducting cross-border transactions due to high fees or complex processes. The digital euro's ease

of use and acceptance across European Union (EU) countries can foster financial inclusion by providing individuals with a reliable and accessible digital payment option.

Moreover, the findings regarding the anticipated methods of obtaining and storing the digital euro highlight the importance of offering diverse and user-friendly options. The preference for direct links with bank accounts, card payments, and direct debits or credits to digital euro accounts demonstrates the need for inclusive financial infrastructure that integrates with existing banking systems. By leveraging established financial channels and technologies, the digital euro can leverage the infrastructure already in place, making it more accessible and inclusive for individuals with varying financial backgrounds and preferences.

Additionally, the emphasis on privacy, data protection, and instant crediting to the recipient underscores the importance of building trust and confidence in the digital euro. These features can address concerns related to financial security and privacy, particularly for individuals who may have been hesitant to engage with digital financial assets in the past. By incorporating robust security measures and ensuring privacy in digital transactions, the digital euro can create a safer and more inclusive financial environment for all users.

However, it is crucial to acknowledge that while the data indicates positive potential for financial inclusion through the digital euro, certain challenges and considerations need to be addressed. These include ensuring equal access to digital infrastructure, promoting digital literacy and education, and addressing potential barriers for marginalized or underserved communities. It is essential to implement inclusive policies and initiatives that bridge the digital divide and empower individuals from all socioeconomic backgrounds to participate in the digital economy.

In conclusion, the data suggests that the digital euro has the potential to enhance financial inclusion by providing individuals with accessible, secure, and user-friendly digital payment options. By leveraging the advantages of digital currencies and addressing the needs and preferences of diverse user groups, the digital euro can contribute to a more inclusive financial system that empowers individuals and promotes economic participation. However, it is crucial to implement comprehensive strategies that address barriers and ensure equitable access to digital financial services to truly maximize the impact of the digital euro on financial inclusion.

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## The Impact of Public Debt on Sustainable Development. The Romanian Case Study

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### Abstract

The study aims to analyze the impact of the ratio between the public debt and the gross domestic product on the Romanian economic development, for years 2000 - 2021 and to offer solutions for growth and sustainable development.

Using a Vector Autoregression Model - VAR analysis model, the paper captures the causes that led to the rapid increase in debt in recent years, even decades, on the one hand, and on the other hand, the factors that influenced the negative evolution of macroeconomic indicators (inflation, unemployment etc.), which was not at all encouraging during the entire analyzed period. This fact is also possible thanks to the decisions and policies instituted by the government, rather based on analyzes and strategies, established only in the medium and short term, in a conjunctural context.

**Key words:** economic development, public debt, G.D.P. Vector Autoregression Model

**J.E.L. classification:** C33, E44, E60

### 1. Introduction

The economy's evolution at the level of the European Union and implicitly of Romania in these twenty-one years, subject to analysis, was accompanied by large imbalances. This happens due to the economic crisis from 2008 to 2012, on the one hand, when they were affected and the world's strongest economies and, on the other hand, the COVID 19 pandemic that began, according to data, at the end of 2019 in Wuhan - China. This further accentuated the problem of the country's deficit with its still unknown impact, at the same time affecting economic stability and causing the growth, at an accelerated rate, of social, budgetary and especially emergency medical expenses.

It should be noted that the country's large and somewhat growing deficit may lead to a downgrade of the sovereign rating. Romania has BBB - immediately above junk (Daianu D., 2021), and that "qualifier" could cause an increase in the cost of financing the public debt. This is fueled by the fact that the Romanian leu is not a reserve currency, and the margin of maneuver of the National Bank of Romania is limited. In other words, Romania's macroeconomic situation can be described both by influence socio-economic phenomena on macroeconomic indicators, from the last decades, as well as through the behavior and perception of the population on the business environment.

The positive evolution of the GDP determines a positive economic growth, which is desired to be in the long term, a fact that would determine a sustainable development of the Romanian economy in all its components. Moreover, the increase in G.D.P. - the real is the source of the substantial increase in living standards (Lipsey. R., 1999).

Economic development analyzed more in studies, plans and strategies should significantly reduce the harmful effect of the scourge that most grinds the economy of a country, and it is closely related to the evolution of inflation, which is usually variable and rarely precisely predicted and which has reached alarming proportions in the last thirty years.

Even in these years of the pandemic, from this analysis, it tends towards an evolution that is not in line with what is intended to be a sustainable development thought and designed for the long term, taking into account the support offered by the relevant international institutions and the Plan National Resilience and Recovery. Practically, Romania's development must be based on sustained economic growth, which in turn must be based on a technological change - re-technological change, led by

innovations, because one of the most important benefits is the increase in living standards. Investments also have their own contribution to the growth and development of the country, which in turn is never without costs. The opportunity cost of growth is the shift of resources from current consumption to capital formation.

Thus, the motivation of the research is represented by the existing paradox, between what is desired, a sustainable economic development of Romania in all its components supported by funds, plans and strategies, and on the other hand by the connection and the cost associated with the contracted loans, which instead to sustainably support and develop the economy, rather it reduces its degree of bearability with harmful effects on production, on the population's income and implicitly on the G.D.P. - the result. Also in this sense, it should also be mentioned the effectiveness of the fiscal-budgetary policies that should be reanalyzed and instituted through the levers of the state to encourage the attraction of investors and implicitly the increase of investments, and the models of developed countries (eg: the Netherlands, Sweden etc.) may be worth following.

The paper's objective is to capture, on the one hand, the impact of economic growth on the public debt, and on the other hand, the factors that influence, in a pronounced way, the debt dynamics. At the same time, the research aims to find the best and viable measures for economic growth and recovery, with a direct impact on the level of public debt.

Considering its evolution at the level of Romania, its impact on the development of the country and taking into account the existing economic context at the European level, measures are required to reanalyze the strategies to be followed at the level of the European Union and that the threshold imposed by the Maastricht Treaty, of 60 %, could be reanalyzed, establishing new levels and objectives to be met.

The work is structured in five parts. The first would be represented by the introduction, the second part presents the specialized literature that captures the analysis of the public debt at the national level, but also in relation to other developed countries, followed by the specific methodology for the analysis of the ratio between them and GDP and the results, propositions and discussions can be found in the fourth part. The paper ends with the presentation of the conclusions and the bibliography.

## **2. Literature review**

The economic-financial context regarding the sustainable development of a state can be defined, from at least two points of view, namely:

- ✓ the need for money/financial assets and also for loans contracted by each state;
- ✓ the level of affordability of the economy in managing and repaying the accumulated public debt.

Moreover, the ratio between the public debt and the gross domestic product is its most important measurement indicator.

The way in which the member states of the E.U. among which Romania also manages its public debt represented and continues to represent a subject of particular importance in what is desired to be a sustainable economic development.

Thus, the study "Debt and Economic Growth In The European Union: What Causes What?" (Ferreira, 2014) supports the existence of causal relationships between economic growth and public debt. This, within the analysis, take three forms: public, external and private. The reference period is comprised between the years 2001 - 2012, with a special emphasis on the period 2007 - 2012 (global financial crisis, sustained by an obvious lack of liquidity) and includes a number of 28 countries of the European Union.

It is precisely this lack of liquidity that has pushed some countries to certain compromises and recourse to loans, with unforeseen costs. These, as an effect, have led to an increase in the threshold debt level, for most states it is rather above the level established by the Maastricht Treaty. A high level of debt, as is known, has a direct effect on economic growth and the development of a country depends a lot on this ratio (public debt / GDP).

The results of the study support the existence of statistically relevant bidirectional causal relationships between public debt and economic growth. At the same time, the analysis confirms the fact that a sustained and constant economic growth (with values, not necessarily very high) contributes to the stagnation and even decrease of the public debt level.

The estimates also show, on the one hand, that external debt is not so relevant to GDP growth, and on the other hand, private debt has a negative impact on GDP growth in the analyzed period (2001 - 2012).

In conclusion, it confirms that for 25 of the 28 countries of the European Union, public debt was relevant to economic growth, but at the same time and more strongly, economic growth had clear negative causal effects on the growth of public debt.

The work "The Use of Computer Applications In The Study of Romania's Public Debt" (Vătuțiu, et al, 2011) starts from the definition of the public debt, as representing all the monetary requirements of the state at a given time, due to contracted loans, short or long term, but also its own obligations to cover the deficit. In other words, the analysis seeks to capture the evolution of Romania's public debt, between 2007 and 2012, and as a novelty element, sparkline diagrams are used. Practically, during the mentioned period, in order to support budgetary expenses, pensions and salaries, or of another nature, the Romanian government constantly resorted to loans. These were not based, according to the study, on the basis of viable strategies, in relation to, for example, Bulgaria, but on the basis of measures or rather conjunctural decisions.

Thus, the loans from the IMF, as international support, and the funds from the domestic banking system, weighed decisively in the evolution of the debt. This has doubled and even more than that. In other words, from a public debt whose percentage of GDP in 2008, it showed a level of 21%, at the beginning of 2011 its level indicated a percentage of approx. 37% (193.89 billion lei), far above the forecast.

Even under the mentioned conditions, the Romanian government committed itself to the creditors not to exceed the imposed deficit by much. Even more than that, it must to reimburse the International Monetary Fund and the other creditors, part of the contracted loans, proposing, according to the analysis, up to 1 billion euros in 2014.

Another study, "The Effect of Public Debt On Economic Growth" (Moraru, et al, 2014), as the title suggests, it investigates the influence of public debt on economic growth and financial stability. At the same time, a special emphasis is placed on its ability to support sustainable economic development. The analyzed period includes the interval 2006 - 2012, and as a working method, linear, multivariate regression was chosen.

Buchanan and Wagner, for example, argue that the debt burden is simply the "opportunity cost of debt-financed public goods," defining it by analogy with the tax burden. Moreover, they ask themselves rhetorically, paying special attention to the following aspects: who pays, how much and when?

As the study also claims, the opportunity cost is the value of private goods sacrificed for public goods "purchased through debt". Also, in the sense of what was presented, it is also referred to the fact that countries with high rates of the public debt / GDP ratios are more exposed to high market interest rate shocks.

The results of the analysis certify that there is an inversely proportional relationship between public debt and economic growth. For example, it is argued that an increase with 1% of public debt will reduce the annual growth rate of GDP by 0.30%. In other words, at least for the case of Romania, public debt tends to have a negative impact on economic development.

Another work, "Correlation Analysis Between The Public Debt and The Budget Deficit and GDP In Romania Compared To Holland" (Păun, 2015) presents the economic characteristics of a comparative analysis between Romania and the Netherlands. The analyzed period includes the years 2000 - 2013 and captures the dependence between deficit and public debt, as well as the variation of the latter.

In the study, the objectives of both Romania and the Netherlands are presented, with growth prospects in the future. It is noted that the value of the maximum deficit reached by Romania was - 8.86% in 2009, and its minimum value was achieved in 2005, standing at a value of -1.15%.

In contrast, the Netherlands recorded both a budget deficit and a budget surplus in the analyzed period. In other words, the largest deficit was -5.45%, also in 2009, and the smallest was -0.28 in 2005, before the global financial crisis.

From the public debt point of view, the study shows that Romania is better off, with a debt level of only 37.44% of GDP, at the end of the reference period, compared to the Netherlands, which presents a level above that was imposed by the Maastricht Treaty, i.e. 68.60% of GDP.

Even under these conditions, the study also highlights the fact that, despite the high ratio of public debt to GDP, the standard of living of the population in the Netherlands is much higher than that in Romania. Moreover, the economic potential can support, without problems, the continuation of the reforms and implicitly the sustainable economic development much more deeply with achievable objectives in a relatively short term, in relation to our country.

The work "Sustainability of Local Decisions During Financial Crisis" (Oprea, et al, 2016) shows how important the activity of economic agents is for sustainable development, starting from the local level to the central level. Moreover, achieving a balanced budget, of revenues and expenses, supports such an approach, which must be maintained, at this moment, in a competitive environment with uncertain growth prospects.

In this sense, the analysis claims that by promoting a qualitative financial management, which, by the way, represents the basic condition for avoiding a crisis (even at the local level), money and the public good can be managed with even greater accuracy.

The economic crisis and the events of the last decades have shown how incapable the authorities, from local to national, have been to manage such situations. They refer, rather, to those presented austerity measures that did more harm to the economic environment, contributing, on top of that, to the decrease in the income level of the population.

In the study, reference is made to the attitude that the authorities must adopt regarding the way of revenue collection in relation to the forecasted expenses, in order to ensure the sustainability of the financial management instruments. In the end, it could represent one of the basic pillars in terms of ensuring long-term economic development.

Another study, "The Evolution of Public Debt and The Comparison With Its Weight in actual G.D.P." (Medar, et al, 2019), analyzes the evolution of public debt, from the level of Romania. Moreover, it claims that the reached threshold is below than established one by the Maastricht Treaty.

At the same time, an analytical thinking is considered, which would plead for increasing its level, argued by the fact that it would become sustainable only under conditions of productive investments. The latter, fueled by viable measures and policies, would lead to long-term sustainable economic growth.

The analysis also surprises a certain paradox given the fact that although, during the analyzed period, there was a sustained economic growth, our country still has the lowest budget revenues in Europe. It should also be mentioned that Romania was the only country in the world that managed to pay its external public debt. It is true that the costs, both for the industry and for the population, were at the limit of what was bearable.

Compared to today, the same country is heading, rather, towards the opposite pole, i.e. towards the threshold of 50% of GDP. One of the factors that led to this aspect is the financing of the budget deficit fueled by the pandemic and the existing imbalances in the region.

Moreover, in order to analyze this aspect even better, it was agreed that the ratio between the public debt and the gross domestic product is the most important measurement indicator.

In other words, this report can be analyzed from at least two perspectives, also determined by the value of interest on government bonds. So:

a) There are years when the GDP growth rate was lower than the value of government securities and there was also a primary deficit in relation to GDP.

b) Under the conditions of sustainable economic development and due to the collection of state revenues, the GDP growth rate can be higher than the interest on government securities and, therefore, there is no primary deficit.

Also in the analysis, reference is also made to the fact that a debt greater than the economic potential of a country, together with an unsubstantiated increase in expenses, could lead to a decrease in the country's rating, a fact that would further discourage investors from allocating funds in strategic sectors of the economy. Therefore, it is shown that the government's policy to support the business

environment through credible policies with real impact for a harmonious development in all its components is very important.

Another study, "Evolution of The Main Indicators of Public Debt Sustainability In The Period 2014-2018 In Romania" (Apostol, 2019) supports what was reported previously, within the theme, coming with an analysis of the public debt for the period 2014 - 2018; practically, the years of recovery after the financial crisis and before the outbreak of the COVID 19 pandemic.

This study, like the others, certifies that the threshold reached by Romania is below the level established by the Maastricht Treaty and even below the European Union average. However, the analysis puts a special emphasis on the country's fiscal system and the sustainability of public finances. So, it represents a great responsibility that must be very carefully managed by the decision-makers, in the current geopolitical conditions.

Since the sustainability of public finances also refers to the government's ability to manage risks, it must be carefully supported not only by measures and fiscal-budgetary policies, but also by the state's action, through the levers it has at its disposal to regulate and adjust the economy.

At the same time, the analysis also finds that there is no universally valid threshold regarding the public debt. This is argued by the fact that each country has its own peculiarities and degree of affordability, of the economy, but it must not be forgotten that a high level of debt can endanger the sustainability of fiscal-budgetary policies.

The results of the study confirm that the trend of public debt decreased from 2015, until the end of the analyzed period, supported by economic growth, based on consumption, fueled by the financial conditions of the market. A noteworthy aspect is given by the fact that the diversification of government securities has supported and continues to support the economy, even in the current market conditions.

However, due to the deficit recorded in recent years, it is expected that the share of debt to GDP to have an upward trajectory and in the long term, the reference value of 60% of GDP will be exceeded. However, in order to maintain a sustainable level of public debt, it is necessary to implement viable strategies, based on thorough analyzes that offer investors favorable conditions for placing investments, on the one hand, and on the other hand, ensuring the balance between revenues and expenses that allow allocation of public money with even greater accuracy.

The specialized literature, as it is presented, captures the evolution of the economy, not only at the Romanian level but also at the world level. It is influenced by various factors that have contributed and continue to shape the perceptions, not only of the decision-makers, but also rather of the population that feels the fluctuations of the market, of the business environment. It must be stated that this fluctuation, of the market, with more or less accentuated episodes, also left its mark on the way in which the economy of the analyzed country responded to challenges and unforeseen situations, sprinkled with conflicts and socio-economic disturbances, sometimes difficult to managed

They could only be resolved following negotiations that assumed either broadness and flexibility on the part of the population, able to work, as well as on the part of the state. The transition to a market economy entailed, among other things, steps that had to be accepted by both sides, with the accumulation of loans for the implementation of the new development strategy, in the medium and long term.

After all, Romania, in its recent history, is the only country in the world that paid off all its external debt at one time, and this happened at the end of the 1980s, in April 1989 to be exact.

This theme was debated in a documentary on loans, where *Professor Martin Armstrong*, The Former President of Princeton Economics International, supported it in the early 1990's in the USA. In it, he declared: ***„The only country that paid its debt was Romania, in the 80s. That's it. It is the only exception that I found starting with the year 6.000 before Christ!”***.

Practically, Romania managed to pay all its 14 billion dollars, which represented approx. 35% of GDP, in the mid-80's. Professor Martin Armstrong can be considered either way, but the statement is completely correct. Moreover, in recent centuries a noteworthy situation occurred between 1822 and 1913, when Great Britain under Prime Ministers Richard Peel and William Gladstone respectively managed to reduce the public debt from approx. 194% to approx. 28.3%.

In other words, the USA managed to have, after the period 1867 - 1913, a public debt below the level of 4% of GDP; but, as it is mentioned before, no country managed to pay all its debt, only Romania.

What followed, starting with the revolution in December 1989 until today, has various interpretations, methods of analysis, but also strategies, the ultimate goal of which is to reduce the dependence of the business environment on loans. In practice, one wants the self-sustainability of one's own economy based on viable measures, with tangible results.

The country's economy was characterized by measures, rather procyclical, sometimes conjunctural, given by a superficial analysis of the economic situation at a given moment. Pressures from both internal and external factors have seriously affected the way the economic situation has been managed in recent decades. For example, privatization, so publicized, should have represented, first of all, a new, much more efficient model of management, a management focused more on quality. The reality, however, demonstrated something completely different, and as a result, this (privatization) was done, more as a self-imposed measure to move to a truly competitive market economy, with results below expectations.

In the sense of what it was stated, the study *Public Debt in Romania over the past two decades: did we have a coherent debt policy* (Oprea, et al, 2012), supports this aspect and describes the inadvertence of debt policies in Romania, in the period 1990-2011 and the decisions regarding the public debt dynamics (public debt decisions). The conclusion of the study is that the strategic elements of public indebtedness had, during the analysis period, only a formal character, ad hoc decisions being taken under conjunctural pressures even after the outbreak of the financial crisis.

According to the data, the lowest level of public debt was recorded in the third quarter of 2008, and its value was 10.5% of GDP. On the other hand, the highest level had a value of 48.6% of GDP, in the fourth quarter of 2021, in fact the second year of the COVID 19 pandemic. The latter seriously left its mark on the entire economy worldwide, and the level of spending was, as a percentage, far above the forecasted one, overtaking the ability of governments to deal with the situation, from their own funds.

In order to capitalize on the data and to capture the evolution of Romania's economy, this paper aims, based on the Vector Autoregression Model, to carry out a much more detailed analysis of the situation, within the methodology below.

### 3. Research methodology

The methodological framework aims to use an analysis tool, namely V.A.R. (Vector Autoregression Model), in order to capture the dynamics of the variables and their effects on the country's economy. The data used have a quarterly frequency, for the reference period 2000 - 2021, and include data regarding the evolution of Romania, from an economic point of view, and its development both as a non-EU member state and as an EU member state since 2007.

In the analysis of the V.A.R model, quarterly data of public debt and GDP were used for the mentioned reference period. The data source for public debt is EUROSTAT, and for GDP is OECD and comprises 87 observations.

Following the estimation of the VAR model above, the following is observed. So:

- ✓ There is an inertia effect in the evolution of G.D.P. - ul starting with the second trimester;
- ✓ Public debt positively influences G.D.P. - starting from the first quarter, going to register a downward trend starting from the second quarter, a fact explained by the equation (1) below:

$$GDP = 0.016055 - 0.200986 * GDP(-2) + 0.817436 * PUBLIC\_DEBT(-1) - 0.82436 * PUBLIC\_DEBT(-2)$$

In other words, the analyzed period involved numerous economic and political decisions based on strategies not necessarily thought of in the long term but rather influenced by the evolution of the market, of the economy at a given moment, bearing in mind the somewhat linear economic growth, if we refer to the period up to the year 2008 and conjunctural, chaotic and sometimes dynamic if we refer to the period of the world crisis that included Romania in the period 2007 - 2012.

It is true that after this period it was desired and succeeded, in some places, to stabilize and create an environment favorable to development, a fact demonstrated by the evolution of macroeconomic indicators, with a pronounced impact on economic growth (based more on consumption) and less on what was desired to be a sustainable economic development, the continuity of which suffered after the outbreak of the COVID 19 pandemic in Wuhan- China, November 2019.

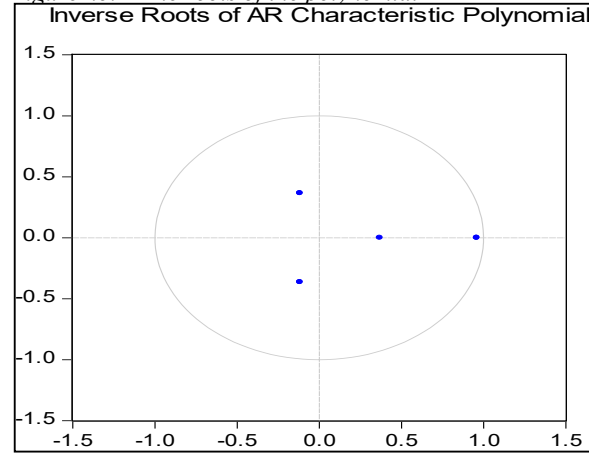
In another words:

- ✓ G.D.P. - positively influences the public debt, but with a delay of 1 quarter;
- ✓ Public debt positively influences public debt, but still with a lag of 1 quarter, a fact reflected by the following equation:

$$\text{PUBLIC\_DEBT} = 0.152565 * \text{GDP}(-1) + 1.145190 * \text{PUBLIC\_DEBT}(-1) + 0.003568 (2)$$

In other words, a change in the public debt indicator will be effectively reflected in its evolution and dynamics, only after a quarter.

Figure no. 1 The roots of the polynomial



Source: own calculations, with the help of Eviews software

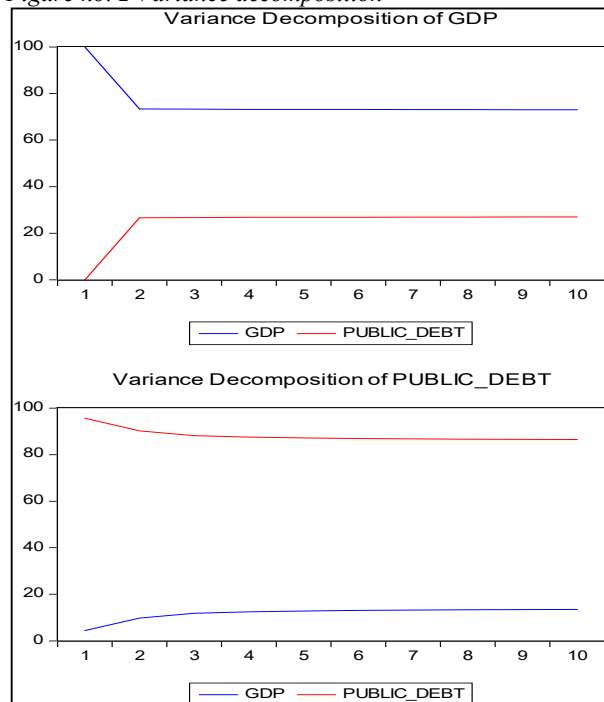
Given that the roots of the polynomial have sub-unit values and that the model is valid indicates that decisions can be made based on the estimated equations. This has its correspondence in the economic reality in that the government's interventions in terms of fiscal and fiscal-budgetary policies materialize directly in the evolution of the economy, of the debt more after the realization of the produced effects. Basically, the state borrows to generate growth and implicitly economic stability through the policies of any kind instituted, but it should not be neglected that this (accumulated debt trend) experienced an upward trend, fueled by the evolution of the global market with repercussions and on Romania, and given the fact that in the last 2 years, subject to analysis, this also coincided with the COVID 19 pandemic and the state's obligation to provide emergency social and medical assistance should not surprise us that it tends towards a worrying limit approaching the threshold imposed by the Maastricht Treaty of 60%.

But this threshold, given the current conditions of the economy at the level of the whole community of 27 member states, could be subject to analysis, re-analysed, to represent a benchmark worthy of following with clear and precise objectives.

The "variance decomposition" analysis indicates that, on the one hand, the variance of G.D.P. is explained in the proportion of approx. 30% of the variation of the public debt, and the difference up to 100% is explained by its own variation, and on the other hand, the variation of the public debt is explained in proportion to approx. 12% of the change in GDP - his and approx. 88% of own variation.

The contracted loans in turn determine other expenses, a fact demonstrated by the reality of the Romanian economy in the analyzed period.

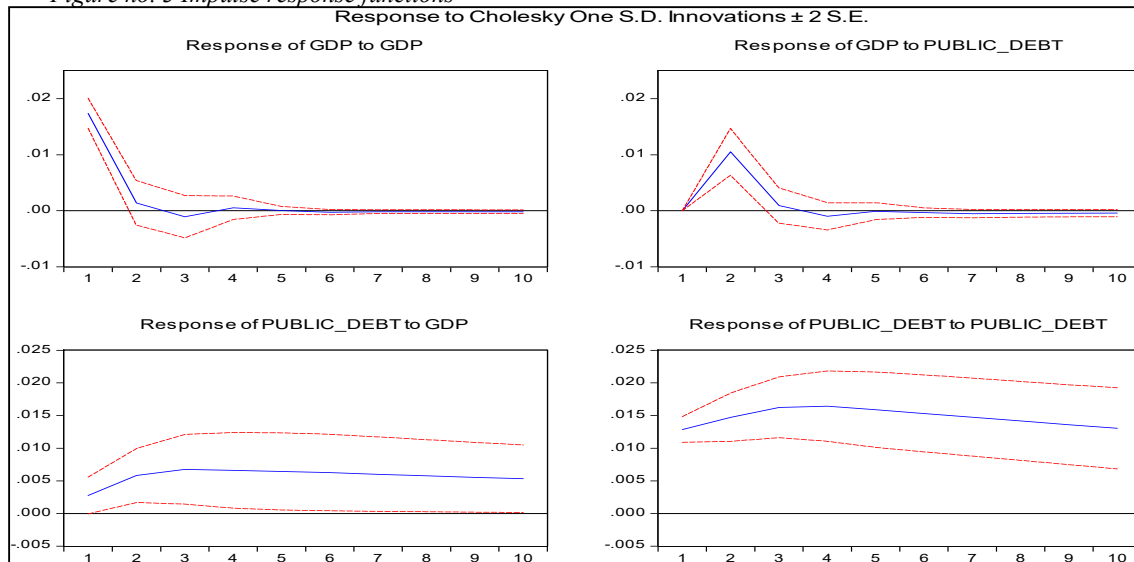
Figure no. 2 Variance decomposition



Source: own calculations, with the help of Eviews software

It should be noted that the stationarity of the data that led to the decisions to contract loans was not always able to reflect a clear and real reality, which led, as it is mentioned before, to hasty and sometimes opportunistic decisions on the part of decision-makers. And, thus, forced the existing economic environment to compromises that are difficult to meet, subjugating the business environment with a direct impact on investors who wanted to do business in Romania, on the incomes of the population and implicitly the standard of living, so that the degree of its affordability, of the economy, is currently at a level that needs to be reanalyzed on the basis of very well-argued and put into practice strategies for the public debt to know a stagnation and maybe even a regression.

Figure no. 3 Impulse response functions



Source: own calculations, with the help of Eviews software



According to the graphs above, the following can be concluded:

- ✓ Regarding the I table (the one on the left), an inertia effect of the GDP can be observed, starting with the second period, that is, the increase of the GDP causes a change in the same direction on its own evolution;
- ✓ In the II-th table (the one on the right) one can observe an inversely proportional relationship, for a very short period of time, respectively - quarter IV the rest of the period registering a positive evolution between GDP and public debt as a response of GDP to the evolution of public debt;
- ✓ Regarding the response of the public debt to the change in the analyzed GDP, a positive relationship can be observed starting from the 2nd period, the 3rd table;
- ✓ Regarding the 4th table (the one on the right), an inertia effect can also be observed in the case of the public debt starting from the 3rd period, then registering a downward trend in its own evolution, after the 4th period.

Table no. 1 Granger causality

VAR Granger Causality/Block Exogeneity Wald Tests			
Sample: 1 88			
Included observations: 85			
Dependent variable: GDP			
Excluded	Chi-sq	df	Prob.
PUBLIC_DEBT	31.914	2	0.0000
All	31.914	2	0.0000
Dependent variable: PUBLIC_DEBT			
Excluded	Chi-sq	df	Prob.
GDP	4.410483	2	0.1102
All	4.410483	2	0.1102

Source: own calculations, with the help of Eviews software

The above table reinforces what has been stated, so that public debt influences economic growth, a fact proven by the existing reality both at the level of the economy of less developed countries, the case of Romania, and at the level of countries with a high degree of industrialization, referring to what not, and to the countries of the European Union that are part of the G7 group

#### 4. Findings

Romania, as a member state of the European Union, has enjoyed international support both at the diplomatic level, an evident fact in the development of strategies and constructive administrative reforms, but especially financially, so that our country can also develop at a sustained pace, thus reducing the gaps with industrialized countries with a solid economy, able to face any challenges.

The period under analysis (2000 - 2021) required the management of at least two major crises, which affected not only the countries of the European Union but the entire world map, namely: the economic crisis from 2008 to 2012 with large imbalances that affected the continuation of reforms with impact on the economic development of the states, sprinkled with sometimes hasty decisions in an environment influenced by important fluctuations of the macroeconomic indicators, the most relevant of which we mention: the increase in unemployment, the reduction of investments, the increase in inflation, the stability of the national currency and the exchange rate (stabilized only through direct measures of the BNR), the budget deficit s.a. On a different note, the COVID 19 pandemic, which, according to data published by international institutions, began in November 2019 in China, then spread throughout the world.

Even with an as yet unknown financial impact, it has wreaked serious havoc on the medical front, associated with the loss of human lives at a level not seen in the last century, forcing the states of the world to emergency social and medical measures and expenses that have greatly affected budgets the countries of the European Union, even the strongest of them, such as Germany, considered by many

analysts and experts to be the "engine of Europe's economy", France, but especially Italy, which felt the strongest shock of this new virus - especially in the spring of 2020.

As far as Romania is concerned, analyzing the data and events that have marked the last twenty-one years, this study captures only a view at economic development from the perspective of clearly defined objectives, of reforms that must be continued, of a responsible modernization, of a National Recovery Plan and Resilience based only on a medium and long-term strategy, very well argued. Practically, the improvement of technology, of any kind, is very important, but it must be borne in mind that it cannot be achieved overnight, and even more so it must be borne in mind that the policies instituted by the government aim to increase the level of endowment in all the major components of the state.

Companies with Romanian capital, as well as foreign ones that operate on the territory of the country and that have been or are on the verge of bankruptcy, are thinking about survival, not necessarily about research and development, therefore the intervention / support of the state is becoming more and more important. In other words, government investment in infrastructure, education, job training and re-engineering can lead to increased productivity, living standards and overall Gross Domestic Product. In other words, in order to improve the prospects for economic recovery and growth, the following reforms should be completed, among others:

- The establishment, really, of policies that concern the development of the infrastructure with support from the state on the fiscal side. Thus, Romania could restructure its economy, moving from the manufacturing sectors to new ones, such as services;
- Reforming the banking sector from the ground up, by allocating capital, providing funds to small and medium enterprises, but also to the population in the sense of developing the activity at a fair interest rate and even risk management, much more responsible;
- Rebalancing of power (Stiglitz, J., E. - *Euro. How the common currency threatens the future of Europe*. 2016), whether we are talking about the economic or the political;
- Climate change (Stiglitz, J., E. - *Euro. How the common currency threatens the future of Europe.*, 2016) and the implementation of medium and long-term strategies to use green, renewable energy, moreover a very important chapter included in the National Recovery and Resilience Plan;
- Promotion of non-discrimination and equality. Not to forget that markets alone produce excessive levels of inequality, levels that should be unacceptable from a social point of view, but above all economically, leading to the undermining of economic performance;
- Implementing an effective communication mechanism and even reducing bureaucracy.

It is true that most of the time the way in which an essential aspect regarding Romania's economy and implicitly the well-being of the population is communicated suffers, especially through the way the messages transmitted are understood and interpreted. And if this aspect were not enough, the bureaucracy that dominates some state institutions should be reduced, perhaps even eliminated.

This essential element of development must come both from the state and from the population through the simple way of accepting and using the technology that is in continuous evolution, of the IT industry with all its components and that has known in the last decades a growing trend materialized both through innovation and through the income brought to specialists in the field.

## 5. Conclusions

Achieving the objective implies reducing the gaps with developed countries, the continuous need to support one's own economy, without resorting to expensive loans, the need for growth, however insignificant, but constant. In this sense, not only at the level of Romania, but also of the European leaders, it was recognized that the problems that have arisen can only be managed through sustainable development-which is based on economic growth. The situation faced by the community of which Romania is also a part is in difficulty and is characterized more by divergence and less by convergence, a fact for which crises are no longer a rarity and that is why political cohesion is needed, bearing in mind view and the armed conflict in Eastern Europe, and of a much greater, more attractive social solidarity.

It should also be remembered that this political cohesion must be argued and well put into practice in order to generate socio-economic stability in the area, the resumption of import-export activity

with products of any kind (agricultural, industrial, etc.), in order to reduce economic slippages, but and refueling at optimal capacity with gas and oil products not only of Romania, but also of the member countries of the European Union. In other words, the effort made by the competent institutions of the European Union, of which the 27 states are a part, but also by the other economic forces worldwide, through the policies and sanctions instituted, would have no other purpose than that of balancing the situation in the conflict zone, which at the given time creates significant fluctuations in macroeconomic indicators, which also affect the strongest economies of Europe and beyond. Thus, the strengthening of economic activity based on the support offered by international financial institutions and the National Recovery and Resilience Plan represents the first and most important element of the growth so necessary to speak of a continuation of fiscal consolidation, based on fiscal-budgetary policies, in order to restore the confidence of investors and the population in the actions of the Romanian government.

It must also be considered in order to reduce public deficits, identify the factors with a pronounced impact on economic indicators, the most relevant ones, increase productivity through technology and re-technology, and implicitly stabilize the economy, which has been and is subjected in recent years to increasing pressure due to the COVID 19 pandemic but also the mentioned conflict. All this combined effort must aim to reduce dependence, as much as possible, on external factors, on loans, sometimes expensive, simultaneously with fiscal consolidation measures, through reforms and policies well anchored in reality, which will support and truly support Romania's economy whose immediate goal is to create an environment conducive to the development of infrastructure, attracting investors, absorbing non-reimbursable funds and implicitly reducing the public debt.

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## Quantifying Economic Performance: Forecasting in the Romanian Clothing Industry

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### Abstract

*This econometric modeling emphasizes quantifying various economic phenomena, particularly that which is diverse and unpredictable, as it provides important support to managers. Our approach aims to achieve an econometric multiple regression model to analyze economic performance through a case study conducted on a sample of 107 entities in the clothing industry in Romania. We considered Net Profit as a dependent variable and Fixed Assets, Current Assets, Equity, and Number of Employees as independent variables. The 4 hypotheses proposed were measured, tested, and validated using EViews software with multiple linear regression. The results of the model have been validated as econometric, so we believe that they provide useful predictions regarding analysis of the economic performance in the clothing industry in Romania.*

**Key word:** economic performance, multiple linear regression, sample, forecasting, clothing industry

**J.E.L. classification:** L25, C51

### 1. Introduction

The clothing industry in Romania (Liviu Tudor, 2018; Vasile Burja, Teodora Maria Avram, 2018), as a branch of tradition and of major interest to the national economy, was transitioned by the global economic crisis starting at the end of 2007. The industry is also affected by a shortage of skilled workers in this sector. This crisis affects the economic progress of Romania due to the negative consequences they inject into the industry. This would need improvement in order to respond to the requirements proposed by customers and brings challenges in attracting new customers. A recovery mechanism that involves the identification of an action plan may also unfortunately diminish the cash flow of the companies.

The statistical data used in the econometric study of the variables comes from the database of the website [www.topfirme.com](http://www.topfirme.com), which makes company tops based on the annual financial indicators declared by the users. We mention that the users are legal persons, companies in the clothing industry that are active in Romania and who are fully responsible for the accuracy of the data. This site is considered one of the best developed financial data providers on active companies in Romania and presents part of the financial statements publicly for informational purposes to consumers of information. The statistical data provider presents in the code CAEN 1413 - Manufacture of other articles of clothing (excluding underwear), "a percentage that represents 0.19% of the total active companies in Romania, a turnover equal to 7.3 billion lei representing 0.59% of the turnover of Romania, 103,284 employees representing 2.55% of the total employees in Romania, and a net profit of 481.20 million lei representing 0.55% of the profit of Romania". (Top Firme Site)

Creating a representative sample is not an easy task, but it is necessary. The econometric model presented in the present situation is based on a representative sample with 107 companies in the clothing industry in Romania, whose data were taken from the data provider [www.topfirme.com](http://www.topfirme.com). The selection criteria for the companies used was the turnover of more than 4 million lei (897,815 Euros), according to the 2021 - Balance Sheet and CAEN 1413. Because the study is a complex one, the financial data of the 107 companies was extracted over a period of 7 years from 2015 to

2021. In addition, it is necessary to mention that although in the category CAEN 1413 with a turnover of more than 4 million lei and 294 companies included, it was necessary to eliminate the following companies:

- companies that have missing data during 2015-2021;
- companies that recorded losses during the analyzed period;
- companies with indicators (variables) without values or values equal to 0 which lead to null or insignificant results;
- companies whose values differ greatly from the values of the other companies in the sample.

## 2. Literature review

Studying economic-financial research concerns using econometric modelling is increasingly common. However, econometric modelling in the Romanian clothing industry does not appear in the specialized literature we have researched. Therefore, we believe that the development of a multilinear regression model for the analysis of financial performance in a representative sample of the clothing industry in Romania can bring more knowledge to stakeholders.

In a restricted way, econometrics can be defined in the following forms (Andrei et al., 2008):

- Represents the result of a certain action, given the theoretical conditions, which consists in applying mathematical statistics to the economic data leading to the construction of a mathematical model;
- Represents the quantitative analysis of explicit economic phenomenon, which is carried out while taking into account certain working hypotheses and using the methods of statistical inference;
- It is an economic-social science in which the elements of economic theory, mathematics, and statistical inference are used in the analysis of an economic phenomenon;
- It is an instrument available to the economist that allows him to confirm or disprove the theories he builds.

Because we asked ourselves the question: "Why is it necessary to study accounting phenomena through econometric models?" we found the answer in the book entitled "Modele econometrice" (Tănăsioiu and Iacob, 2017). It said that, "economic theory studies economic phenomena and processes starting from the idea that they do not happen at random, but are based on laws, are relatively stable and relatively repeatable, and are specific to the nature of these phenomena. Phenomena of an economic nature are generally quantifiable, economic laws that can be described in the form of quantitative links (of numerical determinations) between these phenomena, which makes it possible to use statistics and mathematics from economic theory."

The construction of the econometric model by studying the specific economic phenomena in this case refers to behaviours that best describe the nature and functioning of the economic system. The objective pursued within the econometric model is to enable companies to intervene efficiently as Bourbonnais (2015) states. At the same time, we believe that the model must also include the residual component seen as a representation of the differences that appear between the values determined in theoretical terms and the values measured in the real economy.

The company's performance has been analyzed in numerous literature studies using statistical tools, financial modelling or neural network techniques, quantitative variables, and qualitative variables. Through the research undertaken, we discovered studies (Maiga, 2014) about the relationship between the adoption of activity-based costs - performance and investigation of the association between the adoption of activity-based costs and the four performance measures of the production process: improvement cycle time, quality, cost, and profitability.

We made a model using a representative sample of the Romanian apparel industry through econometric analysis by using the variables in a financial performance study at the sample level. With validation of the proposed econometric model, we can improve the quality of the accounting information.

We agree with Yan and Su (2009), researchers at American universities, who believe that, "regression can be used to examine the set of independent variables, which can adequately explain the result. In other cases, multilinear regression is used to examine the effect of the result while accounting more for the factor that may influence the results."

Heteroscedasticity (Hayes and Cai, 2007; Salisu et al., 2019) is a specific feature of cross-sectional data, but can also be associated with time series data. This can take many forms and results from a variety of different processes. In the literature, we have found that there are several methods for detecting heteroscedasticity: the Breusch Pagan LM test, White's test, Glesjer LM test, Harvey Godfrey LM test, Park LM test, and Goldfeld-Quand test (Dufour et al., 2004). However, the EViews manual does not have built-in heteroscedasticity tests for panel data, which is why we limit the testing of heteroscedasticity for our model to only the cross-section heteroscedasticity LR Test.

We mention that the presented model estimates the regression equation using least squares LS or AR, with specific estimation settings for cross-section weights and the variance-covariance matrix of estimators - cross-section SUR (PCSE) in order to significantly improve the econometric model:

- The method of least squares (Van De Geer, 2005);
- The method chosen for GLS weights was cross-section weights (Jula, 2003);
- The covariance of the coefficients is calculated using the cross-section SUR (PCSE) method.

Based on the methods outlined, we performed an analysis of the various classical models of linear regression. We also analyzed the quality of the linear regression by t-statistic from Wald Test, and finally we presented the forecast of the dependent variable. As Gujarati and Porter (2009) show in the book "Basic econometrics" the applied tests can be explained as follows:

- The coefficient of determination  $R^2$  measures the proportion of variation of the dependent variable represented by the variable or explanatory variables;
- The R-squared adjusted coefficient indicates how homogeneous the variable values are;
- F-statistic is the value that is obtained when performing the regression analysis to find out if the means between two groups of variables are significantly different, though they have a similar t-statistic;
- Prob (F-stat) is the marginal significance level of test F;
- For T-statistic, I observed from the specialized studies and the EViews manual that they verify the hypothesis that a certain coefficient is equal to 0.

### 3. Research methodology

To analyze the financial performance of Romanian companies in the clothing industry, econometric modelling through multiple linear regression was performed with the EViews program. We specify that in order to benefit from the most advanced functions of the program, we used EViews Illustrated Version 10+ from 2015 (EViews site), with which we managed to create the necessary worksheets, apply various tests, and forecast the data entered. We think that at present, the software EViews (Econometric Views) is one of the most widely used programs in econometric analysis. It has great utility in economic-financial research due to the simple to use menu, the integrated programming language, and the correctness of statistical results.

The econometric model presented measures the profitability and performance of Romanian companies in the analyzed industry, based on variables extracted from the annual financial statements of the companies concerned. As the current research focuses on performance analysis, we consider that the most representative indicator that exposes the efficiency and performance of a company is the net positive result of the financial year. Therefore, we considered net profit (Mazumder, 2015; Shelenko, Balaniuk, Sas, Malik, Matkovskiy, Levandivskiy, Humeniuk, 2021; Leny, Sausan, 2020) as the dependent variable and four other indicators in the annual financial statements as independent variables: fixed assets, current assets, equity and number of employees.

We find that the proposed independent variables are indicators on the annual financial statements, and thus manage to provide a detailed picture of the existing and analyzed situation. We chose these variables because we consider that they are elements that directly influence the net

profit of the financial year. At the same time we consider that they are conclusive in the analysis of financial performance. Fixed assets and current assets are considered to be the most important predictors for the independent variables because they present the situation of economic resources during a financial year. Therefore, the annual financial statements of the selected companies help the proposed demonstrations.

The proposed econometric multiple linear regression model is as follows (Rencher and Schaalje, 2008; Albulescu, 2010; Mihaiu, Opreana, Cristescu, 2010; Peter Schmidt, 2020):

$$Y = \beta_0 + \beta_1 \times X_1 + \beta_2 \times X_2 + \beta_3 \times X_3 + \beta_4 \times X_4 + \varepsilon \quad (1)$$

Where: Y - Dependent variable;  $\beta_0$  - Regression constant;  $\beta_1 \rightarrow \beta_4$  - Regression coefficients for the independent variables;  $X_1 \rightarrow X_4$  - Independent variable;  $\varepsilon$  - Variable, interpreted as an error (disturbance)

Linear regression model testing was performed with EViews software using the stepwise regression procedure. The use of the method started with zero predictors, after which the strongest predictor of the model was added, then the second predictor was added, and the process continued until the last independent variable was tested.

Benoit (2011); Amand F. Schmidt, Chris Finan (2018); Douglas Curran-Everett (2018); Pardoe Iain (2020) shows in the study of the linear regression model with logarithmic transformations that, "logarithmic variables by transforming a regression model are a very common way of dealing with situations where there are nonlinear relationships between dependent variables and the independent ones". In this case, we want to have an econometric model as representative, so we proceed to improve the model according to the formula below:

$$\text{Log}(Y) = \beta_0 + \beta_1 \times \text{Log}(X_1) + \beta_2 \times \text{Log}(X_2) + \beta_3 \times \text{Log}(X_3) + \beta_4 \times \text{Log}(X_4) + \varepsilon \quad (2)$$

Thus, we find that we are dealing with a transformation into a log-log or double log multilinear regression model (Benoit, 2011). Although the presented model essentially comprises various econometric hypotheses, based on the literature studies (Romano et al., 2010; Hoover, 2013) we propose to further their own research hypotheses and analyze economic performance:

- H<sub>1</sub>: The increase of assets used by the sample companies over a long period, which have positive influences in the sense of increasing the net profit;
- H<sub>2</sub>: The increase of current assets for the sample companies leads to the decrease of net profit;
- H<sub>3</sub>: Sample companies that succeed in increasing their equity, succeed in increasing their net profit;
- H<sub>4</sub>: The increase in the number of employees within the sample companies can lead to an increase in the profitability registered.

#### 4. Findings

The proposed econometric model is a complex one due to multiple linear regressions, which analyze the influence of net profit on fixed assets, current assets, equity, and number of employees. Assisted by these, we can present the descriptive statistics of the sample for the analysis of the financial performance specific to the Romanian Clothing Industry.

Table no. 1 Descriptive statistics of the sample

	Net profit	Fixed assets	Current assets	Equity	Number of employees
<b>Mediate</b>	1,905,146	5,789,908	9,627,364	9,902,305	260,7837
<b>Maximum</b>	23,221,534	41,868,041	1,35E+08	90,867,765	1,356
<b>Minimum</b>	380	8733	130168	4613	4
<b>Standard deviation</b>	3,358,936	7,640,358	14,614,685	13,914,019	260.9637
<b>Jarque-Bera</b>	5,118.154	935.6413	8,547.648	2,432.397	593.5317



<b>Probability</b>	0.0000	0.0000	0.0000	0.0000	0.0000
<b>The amount</b>	1,43E+09	4,34E+09	7.21E+09	7.42E+09	195.327
<b>The sum of the standard deviation</b>	8,44E+15	4,37E+16	1.60E+17	1.45E+17	50940333
<b>Number of observations data</b>	749	749	749	749	749

Source: authors' processing by EViews program

Using the descriptive statistics of the sample presented in table no. 1, we managed to get our first information. The average, the standard deviation, and the maximum and minimum values were extracted for each variable from the total of 749 observations. The table also shows that, according to the Jarque-Bera test, the data series does not have a normal distribution and the probability is zero. In addition to the above, the descriptive statistics provide detailed calculations that refer to the sum total for each variable and the sum of standard deviations. By observing the minimum and maximum values, we can specify that the data series are not homogeneous due to the very large differences between values.

For the analysis of the covariation by the correlation method, we establish the correlation of the sample variables:

Table no. 2 Correlation of sample variables

	<b>Net profit</b>	<b>Fixed assets</b>	<b>Current assets</b>	<b>Equity</b>	<b>Number of employees</b>
<b>Net profit</b>	1.000000				
<b>Fixed assets</b>	0.522377	1.000000			
<b>Current assets</b>	0.771312	0.657031	1.000000		
<b>Equity</b>	0.755767	0.826405	0.837604	1.000000	
<b>Number of employees</b>	0.672373	0.662707	0.614701	0.727636	1.000000

Source: authors' processing by EViews program

By visualizing table no. 2, we can say that the analysis of the correlations between the variables of the sample leads us to the idea that between all variables there is a direct and positive connection (correlation), because all of the values of the possible correlations are over 0.50.

In order to analyze the stability of the time series we use the "unit root" test, which takes into account the exogenous structural breaks in the deterministic components. The main feature of this test is the assumption that deterministic structural changes occur instantaneously, but only at certain times (Hepsag, 2017).

Table no. 3 Stability of sample time variables\*

	<b>Statistics</b>	<b>Probability</b>	<b>Number of companies observed</b>
<b>Net profit</b>	-25.8499	0.0000	107
<b>Fixed assets</b>	-11.5598	0.0000	107
<b>Current assets</b>	-11.0471	0.0000	107
<b>Equity</b>	-15.2053	0.0000	107
<b>Number of employees</b>	-27.7353	0.0000	107

\* Joint proposal by Levin, Lin & Chu method with individual effects - Gujarati and Porter (2009)

Source: authors' processing by EViews program

The Levin-Lin-Chu statistical table applied for the model variables has statistical values below 0 and a zero probability, which means that all the standard test levels of the model are significant. Therefore, we consider that the all-time series analyzed are stationary.

Table no. 4 Heteroscedasticity testing

Statistical test	Value	df	Probability
Panel cross-section Heteroscedasticity LR Test*	636.8545	107	0.0000
Restricted LogL	-1,339.005	744	
Unrestricted LogL	-1,020.627	744	

\* LR - Likelihood ratio

Source: authors' processing by EViews program

The heteroscedasticity test (Oscar L. Olvera Astivia, Bruno D. Zumbo, 2019) starts from the null hypothesis, where the residues are in homoscedasticity. Following the values obtained in the cross-section based on the panel cross-section Heteroscedasticity LR Test, we reject the null hypothesis and accept the alternative hypothesis.

The multiple linear regression model found in the form described in the previous paragraph can at this time substitute the constant and the coefficients, according to the EViews representation:

$$\begin{aligned} \text{Log(NETPROFIT)} = & 2,35842509351 - 0,3032922132278 \times \text{Log(FA)} + 0,256483913623 \times \\ & \text{Log(CA)} + 0,617622994569 \times \text{Log(Eq)} + 0,422960791987 \times \text{Log(N)} \end{aligned} \quad (3)$$

Where: FA - Fixed Assets; CA - Current Assets; Eq - Equity; N - Number of Employees

Taking into account the formula in which the coefficients are substituted, we can actually switch to applying various statistical tests to be able to verify whether our model is valid from all points of view. Following the introduction of statistical data in the EViews program, we present the results of the regression for the sample proposed in the Romanian clothing industry.

Table no. 5 Description of the econometric model

Variables	Coefficient	Standard error	t-Statistic	Probability	Total observed data
C	2.358425	0.376531	6.263556	0.0000	749
LOG(FA)	-0.303292	0.058942	-5.145645	0.0000	749
LOG(CA)	0.256484	0.039845	6.437056	0.0000	749
LOG(Eq)	0.617623	0.062385	9.900176	0.0000	749
LOG(N)	0.422961	0.050731	8.337345	0.0000	749

Note: C - constant

Source: authors' processing by EViews program

Analyzing the statistical data for the sample of the 749 observations, we can say that the percentage increase of the independent variables leads to the following situations, based on the confidence intervals resulted and presented in table no. 5:

- The rise in percentage of fixed assets reduces the net profit by 30.23%. By this, we say that H1's own research hypothesis is not accepted;
- The rise in percentage of current assets increases the net profit by 25.65%, so that the proposed research hypothesis, H<sub>2</sub> cannot be accepted;
- The rise in percentage of capital increases the net profit by 61.76%, and in this way the H<sub>3</sub> research hypothesis can be accepted;
- The rise in percentage of the average number of employees increases net profit by 42.29%, and thus we can accept the research hypothesis H<sub>4</sub>.

As it can be used regardless of sample size, we considered it appropriate to apply the t-statistic where we found that during the seven years analyzed only one decrease of one of the financial indicators from the coefficient in the sample was recorded. Because of this, we believe that the sample score is significant for current assets, equity, and the average number of employees, and less significant for fixed assets versus the net profit. It is preferable that the t-statistic likelihood is below 5%, and in our present case equals 0 (table no. 5). Due to this small recorded value, we show

that the observations are incompatible with the null hypothesis. As a result of the observations shown by the t-statistical calculation, we believe that the null hypothesis should be rejected in favour of an alternative one.

*Table no. 6 The results of the econometric model*

Weighted statistics	
R <sup>2</sup>	0.674051
R <sup>2</sup> adjusted	0.672299
S.E. of regression	1.397585
F-statistic	384.6422
Prob (F-statistic)	0.000000
Mean dependent var	21.14644
S.D. dependent var	13.72285
Sum squared resid	1,453.213
Durbin-Watson stat	0.771504

*Source:* authors' processing by EViews program

The results of the proposed improved econometric model are presented in table no. 6. By applying the method of the smallest squares ( $R^2$ ) (Brătu et al., 2017; Buturac, 2021), we found that the model has a small value of 36.12%. Therefore, we proceeded to improve the model by applying cross-section weights and cross-section SUR (PCSE), and  $R^2$  became 67.41%. The improvement was significant, which implies that the improved regression model is in line with the proposed observations. Finally, we can say that in 67.41% of the sample companies in the Romanian clothing industry the variability of the data is explained by the average value. By comparing the coefficient of determination with the corrected one, we observe that the latter decreased by 0.18%, so we can interpret the corrected  $R^2$  value as optimal because it falls within the normal values that are generally found in such a model, i.e. between 0% and 100%.

F-statistic presents a very high value in the current econometric model, which suggests that from an objective perspective all variables are statistically important and the probability is equal to 0. We consider that the F-statistic for the 749 observations presents significant results and all explanatory variables have a significant impact on net profit.

Another statistic for the econometric model applied to the sample from the Romanian clothing industry is the Durbin-Watson statistic. Based on the value obtained, 0.77, we can say that no conclusive decision can be made on the presence of autocorrelation.

In trying to apply the tests to our sample, we consider that certain validation hypotheses are observed. These hypotheses refer to:

- the absence of multicollinearity =  $1/(1-R^2)$  is 3.0679 is lower than 4, therefore the result is satisfactory, therefore we can consider the proposed net profit forecasting model;
- the parameters of the regression model associated to explanatory variables are statistically significant;
- the model errors should be normal and the same for all observed data;
- no correlation between model errors.

The improvement of the model is a beneficial one, and through this summary of the econometric model we have presented all the diagnostic tests that can be applied to the statistical data with financial variables. We believe that the main reason preventing us from achieving better results is due to the sample in which companies with different dimensions of turnover are included. There were major differences in the size of turnover of the sample companies, which can be divided into two broad categories depending on the form of organization: joint stock companies and limited liability companies. As a result, the statistical cloud is not sufficiently homogeneous, but a massive elimination would have led to insignificant statistical results. In order to verify the model's veracity we present the Wald test, followed by a final forecast of the dependent variable.

Table no. 7 Wald Test

Statistical test	Value	df	Probability
t-statistic	8.954242	744	0.0000
F-statistic	80.17846	(1,744)	0.0000
Chi-square	80.17846	1	0.0000
<b>Null hypothesis: <math>C(1) + C(2) + C(3) + C(4) + C(5) = 0</math></b>			
Summary of the null hypothesis:			
<b>Normalized restriction (= 0)</b>	<b>Value</b>	<b>Standard error</b>	
$C(1) + C(2) + C(3) + C(4) + C(5)$	3.352201	0.374370	

Source: authors' processing by EViews program

The Wald test is used to evaluate the common significance of a set of coefficients for observation, if they are equal to 0. This statistical test can be detailed by individually testing each parameter in order to determine their individual significance. In the present case the null hypothesis took the form  $C(1) + C(2) + C(3) + C(4) + C(5) = 0$ , and as can be seen from the F-statistic and Chi visualization -square, the tests have the same values but far exceed the limit of acceptance of the null hypothesis in the case of the F test. Therefore, we have to accept the alternative hypothesis. The reported probability represents the marginal significance level of the F test. The included Wald Test is the t-statistic based on the values presented in table no. 5, and thus we can say that the alternative hypothesis in favour of the null one must be accepted in this case as the t-statistic is not equal to 0.

We can say that the final restriction for the Wald Test is not fulfilled, which leads us to reject the null hypothesis. This suggests that the variables in question can be removed without greatly affecting the model. The tested case involves a single restriction but there is a tendency over time, because the econometric model that is the subject of the case study presents statistical data from companies in the active clothing industry in Romania for the last 7 calendar years (2015-2021).

Table no. 8 Forecasting Log (NETPROFIT)

Root Mean Squared Error	1.463081
Mean Absolute Error	1.035250
Mean Abs. Percent Error	8.956801
Thell Inequality Coefficient	0.054559
Thell U2 Coefficient	1.075536
Symmetric MAPE	8.259707

Source: authors' processing by EViews program

We consider it useful for the model to include the forecast of the dependent variable. For this, the net profit for the logarithmic series was foreseen for the 107 companies of the econometric analysis. It can be observed that the standard deviation of the residuals is greater than 0.79 with respect to the correlation coefficient because not all points are on the regression line, therefore errors are identified. In addition, we find that the average of the absolute errors as a difference between the predicted and the real value presents a relatively high value from the point of view of the average forecast. The coefficient of inequality of the forecast is below 0.06, which means that the predictive accuracy of the model is good. From our observations, the forecasted net profit presents oscillating values from one company to another and a decreasing trend. This fact can be interpreted in a negative way because typically a lower net profit leads to a worsening economic situation for a company.

Following the findings with the net profit forecast in table no. 8, we believe that from the perspective of econometric analysis the clothing industry is undergoing many changes that have negative financial influences for companies. Even the oscillations that are observed in the forecast chart of the dependent variable of the model are not beneficial, because they only show a financial stagnation of the respective company.

## 5. Conclusions

In addition to the multitude of tests applied and based on the analysis of the expected net profit for each company, we can see that the described sample presents the following situation:

- 14.02% of the sample companies show an increase of the expected net profit in all 7 years of the analyzed period. In order to establish a forecast of the logarithmic net profit, it is preferable to carry out a detailed analysis of the 15 companies that led to this increase of net profit;
- 36.45% of the companies present an increase of net profit in more than 4 years of the analyzed period.

Based on the above, to determine if the econometric model of multiple linear regression can be validated we briefly present the following findings:

- We can say that the first hypothesis of validation of the model is respected, in the sense that between the independent variables (fixed assets, current assets, equity, average number of employees) there is no multicollinearity;
- From the statistical results of the model, we can say that the economic-financial indicators taken into consideration as independent variables are statistically significant and financially representative;
- From the perspective of errors - are presented as normal values for all 749 observations and representative data at the sector level, therefore we can consider the hypothesis as valid;
- Per the findings, we validate the last hypothesis proposed that there is no correlation between the errors of the statistical model.

In conclusion, the multiple regression model presents an analysis of the forecast (Forecast) with improved dependent variables. We specify that the model forecast is dynamic and anticipates the previous values of the described variable that are used to form a forecast of the subsequent values for the dependent variable of the logarithmic multiple linear regression model.

As a result of all the details made during the presentation, we consider that the econometric model is correct from all points of view and meets all the necessary measures for validation. The model shows that in 67.41% of the cases the net profit expresses the proposed multiple regression equation, therefore the model is valid.

We can say that the exposed model is efficient because it estimates the forecast of net profit. For a 1,000 lei increase in fixed assets, a net profit decrease of 300.29 lei is implicitly generated. In the same conditions, the increase of current assets leads to an increase of 256.48 lei of the net profit, the increase with 1,000 lei of capital leads to an increase with 617.62 lei, and the increase in the number of employees leads to an increase of net profit with 422.96 lei. As a result of the presentations and interpretations made, the assumptions of the performance quantification model have been validated. There are no predictor variables that lead to the reduction of net profit improved by logarithm and the use of estimates.

## 6. Acknowledgement

This article is a reinterpreted part of the author's Ph.D. thesis "'Relevanța informațiilor contabile pentru analiza performanței economice din industria confecțiilor'", and is made with financial support from the funds for scientific research of the "1st of December 1918" University of Alba Iulia.

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## Requirements for Audit Firms Regarding the Prevention and Combating of Money Laundering

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### Abstract

*Money laundering is a global problem, respectively, and the effort to combat it in order to ensure the integrity of financial systems is global. At the international level, there are anti-money laundering policies, encompassing a number of common regulations and requirements, some of which, however, vary by country and jurisdiction. The study is based on research focused on regulation in the field, emphasizing the role of audit entities. The investigation was supported by the legislative acts of the Republic of Moldova, as well as the international ones. The research methodology includes academic research methods, such as qualitative, dialectical and the methods inherent in economic disciplines. The qualitative method allowed the analysis of the research theme present in the published works, which can be found in the Web of Science, Scopus and EBSCO databases. The study constitutes a significant contribution to the specialized literature regarding the requirements for audit entities in combating money laundering.*

**Key words:** audit firms, preventing money laundering, combating of money laundering, Republic of Moldova.

**J.E.L. classification:** M42

### 1. Introduction

Money laundering is an international problem, considered a serious crime, and the effort to combat it is a global one, as illicit cash flows can impact the integrity, stability, and international development of the financial sector. This phenomenon is characterized by the fact that money derived from illegal activities can be deposited into bank accounts. Subsequently, through multiple complex financial transactions, it is reintegrated into the legal economy for the purpose of acquiring properties or investing in legitimate businesses. Therefore, this necessitates the existence of a mechanism for the prevention and monitoring of suspicious transactions. Thus, through international cooperation, governments and financial institutions collaborate in implementing measures to prevent and combat money laundering, through the monitoring of financial transactions and the imposition of sanctions.

In this context, there are international regulations and organizations that facilitate cooperation in combating money laundering. International efforts aim to improve collaboration between countries and institutions to prevent, detect, and combat money laundering globally. Some of them will be described below.

An intergovernmental body that establishes standards, develops, and promotes anti-money laundering policies is the Financial Action Task Force (FATF). „The FATF Standards comprise the Recommendations themselves and their Interpretive Notes, together with the applicable definitions in the Glossary. The FATF Recommendations, therefore, set an international standard, which



countries should implement through measures adapted to their particular circumstances (The FATF Recommendations. Last change - February 2023). The 39-member body sets international standards to ensure national authorities can effectively go after illicit funds linked to drugs trafficking, the illicit arms trade, cyber fraud and other serious crimes. FATF suspended membership of the Russian Federation on 24 February 2023. In total, more than 200 countries and jurisdictions have committed to implement the FATF's Standards as part of a coordinated global response to preventing organized crime, corruption and terrorism" (Financial Action Task Force, the official website).

Regarding regulations in the investigated field, there is a tax law adopted by the United States government in 2010 - Foreign Account Tax Compliance Act (FATCA) (An official website of the United States Government), which aims to combat tax evasion and promote tax transparency at the international level. FATCA requires foreign banks to report financial information of US citizens to the US tax authorities, thus representing an exchange of relevant financial information in the fight against money laundering. The purpose of FATCA is to identify US citizens who hold financial accounts outside the United States and ensure their tax compliance.

The United Nations Convention against Transnational Organized Crime, also known as the Palermo Convention, is an international treaty adopted in 2000 by the United Nations (UN) to combat and prevent transnational organized crime, including money laundering (United Nations Convention against Transnational Organized Crime and the Protocols Thereto). The Palermo Convention has been signed and ratified by a large number of UN member states, through which the international community aims to strengthen efforts to combat transnational crimes, including money laundering. The Convention encourages international cooperation among member states in combating transnational organized crime. This includes the exchange of information, mutual legal assistance, extradition, and the confiscation of assets derived from criminal activities.

In this context, it should be noted that there are a series of international requirements and regulations for combating money laundering, which have common aspects and varying requirements depending on the country and jurisdiction. Investigating the regulations in the field has allowed us to identify the main requirements and measures for combating money laundering: *customer identification and verification, monitoring and reporting of suspicious transactions, and the implementation of adequate measures for assessing the risk of money laundering* (Directive (EU) 2015/849). These measures are implemented to prevent and combat money laundering and ensure the integrity of financial systems and the global economy.

In the Republic of Moldova, a Financial Intelligence Unit (Office for Prevention and Fight Against Money Laundering in the Republic of Moldova) has been established to collect, analyze, and disseminate financial information to law enforcement agencies. Thus, the institution responsible for the prevention and combating of money laundering is the Office for Prevention and Fight Against Money Laundering. It is an independent authority responsible for implementing and monitoring measures to prevent and combat money laundering in accordance with national and international legislation. The Office's role is to develop and promote relevant policies and legislation in the field of preventing and combating money laundering, as well as to develop and update the legal framework, rules, and guidelines for financial institutions and other obligated entities.

The study is based on research focusing on the regulation and combating of money laundering activities in the Republic of Moldova, taking into account the provisions of current national legislation as well as international ones. The aim of this research is to highlight the role of audit entities in preventing and combating money laundering, as well as to identify the requirements for these entities in preventing and combating money laundering. Through a rigorous and analytical approach, we will explore various aspects of preventing and combating money laundering from the perspective of regulations.

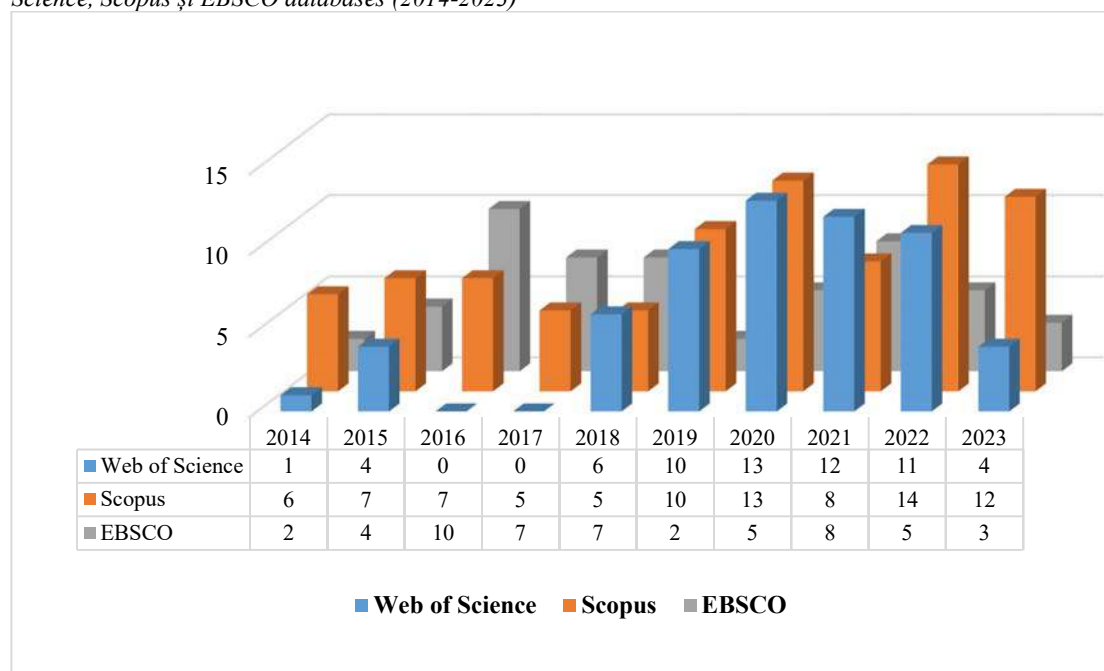
Through this study, we aim to make a significant contribution to the existing literature regarding the role of audit entities in combating money laundering and provide interested individuals with a deeper understanding of preventive and countermeasures against money laundering. Ultimately, the findings and conclusions obtained can be used to enhance practices in the field and guide future research directions.

## 2. Literature review

To identify scientific research on the international level regarding the prevention and combat of money laundering, an exhaustive search was conducted in three databases, namely Web of Science, Scopus, and EBSCO, covering the past 10 years from 2014 to 2023. The following keyword was used: "combating of money laundering". As a result, 61 scientific research papers were identified in the Web of Science database, 87 in the Scopus database, and 53 papers in the EBSCO database. The studies were filtered based on the year of publication, excluding papers published prior to 2014.

Figure 1 provides a graphical perspective on the annual scientific production in the field of combating money laundering. This figure presents important information about the number of publications per year and the general trends in the field. The graph allows us to observe fluctuations and the evolution of the number of publications over the years. It can be observed that in the Web of Science and Scopus databases, the number of publications started to increase from 2019 onwards, reaching its peak in 2022 (Scopus) with 14 research papers and in 2020 (Web of Science) with 13 research papers. Regarding EBSCO, it should be noted that the evolution of publications is uneven, with the highest number of papers published in 2016 (10 research papers). Thus, it can be inferred that the issue of combating money laundering is a topic that is increasingly being actively discussed by researchers, although the annual scientific productivity is not as high as necessary for such an important topic.

Figure no. 1. The annual productivity of publications on combating money laundering from the Web of Science, Scopus și EBSCO databases (2014-2023)



Source: Prepared by the authors based on Web of Science, Scopus and EBSCO databases

Table 1 presents a breakdown of research publications by country/territory. After identifying sources in the field of combating money laundering, a table was compiled to highlight the scientific productivity of the top five countries from 2014 to 2023.

*Table no. 1 Scientific productivity in the field of combating money laundering in the ranking of the top five countries on Web of Science, Scopus, and EBSCO databases (2014-2023)*

Web of Science		Scopus		EBSCO	
Country	Publications	Country	Publications	Country	Publications
Ukraine	14	Malaysia	11	Angola	1
Malaysia	10	Russian Federation	10	Bermuda Islands	1
Russian Federation	4	Ukraine	10	Philippines	1
Romania	3	United Kingdom	8	South Africa	1
Canada	2	South Africa	4	United Arab Emirates	1

*Source:* Prepared by the authors based on Web of Science, Scopus and EBSCO databases

According to the obtained data, Ukraine has achieved a significant number of papers (14), solidifying its position in the global scientific community in the field of combating money laundering in the Web of Science ranking. Malaysia (11 papers) dominates the Scopus ranking, reflecting the significant contribution of its researchers to the global scientific literature. Other notable countries in the Web of Science and Scopus rankings include the Russian Federation, Romania, Canada, the United Kingdom, and South Africa. Researchers from these countries have significantly influenced the progress in the field under investigation.

Regarding the EBSCO ranking, it is important to note certain limitations as this database does not provide exhaustive analyses like Web of Science and Scopus. It can be observed that the top five countries in the period 2014-2023 mentioned in the table contribute with only one paper each.

Several research perspectives have emerged from the studies on combating money laundering. Alshaer et al. (2021) highlighted the role of the Palestinian Monetary Authority in combating money laundering. Chitimira et al. (2023) addressed customer due diligence measures to regulate and reduce the occurrence of money laundering activities. Some studies aim to analyze the role of the United Nations in combating money laundering to prevent global terrorist acts (Alweqyan, 2022). Meanwhile, some researchers have focused on the effective use of financial intelligence in transactions involving virtual assets as a means to combat money laundering (Utkina et al., 2023). On the other hand, others have explored one of the relatively new and increasingly popular methods of money laundering - the use of virtual assets in the commission of illicit acts (Dumchikov et al., 2023).

In the context of the research topic, Grosu et al. (2020) addressed the practices and procedures of financial auditing in preventing and combating money laundering and terrorist financing in Romania, while Grumeza et al. (2019) discussed the specificities of auditing money laundering operations in the Republic of Moldova.

### 3. Research methodology

To achieve the research objective, an exhaustive examination was conducted using analytical and comparative approaches to the provisions of legislation in the field under study. The direct support for the investigations on the subject matter consisted of legislative and regulatory acts of the Republic of Moldova, as well as international ones related to the prevention and combating of money laundering. The analytical method and webographic analysis were used to assess the scientific performance in the research field. The qualitative method involved analyzing the research topic present in the published papers found in the Web of Science, Scopus, and EBSCO databases. The summarization of the main aspects resulting from the analysis of legislation and specialized literature was accomplished through the synthesis method, while the emphasis on the main results and conclusions of the conducted research was achieved through the method of logical induction and deduction.

#### 4. Findings

The methods used to launder the proceeds of criminal activities and to finance illicit activities are in constant evolution. As the international financial sector implements the FATF standards, criminals must find alternative ways to launder their dirty money. The FATF carries out research into evolving methods and trends to assist countries in identifying, assessing and understanding their money laundering and terrorist financing risks. Once these risks are properly understood, countries will be able to implement more effective measures to mitigate the risks.

Therefore, money laundering is the process by which criminals attempt to conceal the true origin and ownership of income derived from their illicit activities, representing the financial aspect of virtually all profit-generating crimes. It remains a significant problem that should be addressed at the international level, as measures taken solely at the national level, without considering coordination and international cooperation, would have a very limited effect. Targeted and proportionate prevention of the use of the financial system for money laundering purposes is indispensable and can yield complementary results.

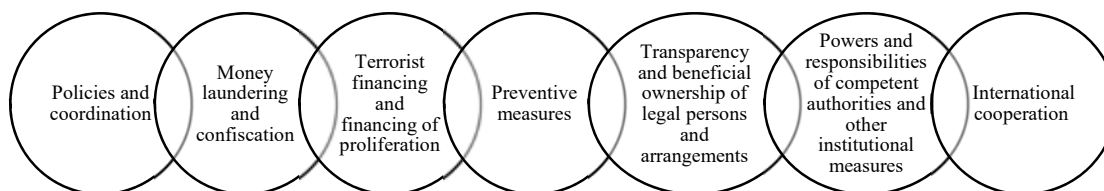
Indeed, money laundering is a dynamic process that consists of three stages. Firstly, it involves the movement of funds derived from criminal activities. Secondly, it entails the concealment of the money's origins to avoid any investigation. Lastly, it encompasses the reintroduction of the funds into the legitimate economy while obscuring their occupational and geographic origins. There is no single method of money laundering. The methods can range from purchasing and selling luxury items to routing the money through a complex international network of legal businesses and shell companies that exist solely as legal entities without engaging in any actual commercial activities.

According to EU Directive No. 2015/849, "money laundering" encompasses the following intentional acts (Directive (EU) 2015/849):

- a) „the conversion or transfer of property, knowing that such property is derived from criminal activity or from an act of participation in such activity, for the purpose of concealing or disguising the illicit origin of the property or of assisting any person who is involved in the commission of such an activity to evade the legal consequences of that person's action;
- b) the concealment or disguise of the true nature, source, location, disposition, movement, rights with respect to, or ownership of, property, knowing that such property is derived from criminal activity or from an act of participation in such an activity;
- c) the acquisition, possession or use of property, knowing, at the time of receipt, that such property was derived from criminal activity or from an act of participation in such an activity;
- d) participation in, association to commit, attempts to commit and aiding, abetting, facilitating and counselling the commission of any of the actions referred to in points (a), (b) and (c)”.

The fight against money laundering has a dual motivation. On one hand, it aims to combat organized crime and its global expansion. On the other hand, it seeks to preserve the integrity of financial markets and the market economy.

The FATF Recommendations provide a comprehensive framework of measures to help countries tackle illicit financial flows. These include a robust framework of laws, regulations and operational measures to ensure national authorities can take effective action to detect and disrupt financial flows that fuel crime, and punish those responsible for illegal activity. The 40 Recommendations are divided into seven distinct areas ([www.fatf-gafi.org](http://www.fatf-gafi.org)):



Source: <https://www.fatf-gafi.org/en/topics/fatf-recommendations.html>

To help countries implement its Standards, the FATF also creates guidance and best practice papers on range of issues. The FATF regularly revises them to reflect the experience gained by public authorities and private sector over the years so that countries can benefit from this experience and effectively implement the FATF Recommendations in their own national context ([www.fatf-gafi.org](http://www.fatf-gafi.org)).

In order to transpose the provisions of Directive (EU) 2015/849 and taking into account FATF Recommendations, in 2017 the Republic of Moldova adopted Law no. 308/2017 regarding the prevention and combating of money laundering, and in 2020, Law no. 75/2020 regarding the procedure for ascertaining violations in the field of money laundering prevention.

The Republic of Moldova promoted a unitary Governmental policy to prevent and combat money laundering and terrorist financing, expressed through cooperative efforts of all authorities in various policies and strategies. The last policy document is the National Strategy for prevention and combating of money laundering and terrorist financing for the years 2020-2025 and the Action Plan adopted by Decision no. 239 of 16.12.2020. According to the mentioned Strategy, the Office for Prevention and Combating of Money Laundering is the central authority responsible for presenting the national developments in the field (<http://spcsb.cna.md>).

Law No. 308/2017 establishes measures for the prevention and combating of money laundering, aimed at ensuring the security of the state and protecting the national financial-banking system, non-banking financial sector, and professionals, as well as defending the rights and legitimate interests of individuals, legal entities, and the state. This law applies to several reporting entities (Article 4), including auditors, legal entities, and individual entrepreneurs engaged primarily in accounting and tax consulting services as their economic or professional activity. The supervisory authority for reporting entities in the audit field is the Public Audit Oversight Council in the Republic of Moldova.

Next, we will address the main requirements and measures for combating money laundering, such as *customer identification and verification, monitoring and reporting of suspicious transactions, and implementing appropriate measures to assess the risk of money laundering*.

Thus, reporting entities apply standard precautionary measures regarding customers: "upon the initiation of business relationships, when conducting all types of occasional transactions exceeding 20,000 MDL, in the case of gambling organizers, at the time of collecting winnings, at the time of placing a bet or in both cases when conducting transactions of at least 40,000 MDL, regardless of whether the transaction is carried out in a single operation or through multiple related operations, when there is a suspicion of money laundering or terrorist financing, irrespective of any derogations, exemptions, or limits established, when there are suspicions regarding the veracity, sufficiency, and accuracy of previously obtained identification data, in the case of persons trading goods, when conducting occasional cash transactions of at least 200,000 MDL, regardless of whether the transaction is carried out in a single operation or through multiple related operations" (Article 5 of Law 308/2017).

Reporting entities apply standard customer precautionary measures to both new and existing customers, adopting appropriate risk-based measures. The procedures and requirements related to the application of standard precautionary measures, including customer identification and beneficial owner identification, are developed by reporting entities based on the recommendations and instructions of supervisory authorities. From the mentioned provisions, it can be inferred that audit entities must clearly identify and obtain adequate information about the identity of their clients.

In the implementation of standard customer precautionary measures, reporting entities are required to establish and verify the legality of authorizations and the identity of client representatives (Article 5, paragraph 7 of Law 308/2017). If, during the application of customer precautionary measures, audit entities find any inconsistency between the information available in the State Register of Legal Entities regarding the beneficial owner and the information provided by the client regarding the beneficial owner, they shall inform the State Tax Service and the Public Services Agency within 5 working days. They are obliged not to carry out any activities or transactions, including through a payment account, not to establish any business relationship or to terminate an existing business relationship, and to immediately request the client to update the data regarding the beneficial owner with the state registration authority (Article 52, paragraph 3 of Law 308/2017).

Furthermore, in order to understand the nature and purpose of their clients' activities, as well as to determine the source of funds, audit entities will gather information about the business, occupation, and purposes of financial transactions, thereby assessing whether they are consistent with the available information. Monitoring their clients' transactions involves identifying unusual transactions, such as large sums of money or repeated transactions, and reporting them to the competent authorities in accordance with applicable regulations.

According to national legislation, audit entities are required to immediately inform the Service about suspicious assets, activities, or money laundering transactions that are being prepared, attempted, carried out, or have already been completed. Information regarding suspicious activities, transactions, and assets is provided in specific forms, which are submitted to the Service within 24 hours of identifying the act or circumstances that give rise to suspicions (Article 11, Law 308/2017).

In the context of preventing and combating money laundering, audit entities are required to assess the risk associated with their clients. This involves evaluating factors such as transaction history, countries of origin, volume and nature of client transactions, and unusual business relationships. Considering that audit entities may perform audit engagements for the same entity over multiple consecutive periods, they must regularly update client information, especially when significant changes occur in their activities. Additionally, in our opinion, audit entities should provide regular training and instruction to auditors regarding money laundering risks, as well as the applicable internal procedures and policies. These measures are mandated through national and international regulations.

The monitoring and reporting of suspicious transactions by audit entities play a crucial role in preventing and combating money laundering. It enables the identification and detection of illegal activities, aids in uncovering money laundering schemes, and helps authorities intervene rapidly to prevent the spread of these criminal activities. We believe that monitoring suspicious transactions contributes to identifying cross-border links and strengthens collaboration in investigations and the confiscation of illegal assets.

Assessing the risk of money laundering is an essential process for audit entities to identify and manage the risk of audited entities being involved in money laundering activities. In the risk assessment process, audit entities must identify risk factors that could expose audited entities to money laundering activities. In evaluating the risk, audit entities need to analyze and assess the risk associated with the audited entities' suppliers and business partners. Based on the risk assessment, audit entities must implement appropriate measures to manage the risk of money laundering. These measures may include customer identification and verification, transaction monitoring, employee training in compliance, and the establishment of an internal reporting and suspicious activity detection system for audited entities. In general, it is important to note that money laundering risk assessment is a dynamic process that needs to be reviewed and updated regularly to reflect changes.

Generalizing, we note that the importance of preventing and combating money laundering can contribute to reducing and eradicating these illegal activities, thus protecting society and the economy from the negative impact of organized crime. This aspect can be ensured through the implementation of measures to prevent and combat money laundering, which would ensure and maintain a healthy financial environment, promote legitimate investments, and mitigate certain risks. Consequently, preventing and combating money laundering can enhance investor confidence, attract foreign capital, and foster sustainable economic development.

## 5. Conclusions

The presented paper includes the results of research conducted on the prevention and combat of money laundering, including the requirements for audit reporting entities, based on which the following conclusions were drawn:

1. Money laundering is an international problem because funds derived from illegal activities can distort the global market and fair competition among legitimate economic actors. This negatively affects the business environment, undermines public trust in the financial system, and can compromise the development of a fair and sustainable economy.

2. The mentioned problem necessitates the existence of a mechanism for preventing and monitoring suspicious transactions. Thus, through international cooperation, governments and financial institutions collaborate by implementing measures to prevent and combat money laundering, monitoring financial transactions, and applying sanctions.

3. Graphical analysis of the annual scientific production in the field of combating money laundering and general trends in the field have allowed us to observe that the issue of combating money laundering is increasingly discussed by researchers. However, the annual scientific productivity is not as high as required for such an important topic.

4. Internationally, there are regulations and organizations that facilitate cooperation in combating money laundering. International efforts aim to improve collaboration between countries and institutions to prevent, detect, and combat money laundering globally.

5. The main requirements and measures regarding the combat of money laundering include customer identification and verification, monitoring and reporting of suspicious transactions, and the implementation of appropriate measures to assess the risk of money laundering. Implementing these measures would ensure and maintain a healthy financial environment, promote legitimate investments, and prevent certain risks.

6. Money laundering prevention falls under the jurisdiction of reporting entities (Article 4 of Law 308/2017), which have the obligation to apply standard precautionary measures regarding customers (Article 5 of Law 308/2017), and customers are required to provide, upon request by the reporting entity, all necessary information, documents, and copies thereof for the implementation of standard precautionary measures.

7. Reporting entities, including audit entities, are obligated to take actions regarding the identification and assessment of money laundering risks in their respective areas of activity, taking into account the assessment of money laundering risks at the national level. The results of the risk assessment in their own field of activity are recorded in an evaluation report, approved by the designated person responsible for ensuring compliance with legal requirements for the prevention and combat of money laundering within the reporting entity, and it is updated annually by the reporting entity.

8. In order to develop a sustainable economy, measures for preventing and combating money laundering need to be implemented through the enforcement of regulations, monitoring of suspicious financial transactions, and international cooperation.

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## The Relationship Between the Environmental Tax Revenues and the Greenhouse Gas Emission in Romania

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### Abstract

*In order to meet the Paris Agreement target, mankind must reduce greenhouse gas emissions to unprecedented levels by 2030. Major global shifts towards a low-carbon economy and transformations of financial systems in each country are expected, changing new financial structures and processes, involving national governments, central and commercial banks, investors and financial actors. Romania has among the lowest environmental tax revenues as a percentage of GDP, according to Eurostat, and energy taxes are the most important category of environmental taxes, followed by transport taxes, pollution and resource exploitation taxes, etc. In this paper we aim to see the relationship between environmental tax revenues and greenhouse gas emissions in Romania, using correlation and regression analysis. The results of the study validate the main hypothesis, that is a strong inverse significant relationship between the two variables analysed and serve as a basis for further research on environmental taxes and charges in a given country (their amount and percentage of the country's GDP) and the evolution of greenhouse gas emissions (progress towards their reduction).*

**Key words:** greenhouse gas emissions, revenues, taxes, Romania

**J.E.L. classification:** H23, E01, F64, P28

### 1. Introduction

Climate change and the negative impact of greenhouse gas emissions have become extremely important global issues. In this context, environmental taxes have become an effective way of analysing and evolving these issues by promoting reduction and stimulating the adoption of more sustainable practices.

At EU level, environmental taxes are defined as taxes whose tax base is a physical unit or indicator of something that has a proven and specific negative impact on the environment. As far as environmental tax revenues are concerned, they come from 4 types of taxes, the same as in Romania, as an EU Member State, namely: energy taxes, transport taxes, pollution taxes and resource taxes (European Commission, 2023).

The report published by the European Environment Agency in February 2022 and amended in January 2023 on the role of environmental taxation analyses both the trends in taxes and their ability to increase state revenues through a comparison with previous years, and the potential increase in revenues from energy taxes in the hope of achieving the EU's goal of becoming climate neutral.

In the EU, environmental taxes account for 5.9% of total taxes, down from 6.6% almost 20 years ago (EEA, 2023). Romania has historically performed rather poorly in complying with EU environmental directives (Radulescu, M., et al., 2017), this is supported today by the fact that total environmental tax revenues represent 1.96% in 2021, less than the EU average of 2.24% (Eurostat<sup>1</sup>, 2023).

## **2. Literature review**

A study published in 2007 (Stern), highlights the positive long-term effect of introducing higher taxes on key environmental issues, claiming that carbon emissions will be cut in half.

According to the arguments presented by Ezcurra and Jessen (2015), they argue that environmental taxation can be a more efficient tool in stimulating sustainable economic development, but provided that it is accompanied by a system of government support for energy efficient areas.

In order to achieve an effective and efficient climate transition at country level, according to the National Macroeconomic Oversight Committee (NMOC) Working Group on Supporting Green Finance, several implementation measures are proposed such as the development of sectoral decarbonisation plans through the development of public and private sector climate partnerships, as well as the development of climate partnerships with business in economic sectors that contribute significantly to greenhouse gas emissions (especially methane and carbon dioxide) with a view to setting long, medium and short-term targets (Presidential Administration, 2023).

According to International Energy Agency (IEA) estimates, about two-thirds of the carbon dioxide emission reductions in the 'sustainable development scenario', which assumes net zero emissions by 2070 (less ambitious than the EU's policy goal of achieving climate neutrality by 2050), come from technologies that are adopted but still in a developmental stage (IEA, 2020).

According to IRENA (International Renewable Energy Agency), there are six emerging or already available technology areas that require large-scale deployment or further investment in research and deployment to reduce greenhouse gas emissions by 2050 in line with the targets set by the Paris Agreement, such as: renewable energy, energy efficiency, hydrogen, bioenergy combined with carbon capture and storage, electrification of sectors of the economy that use fuels other than electricity, and storage of carbon emitted by fossil fuels (IRENA, 2022).

The IPCC 2022 report argues that there are various mitigation options that can be implemented on a large scale and in the short term, such as solar energy, wind energy, electrification of urban systems, green urban infrastructure, energy efficiency, energy demand management, improved management of forests, crops and grasslands, reduction of waste and food losses.

### **2.1 Evolution of the environmental tax revenues in Romania**

Greater harmonization between countries has been justified by the need for common environmental regulation within the European Union, primarily as a response to pollution that transcends national boundaries (Stern & Köhlin, 2004). European governments, aiming to establish more efficient tax systems and safeguard the environment, have recognized taxation as an instrument of environmental policy. Unlike traditional taxes primarily intended for revenue generation, environmental taxes are specifically designed to influence the behaviour of economic entities, including households and businesses (Delgado et al., 2022). Environmentally related taxes can also be utilized as a significant tool to influence the relative prices of goods and services. The characteristics of these taxes, including factors such as revenue, tax base, tax rates, exemptions, and more, are used to compile the environmentally related tax revenues. These revenues are categorized by various environmental domains, which encompass energy products (including vehicle fuels), motor vehicles and transport services, measured or estimated emissions to air and water, ozone-depleting substances, certain non-point sources of water pollution, waste management and noise, as well as the management of water, land, soil, forests, biodiversity, wildlife, and fish stocks (European Commission, 2013).

Governments can utilize the revenue generated from environmental taxes to fund projects aimed at environmental protection and the efficient management of natural resources. The environmental taxation regime in Eastern European countries serves as a successful example of this approach (Tsiantikoudis et al., 2022). Through the implementation of appropriate policies and actions, these countries have demonstrated resilience in tackling environmental degradation, restoring previously degraded lands, and funding programs to disseminate environmental information among local communities.

According to Eurostat<sup>1</sup> (2023), in 2021, the total environmental tax revenues in Romania represented around 1,96% of GDP, less than the EU's average of 2,24%.

*Table no. 1 Evolution of the total environmental tax revenues in Romania (2012-2021)*

<b>Year</b>	<b>Total environmental tax revenues in Romania</b> (mil. EUR) – variable ETR	<b>Year-Over-Year Growth</b> (% $ETR_t / ETR_{t-1}$ )	<b>Percentage of GDP (%)</b>
2012	2.667,48	-	1,91
2013	2.957,48	+10,87	2,07
2014	3.587,37	+21,30	2,38
2015	3.951,84	+10,16	2,47
2016	4.085,32	+3,38	2,44
2017	3.640,19	-10,90	1,95
2018	4.033,56	+10,81	1,96
2019	4.731,69	+17,31	2,11
2020	4.196,21	-11,32	1,90
2021	4.729,78	+12,72	1,96

*Source:* (own calculations based on data from Eurostat<sup>1</sup>, 2023)

Since 2012, the total environmental tax revenues in Romania has increased by more than 77%, from €2.667,48 million in 2012, to € 4.729,78 million in 2021. However, the corresponding percentage of GDP registered a growth up to 2,44% and decreased back to 1,96% in 2021.

## 2.2 Greenhouse gas emissions in Romania

Within the framework of the European Green Deal (European Commission, 2019), the European Union has embraced ambitious targets to decrease greenhouse gas emissions, while also prioritizing the reduction of pollution and the promotion of a circular economy (Parravicini et al., 2022). In line with European climate legislation, the European Union has made a commitment to reduce emissions by a minimum of 55 percent below 1990 levels by 2030. This sets the stage for the EU to achieve its target of attaining a net-zero greenhouse gas emissions economy by 2050 and advancing towards a more sustainable and environmentally friendly future.

As stated by the Kyoto Protocol guidelines, greenhouse gases encompass a total of seven gases, namely carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and four fluorinated gases (F-gases). Each of these greenhouse gases remains in the atmosphere for varying durations, but the carbon dioxide is the most prevalent greenhouse gas released as a result of human activities (Kijewska & Bluszczyńska, 2016).

In 2021, greenhouse gas emissions in the European Union experienced a decrease of approximately 5,4% compared to the reduced levels caused by the COVID-19 pandemic in 2020, reaching a total of 3,54 billion tons. Despite this increase, emissions remained below the levels observed before the pandemic and were approximately 29% lower than the emissions recorded in 1990. Several factors have contributed to these reductions, including the implementation of policies and regulations, improvements in energy efficiency, and the establishment of the EU Emissions Trading System (European Commission, 2023). However, a significant driver of these reductions

has been the gradual phase-out of coal-fired power plants, which have been replaced by natural gas and renewable energy sources. As a result, emissions from the energy supply sector have decreased by over 40% since 1990. Although coal power carbon dioxide emissions have increased since 2020 due to the recovery from the COVID-19 pandemic and the Russia-Ukraine conflict, they are still nearly 40% lower than the levels observed a decade ago. Nevertheless, the energy supply sector remains the largest contributor to greenhouse gas emissions in the EU, with all of the most polluting facilities currently being coal-fired power plants, according to a Statista report (2023)

*Table no. 2 Evolution of the greenhouse gas emissions in Romania (2012-2021)*

<b>Year</b>	<b>Total greenhouse gas emissions in Romania</b> (excluding LULUCF and memo items, including international aviation, million tonnes) – variable GGE	<b>Year-Over-Year Growth</b> (% $GGE_t / GGE_{t-1}$ )
2012	131,10	-
2013	119,22	-9,06
2014	118,84	-0,32
2015	117,82	-0,86
2016	116,19	-1,39
2017	119,37	+2,74
2018	119,65	+0,23
2019	116,22	-2,86
2020	112,18	-3,48
2021	115,65	+3,10

*Source:* (own calculations based on data from Eurostat<sup>2</sup>, 2023)

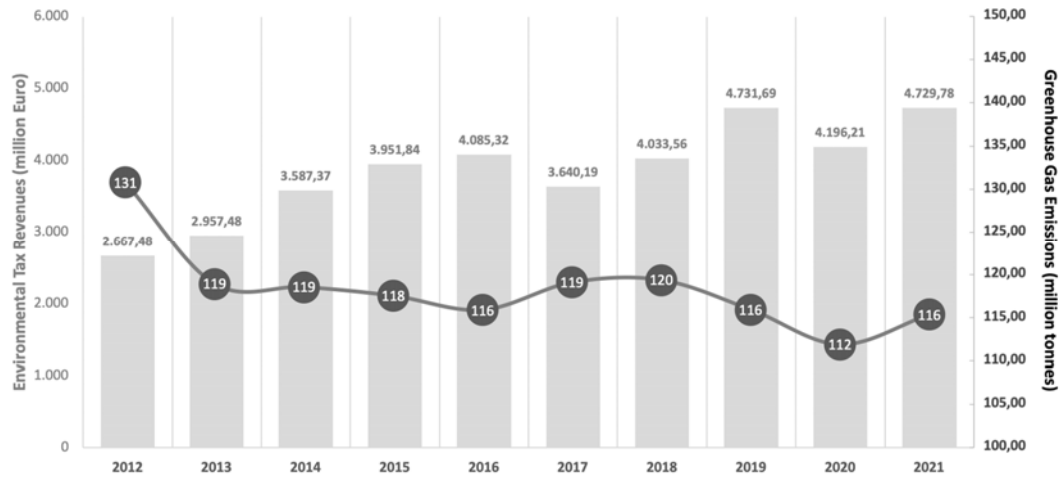
According to Eurostat<sup>2</sup> (2023), in 2021, Romania's greenhouse gas emissions accounted for less than 3,3% of the total emissions in the European Union. Since 2012, the greenhouse gas emissions in Romania experienced a decrease by approximately 11,8%, corresponding to 15,44 million tonnes.

### 3. Research methodology

Environmental taxes can contribute to reducing greenhouse gas emissions by discouraging activities that emit high levels of greenhouse gases. Higher tax rates on carbon-intensive industries or products can encourage businesses to invest in cleaner technologies, adopt energy-efficient practices, and shift towards low-carbon alternatives. Environmental taxes are levied on activities or products that have negative environmental impacts. The revenue generated from environmental taxes can be allocated towards environmental initiatives, including investments in renewable energy, energy efficiency programs, research and development of clean technologies, and other measures to mitigate greenhouse gas emissions. This allocation of funds can further support the reduction of emissions and the transition to a more sustainable economy.

Therefore, we can formulate the following research hypothesis (*H*): *There is a negative correlation between the evolution of greenhouse gas emissions and the evolution of the environmental tax revenues in Romania.*

Figure no. 1 Evolution of the environmental tax revenues and greenhouse gas emissions in Romania (2012-2021)



Source: (Eurostat<sup>1</sup>, 2023 and Eurostat<sup>2</sup>, 2023)

Figure no. 1 shows the combined evolution of the environmental tax revenues (expressed in million Euro) and greenhouse gas emissions (expressed in million tonnes) in Romania for 2012 – 2021 (latest data available). The current analysis refers to data available from 2012 to 2021 and was performed using XLSTAT<sup>®</sup> statistical and data analysis solution.

The relationship between the environmental tax revenues (variable  $ETR_t$ ) and greenhouse gas emissions (variable  $GGE_t$ ) in Romania was determined using correlation and regression analysis. A general probabilistic model for simple linear regression was used for this purpose:

$$GGE_t = \beta_0 + \beta_1 \times ETR_t + \varepsilon_t$$

Where  $GGE_t$  represents the dependent variable (greenhouse gas emissions in Romania, in million tonnes),  $ETR_t$  represents the independent variable (environmental tax revenues, in million Euro),  $\beta_0$  and  $\beta_1$  are the coefficients of the regression function and  $\varepsilon_t$  is the residual component for the time series,  $t$ .

#### 4. Findings

After researching the literature review on environmental tax revenues and greenhouse gas emissions, in order to test the research hypothesis and determine the nature of the relationship between the two variables, a visual inspection on the available time series data for Romania (2012 – 2021) was performed, followed by Pearson correlation and regression analysis.

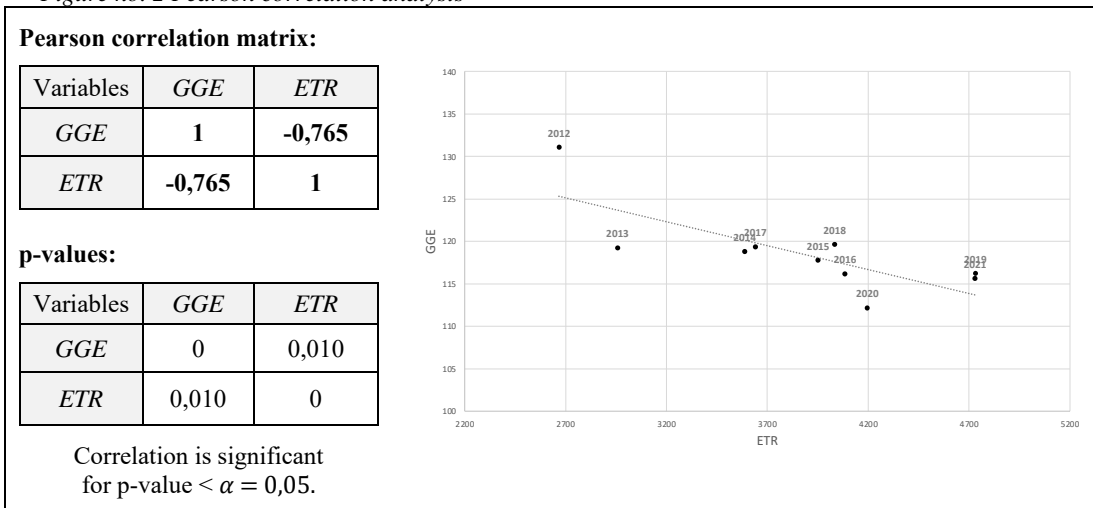
Table no. 3 Normality tests for the model's variables

	Shapiro-Wilk test	
	$GGE$	$ETR$
W	0,798	0,938
p-value (two tailed)	0,014	0,530
alpha	0,05	0,05

Test interpretation:  $H_0$ : The variables follow a normal distribution;  $H_a$ : The variables do not follow a normal distribution. If the computed p-value is greater than the significance level  $\alpha = 0,05$ , one cannot reject the null hypothesis  $H_0$ . If the computed p-value is lower than the significance level  $\alpha = 0,05$ , one should reject the null hypothesis  $H_0$ , and accept the alternative hypothesis  $H_a$ .

Source: (own, using XLSTAT<sup>®</sup>)

Figure no. 2 Pearson correlation analysis

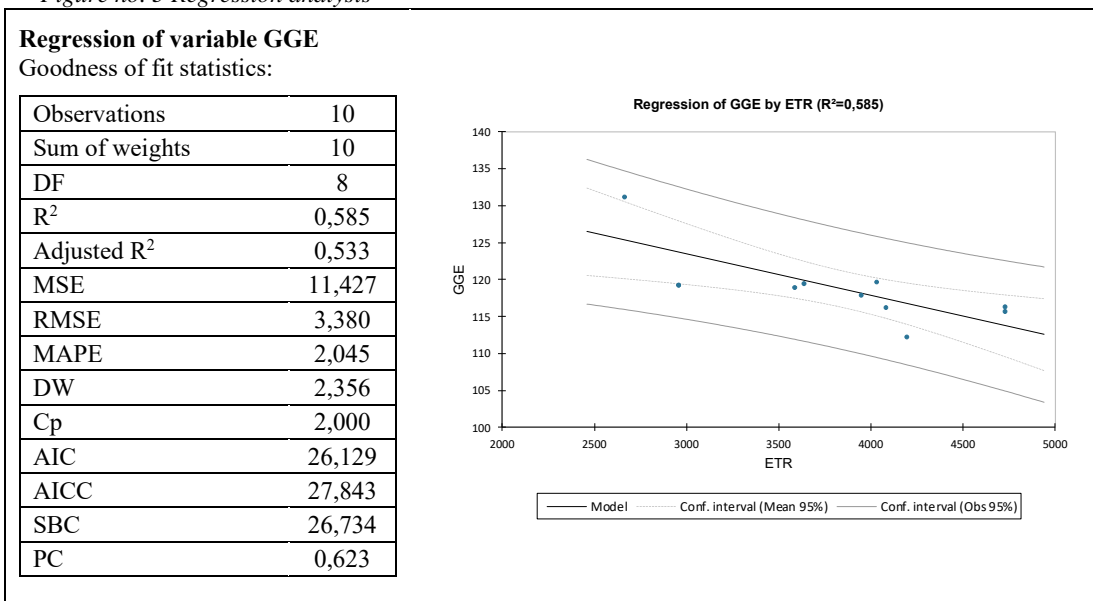


Source: (own, using XLSTAT®)

The correlation analysis performed demonstrates the existence of a linear strong negative relationship between the environmental tax revenues (variable ETR) and the greenhouse gas emissions (variable GGE) in Romania, as shown in Figure no. 2.

The Pearson correlation coefficient used to determine the statistical correlation between the two data series ( $r=-0,765$ ) indicates a negative linear correlation of high intensity (Rodgers & Nicewander, 1988), being statistically significant for a significance level of 5%, p-value  $< \alpha = 0,05$ ).

Figure no. 3 Regression analysis



Analysis of variance (GGE):					
Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	1,000	128,850	128,850	11,276	<b>0,010</b>
Error	8,000	91,419	11,427		
Corrected total	9,000	220,269			

Note: Computed against model Y = Mean (Y).

Model parameters (GGE):						
Source	Value	Standard error	t	Pr >  t	Lower bound (95%)	Upper bound (95%)
Intercept	140,311	6,546	21,434	<b>&lt;0,0001</b>	125,216	155,407
ETR	-0,006	0,002	-3,358	<b>0,010</b>	-0,009	-0,002

Source: (own, using XLSTAT®)

The regression model used to analyse the relationship between the environmental tax revenues (variable ETR) and the greenhouse gas emissions (variable GGE) in Romania, as illustrated in Figure no. 3, has the following equation:

$$GGE_t = 140,3115 - 0,0056 \times ETR_t$$

The model (Figure no. 3) explains 58,5% of the variation of greenhouse gas emissions in Romania ( $r^2 = 0,585$ ) and is statistically significant for a significance level of 5%.

The results of the statistical model validate the research hypothesis and show a significant inverse strong relationship between the evolution of greenhouse gas emissions and the evolution of the environmental tax revenues in Romania for the analysed period. Moreover, according to the research model, an increase with 1 percentage point of the total environmental taxes in Romania might determine a decrease in the greenhouse gas emissions by 0,0056 percentage points. The result can be used as a general guideline for estimating the future impact of environmental taxation policies on the greenhouse gas emissions in the context of the European Union's commitment to build a more sustainable and environmentally friendly future by achieving a net-zero greenhouse gas emissions economy by 2050.

## 5. Conclusions

Environmental taxes in EU member countries are designed to reduce pollution and its negative effects on the environment and at the same time provide economic incentives to promote sustainable activities, reducing greenhouse gas emissions.

In conclusion, the results obtained from the statistical analysis confirm the research hypothesis and demonstrate the existence of a significantly inverse relationship between the evolution of greenhouse gas emissions and the evolution of revenues from environmental taxes in Romania over the period analysed.

The results of the study highlight the country's efforts to raise its environmental standards, with environmental tax revenues increasing steadily in recent years and the implicit energy tax rate remaining lower than the EU average, indicating that Romania is an energy-consuming economy and has great potential to improve energy efficiency.

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# Developments and Perspectives Regarding the Impact of Digital Transformation on the Banking System in Romania

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## Abstract

*To understand the impact of digital technologies on the banking system, it is necessary to know the defining features and functioning of the banking system, as well as the particularities of banking services and products. This article intends to clarify these issues and identify the changes that have occurred over time in the banking system. Digital transformation is a priority for every bank. Investments in technology and innovation are objectives to be achieved for any bank and that's because the competitive environment is growing, and the mentality of consumers is changing. Digitalization is no longer a choice, but a necessity for both, society, and banks equally.*

**Key words:** banking system, digital banking, banking, customers, transactions, services

**J.E.L. classification:** G21, M30

## 1. Introduction

The banking system is developing intensively in the digital economy because every day there is information about new banking services, types of electronic money, new technologies and applications with which customers can perform their own operations remotely.

In the current context, the pandemic has accelerated the adoption of technology in all areas of activity, impacting our lives, particularly, in banking system. The COVID-19 pandemic has had a negative impact on financial performance across different financial performance indicators (Elnahass et al., 2021). Digitalization is changing consumer behavior and the way they interact with the banking environment and advances in banking technology continue to influence the future of financial services around the world. Banks are planning strategies to accelerate digitalization and migration to Alternative Channels to respond to these behavioral changes of consumers. Most banks triggered their business continuity plans and faced the immediate impact of the pandemic and new ways of working (Bryan et al., 2020).

To maintain strong relationships and at the same time, satisfy customer needs, banks create easy communication channels and focus on informing each consumer through different marketing methods and techniques, to offer them complex products and services. Technology is rapidly changing the financial industry, and banks are experiencing a shift from traditional forms of services to digital financial services. These digital technologies are increasingly becoming today's standard in banking, challenging traditional business models, and providing opportunities for banks to capitalize on them. (Niemand, 2021)

Today, the banking industry has adapted to new digitalization trends, but banks still need to invest in technologies that can help them transform sustainably. While some banks have long focused their attention on return on investment, they have now begun to move to the next phase of transformation, looking at operational resilience based on technology adoption to facilitate an improved digital experience for banking consumers, others have modernized and invested in creating affiliated banks that operate exclusively in the digital space.

Kelly (2014) highlights that not all banks will be able to move at the pace demanded by the market, as a result, we may see larger gaps emerge between those banks that have the capacity to provide large-scale directive and undertake a digital transformation (in the space of relatively a few years), and some banks that are lagging.

This paper aims to clarify aspects regarding the changes that have taken place over time in the Romanian banking system and to highlight the impact that digital technologies have on the banking system. The paper is structured as follows: the first part focuses on literature review to point out the main theoretical aspects of the digitalization process in the banking sector, its functionalities, but also its current stage. It also focuses on describing innovations in the banking industry and provides information on the different technologies used. The second part of the article focuses on the quantitative analysis of relevant product and service categories describing the progress made by the top three commercial banks in Romania in terms of digitalization, information taken from the "Digital Banking Scorecard 2022" report. Within the research, statistical tools were used in the critical analysis of the indicators of evolution of the banking system during the period 2017-2021, according to the banks' annual reports to the Financial Supervisory Authority (FSA) in Romania.

## 2. Theoretical background

In the literature, Flacon (2019, p.118) describes digital transformation as a process in which digital technologies can activate imbalances that lead to the development of strategic plans through which organizations try to modify their norms and processes, to transform their way of creating value, while managing the process of change at structural level and organizational barriers that affect the positive and negative results of this process.

As a basic notion, *digitalization* is the process of change induced by technological leaps that have occurred within these industries or at the level of organizations (Khan, 2017). Therefore, digitalization is not only the use of multiple IT processes to reap the benefits of data and technology, but also means a comprehensive approach to changes in society and business, respectively in the development of organizations.

*Digital transformation* is the total effect, including at social level, of digitalization. Digitalization has led to significant opportunities to transform and change existing business models, socio-economic structures, legal measures and policies, organizational models, cultural barriers, etc.

Broeders and Khanna (2015) appreciate that digital transformation is at an inflection point. Banks have only a few years to adapt. Digital will change every aspect of the bank's operations, from product and service development to risk management and human resource management. Banks successful strategies must be based on prioritizing technology investments and a clear understanding of how digital adds value to consumer behavior.

Sardana and Singhania (2018) believes that banks around the world are investing in new banking technologies at a time when bank customers are progressively switching to digital in multiple dimensions of their economic and social interactions. In their research, they want to demonstrate that banks' IT investments largely devoted to digital technologies affect the digitalization of banks' customers. The results show that banks' IT investments have a positive impact on customers' adoption of financial digitalization and increase the probability that they will carry out their financial transactions through digital channels rather than in the physical branch.

Berger's research (2003) examines technological progress and its effects in the banking industry and suggests a significant impact of digital technology in terms of overall productivity improving the quality and variety of banking products and services. In addition, research indicates that technological progress has likely helped facilitate industry consolidation. The research suggests improvements in cost and lending capacity due to improvements in back-office technologies, as well as consumer benefits from improved front-office technologies.

In the process of digitalization of a bank, according to Cuesta et al. (2015), have been identified three successive stages: the first stage is the one in which new electronic channels, banking products and services are developed; the second stage involves adapting the infrastructure of technological systems and the last stage is the one that involves major changes in the organization, in order to obtain a strategic positioning in the digital environment.

Sajić et al. (2017) through their research, propose an organizational model of the digital bank and a way to use digital technologies to efficiently transform traditional bank into digital data bank. The proposed way for the digital bank transformation process is using two phases or periods. The first phase should be a hybrid period and the second phase should be the digital bank establishment period.

All activities of a digital bank should be carried out using electronic technologies: mobile electronic systems, modern computers, information systems, computer networks, internet, wired and wireless, communication technologies and fast data storage, mobile devices, data bases, cloud technologies. The speed of transformation of a digital bank by introducing the mentioned activities and technologies will largely depend on the speed of adopting their necessary legal procedures.

At the level of the Romanian banking system, there have always been concerns for the development of their banking products and services. An important step in the beginning of digitalization was the emergence of internet banking. The first internet banking service in Romania was launched in 1999 by Turkish-Romanian Bank, representing the beginning of a period in which Romanian banks implemented advanced financial instruments to contribute to increasing the overall efficiency of Romanian banks (Stoica et al.,2015).

Anghel (2015) developed a study that analyzes the evolution of Internet Banking services in Romania, from the perspective of the number of users, the number and value of transactions.

The contribution of this research is to initiate the discussion of impact of digital transformation on the banking system in Romania by providing a concise definition, examples, and enablers. This addresses an existing research gap regarding the evolution of the digitalization of the first 3 commercial banks in Romania.

The involvement of banks in the digitalization process has led to an increase in the level of operational expenses due to the increasing investments in the IT area, necessary to face competition coming not only from the traditional banking environment, but also from the area of innovative financial institutions - *fin-techs*, which use business models based on advanced digital technologies, with a much better organized cost structure and a very high customer orientation. Banks with a developed digital component will have a significant competitive advantage over traditional ones. The traditional banking experience, based on the territorial network, will play an important role in the coming years, especially in countries where the use of digital tools remains low (as is the case in Romania). From the literature review, it is found that innovation and digitalization in the banking industry are major concerns of researchers in terms of the effects and impact they have on consumers and on the economy in general.

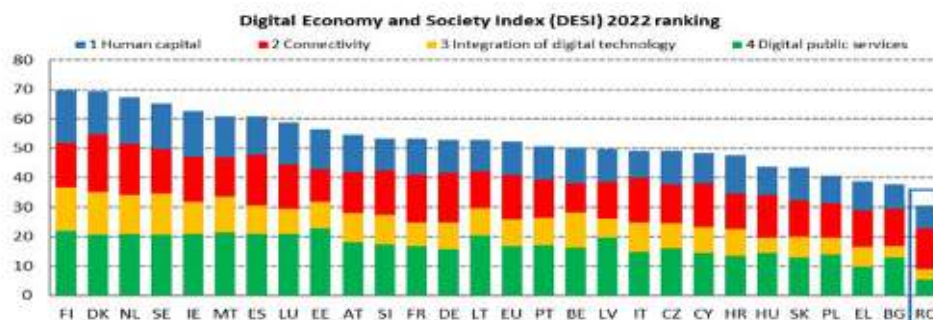
### **3. Research methodology**

The research of the evolution of the banking system from the perspective of digitalization is based on the analysis and synthesis of literature review of authors both national and foreign. To achieve it, the following methods were applied: analysis, synthesis, induction and deduction, comparative analysis, method of graphical representations using various databases: National Bank of Romania, European Central Bank, Transilvania Bank, Romanian Commercial Bank and CEC Bank.

### **4. Findings**

Romania's banking industry has developed strongly over the past two decades, playing an essential role in the country's development. However, according to the annual report published by the European Commission, which monitors the progress made in the digital field by Member States, in the 2022 edition, Romania ranks 27th out of the 27 Member States of the European Union. The country's performance in integrating digital technologies is poor compared to that of other EU Member States.

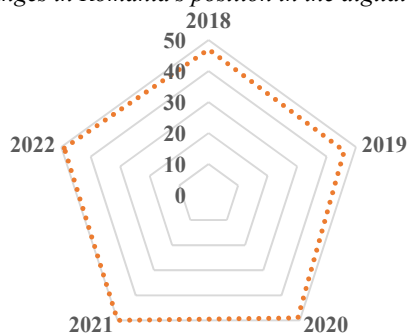
Figure no. 1. Digital Economy and Society Index (DESI) 2022



Source: European Commission, *Digital Economy and Society Index (DESI) 2022*

The digitalization of Romanian banks is necessary because a series of indicators show us a large gap with the European banking system. However, in the Digital Competitiveness Assessment of recent years, changes in Romania's position indicate an increase towards making appropriate conditions for the development of the digital economy.

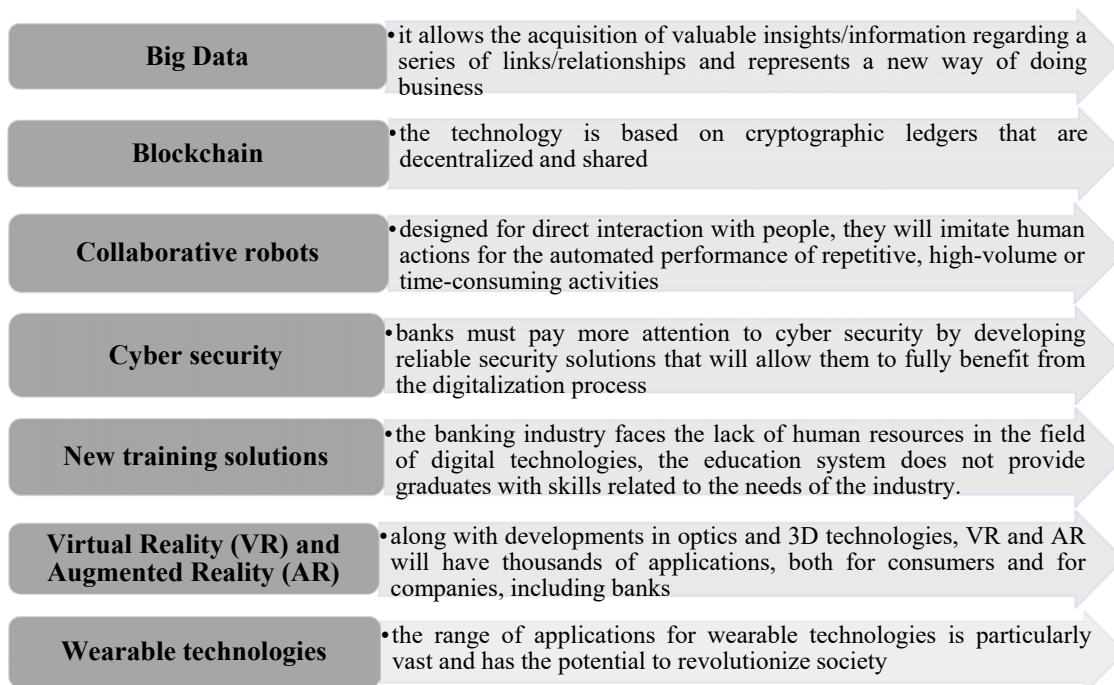
Figure no. 2. Changes in Romania's position in the digital competitiveness assessment for 2018-2022



Source: elaborated by the author based on the source - International Institute for Management Development  
<https://worldcompetitiveness.imd.org/countryprofile/RO/digital>

Due to the rapid spread of innovation, institutions in Romania's banking sector are gradually expanding the limits of the digitalization of their activities. The impact of new technologies on the banking system is that they help banks collect customer data from multiple sources, to form a complete portrait of the customer and understand his needs. Financial services are increasingly using analytics, data, and machine learning to facilitate a superior digital experience, including anticipating customer interactions. Therefore, are seven digital technologies that have impacted the banking industry and will continue to surprise us soon: big data, blockchain, collaborative robots, cybersecurity, new training solutions, virtual reality and augmented reality and wearable technology.

Figure no. 3. Digital technologies with impact in the banking industry



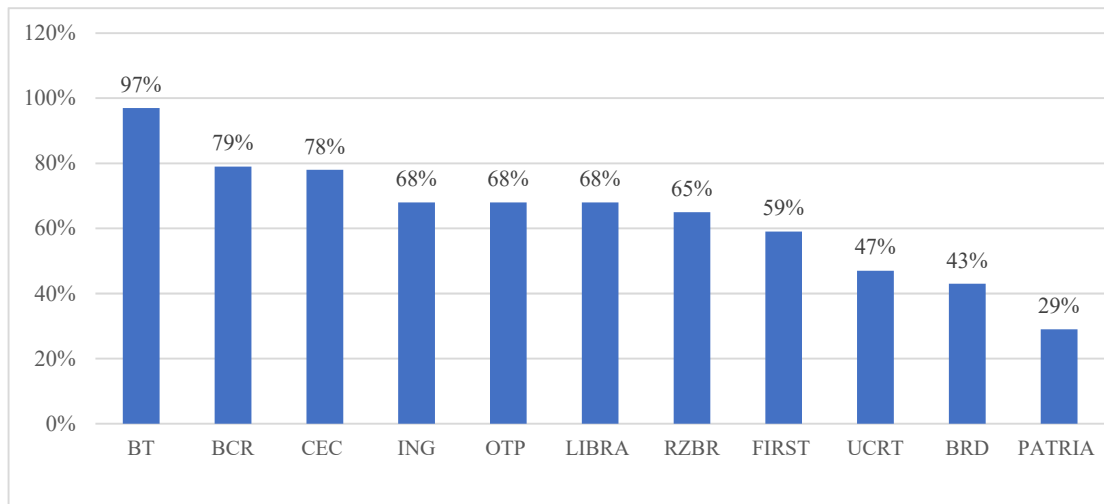
Source: elaborated by the author based on the source: European Commission, *A Digital Compass for Decision Makers*

Digital Banking means digitalizing all traditional banking activities and programs that were normally available to customers only when they physically arrived at bank branches.

According to the website of the Romanian National Bank, in 2021 the Romanian banking sector contained 34 credit institutions, eight of which represent branches of foreign banks.

In Romania, the study "Digitalization of the banking system in the perception of Romanians" showed in December 2020 by the Romanian Institute for Evaluation and Strategy (RIES) reveals the increase in the degree of digitalization compared to previous years, this trend being accelerated by the health protection measures adopted during the pandemic. The degree of financial inclusion reached 68% in Romania in mid-2022, according to the research, the increase being 10% above the level reported in 2017. In the „Digital Banking Scorecard 2022" report, Transilvania Bank has a score of 97%, ticking all the important categories that characterize a digitized bank, followed by BCR Bank and CEC Bank.

Figure no. 4. Top banks by degree of digitalization



Source: *The Digital Banking Scorecard Report* (<https://futurebanking.ro/raport/digital-banking-scorecard-2022>)

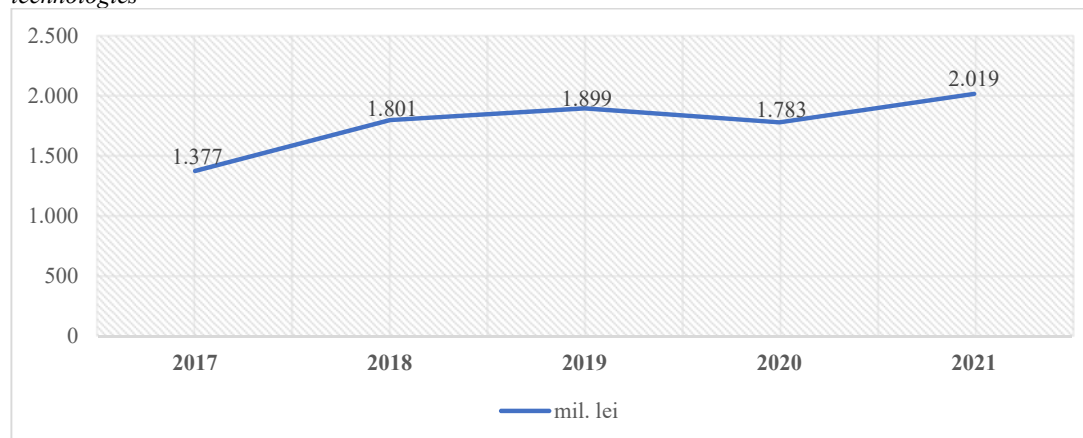
In this study, activities specific to a digital bank were considered, such as: deposits, withdrawals, and cash transfers; bill payments; account management and services; application for financial products; credit management; portfolio management; investment in financial services. For example, digital proposition (remote account opening, digital personal loan ), card offerings (remote acquisition of debit and credit cards, contactless cards, virtual cards, cardless ATM withdrawal), user experience (biometric login, budgeting planification, automated saving tools, chatbots, pay the bill), payments (digital wallet, apple pay, google pay, Fitbit pay, Garmin pay, instant payments, direct debit), security options (freeze/block cards, push notifications, deactivated contactless payments/online transaction/ POS /ATM Withdrawal) and opportunities related to open banking were included in the research.

In this research, we followed the evolution of the digitalization of the first 3 commercial banks in Romania during 2017-2021: Transilvania Bank (BT), Romanian Commercial Bank (BCR) and CEC Bank.

**Transilvania Bank** (BT) was founded in 1993 in Cluj Napoca by a group of local businessmen, with 79% Romanian and 21% foreign capital. Its activity is organized on four main business lines, namely: Corporate, SME, Retail, and Division for doctors.

From a digitalization perspective, BT aims to increase investments in technology, digitalization, innovation, and simplification of banking processes. To achieve this objective year after year, BT registers an increase in operational expenses occurred both due to the efforts of digitalization and optimization of banking processes, as well as due to the analysis of acquisition projects, increasing from RON 1,377.15 million in 2017 to RON 2,019 million in 2021 (BT, FSA Annual Reports, 2021).

Figure no. 5. Evolution of operational expenses impacted by expenses with the development of digital technologies



Source: Elaborated by the author based on FSA Annual Reports (<https://www.bancatransilvania.ro/>)

Starting from the evolution of investments in technology, digitalization, and innovation, we can trace the emergence of banking services and products that led to the digitalization of the bank. In 2017, electronic and automation solutions were launched with effect in streamlining the relationship of companies with banks and business partners: BT Ultra Web, BT Online Debit Tools Release, digital technology. At the end of 2018, there were over one million Internet Banking customers, about 14% more than in 2017 (BT, FSA Annual Reports, 2018). At the same time, the number of Mobile Banking customers is 560,000, 34% more than the previous year (BT, FSA Annual Reports, 2018). The product of 2018 is BT Pay, the first wallet in Romania that allows contactless payments, based on smart payment technology Visa Token Service and MasterCard Digital Enablement Service, and offers 6 alternative payment alternatives: with the physical or digital card from the BT Pay application or BT Pay collection accessories (watch, bracelet, sticker - all contactless), including Garmin and Fitbit smartwatches. In 2019, BT launches Visual Help, a virtual call center for access to account and transaction information, as well as digital card management. In 2020, new digital products appear in the bank's portfolio: Google Pay; Livia and Raul chatbot, access via What's App, Facebook Messenger, or Skype and Chatbot Ino which can be accessed on BT's website in the dialog window. In 2021, BT continued to expand its ATM network reaching a network of 1,775 of which 567 are multifunctional (BT, FSA Annual Reports, 2021). In 2021, both personal needs loans could be granted and implemented 100% online, as well as the credit card granted online through BT Pay. One of the indicators that BT constantly tracks, reflecting the degree of digitalization of the bank, is the number of customers who use at least one of BT Pay's digital solutions, Internet Banking or Mobile Banking.

For 2022, the bank's objectives are focused on the digital area by continuing to develop fully digitized customer interaction flows, continue to develop intelligent operating systems, innovation, and process simplification and customer connection as the omnichannel experience.

In 2022, Transilvania Bank acquires Ideea Bank, which will become a digital banking hub, going beyond traditional banks and continuing BT's efforts to digitize the services and products offered. The positive impact on the economy and society of the acquisition of Idea Bank is the contribution to strengthening the banking industry and repositioning the bank as a digital platform, with an ESG (online, social, governance) agenda.

**Romanian Commercial Bank (BCR)**, member of Erste Group, is one of the most important financial groups in Romania, including universal bank operations (retail, corporate and investment banking, treasury, and capital markets), as well as specialized companies on the leasing market, private pensions, and housing banks. In 1990, BCR was established by taking over the commercial activities of the National Bank of Romania, and in 2006, Austrian bank Erste Bank completed the acquisition of Romanian Commercial Bank. In 2017, BCR managed to improve customer satisfaction because of its continuous efforts to streamline processes, implement new service models and develop its product offer and distribution on multiple channels. The products and services offered by BCR



could be accessed through multiple channels: branch network, BCR 24 Banking, Alo 24 Banking, mobile phone applications. According to the information found on the bank's website, in 2017 BCR was the No. 1 bank in Romania on the market of bank transactions, having at its disposal the largest national ATM network - over 2,500 ATMs and POS - 17,800 terminals for card payment at merchants (BCR, FSA Annual Reports, 2017).

In 2017 the bank had in perspective the development of new products and services such as the launch of the new digital platform George; implementation of Mobile Wallet; expansion of the concept of cashless branch and dynamic consulting. In September 2018, BCR launched the intelligent banking platform George, which reached 300,000 users at the end of 2018. The introduction of the George app was one of the growth engines of digital transactions in retail, which increased by 36% (BCR, FSA Annual Reports, 2018).

In 2019, BCR accelerated the processes of digitalization and simplification of operations. The intelligent banking platform George has reached 660,000 users, both for individuals and micro-enterprises. Over 25% of BCR's new customers prefer to open a bank account 100% online (BCR, FSA Annual Reports, 2019). BCR launched George Credit, the first fully digital personal loan. In terms of open banking services, BCR was the first bank to open its application programming interfaces (APIs) to third-party providers, reaching 50 providers that have already tested the platform. In 2019, BCR offers its customers, Apple Pay, a solution that transforms mobile payments into an easy, secure, and confidential experience, available to anyone.

In 2020 it launches the first 100% online credit card, which can be accessed directly from the George application, on your phone, tablet or computer and George Moneyback, a program that offers money back, as a discount, to BCR customers who will use card payment. One of the important goals of 2021 continues to be accelerated sanitation and transformation of customer interactions. The first online loans were granted, 56% of personal loans in 2021 were granted 100% digitally (BCR, FSA Annual Reports, 2021). In 2022, George enjoys the best rating among banking apps in Romania in Google Play and AppStore.

**CEC Bank** was a state-owned banking institution in Romania, founded in 1864. In December 2021, CEC Bank was the sixth bank in the system with a market share of 7.9%, assets of 50.6 billion. lei and had the most extensive national network (CEC Bank Report of the Board of Administration, 2021). In its almost 160 years of history, the bank has reinvented itself and kept pace with technology, currently becoming the third bank in Romania in terms of digitalization, according to the "Digital Banking Scorecard 2022" study.

The main desideratum of the bank is to position in the first positions in the top in the domestic banking system, and for this purpose the objectives pursued are to implement an efficient "core-banking" information system based on best practices, as well as to change the organizational culture. Therefore, one of CEC Bank's main general strategic objectives is to invest in modern digitally facilitated services and processes, to provide customers with accessibility and convenience. Technological innovation and new capabilities have changed the way the banking service reaches the bank's customers, so that in 2017 through the Internet Banking and Mobile Banking application there were substantial increases in electronic and digital operations. In addition, the bank provides customers with the Phone Banking service through which they can trade based on voice and provides support to customers through the online chat channel.

In 2018, a new service was launched available through Self Pay payment stations in the bank's units, which allows real-time cash deposit in the bank's customer accounts. In line with the text of the digitalization process, in 2019 the bank adds new facilities to the CEOnline application: changing card transaction limits, account openings in other currencies, operationalizing instant payments.

At the beginning of 2020, the bank launched theCard2Card application, a digital wallet. Also, during 2022, CEC Pay, Apple Pay and Google Pay were launched, mobile applications dedicated to holders of cards issued by CEC Bank. Contactless payments through smartwatch that integrate the Pay option (Garmin Pay and Fitbit Pay) are also available. Also in 2020, CEC Bank launched the 100% online enrollment flow for individual customers and started the Online Product Origination project, creating a virtual store on the bank's website through which customers can request products and services through a completely digital path, without physical presence in the bank's headquarters. In the context in which mobility and digital solutions are gaining more and more ground among

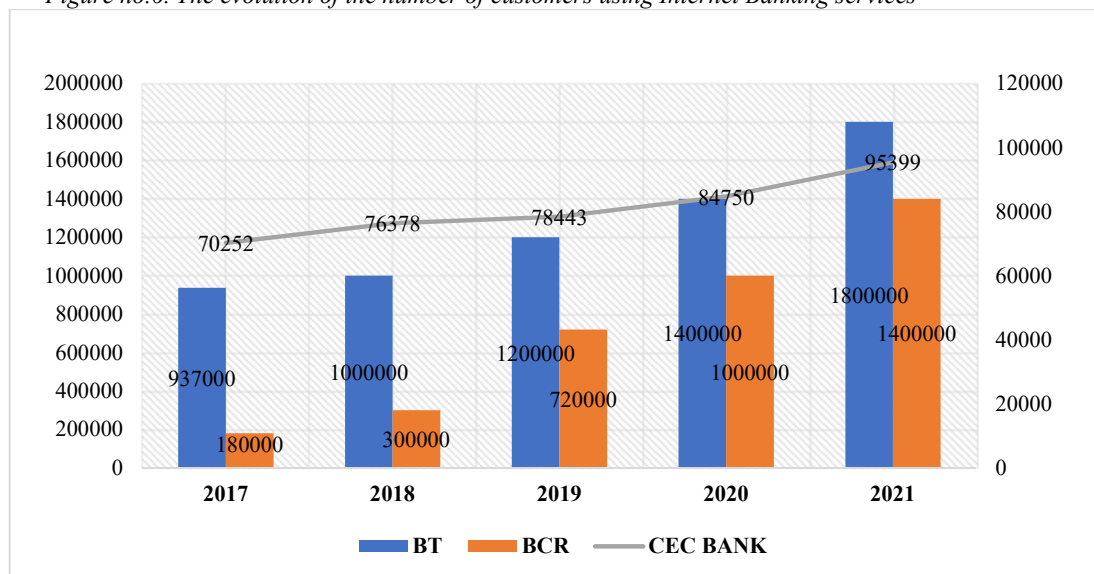
consumers and entrepreneurs, the SmartPhone POS application, which transforms any Android device (phone or tablet) into a contactless payment terminal, was launched in December 2020. In 2021, investments in technology and digitalization continued and new facilities were added to the internet banking application such as open banking. The bank has made available a new application, namely CEOnline Multi Business (MultiCash Transfer AutoClient) which is installed by the supplier Omikron on the client's workstation, facilitating the transmission of files directly from the accounting application used. The Onboarding digital platform has been upgraded to a higher version, and the related infrastructure has been migrated to the Microsoft Azure cloud. Starting with February 2021, the Virtual Store was launched on the bank's website and the first lending product through the 100% online flow for individual customers - the personal needs loan dedicated to individuals, followed by credit card and overdraft.

Within the 3 analyzed banks, a series of digital transformation projects were initiated aimed at streamlining some activities carried out at the level of the territorial network by organizing trainings for employees.

In the entire banking system, where the digital transition affects the way many employees work, an important issue that bank management must manage, is the systematic approach and preparation of a structured action plan within the organization to train employees to adopt the digital system. At national level in 2021, according to the Financial Stability Report June 2022 Year VII (XVII), no. 12 (22) of the NBR, the increase in banking activity and digital activity continued, so that the number of banking units and employees decreased during 2021 (-4.1% and -1.9%, respectively) and in the first three months of this year (-2.9%, and -1.3%, respectively). The annual increase in operating expenses (+5.8%, December 2021) broadly reflects increased investment in digital transformation. In comparison, at the beginning of 2017, banks in Europe closed 9,100 branches and laid off more than 40,000 employees, due to changes in the way customers carry out transactions (European Banking Federation, 2017), and in 2019 the shoulder of people working for credit institutions in the EU fell to its lowest level since The European Central Bank begin measuring this in 1997 (European Banking Federation, 2021).

Is it possible that in the coming years, Romania will experience the same cycle, when most customers start using e-banking applications? An assessment of the number of customers using Internet Banking services shows that every year the number of active users of banking services increases, due to the rapid growth of digitalization in the banking industry.

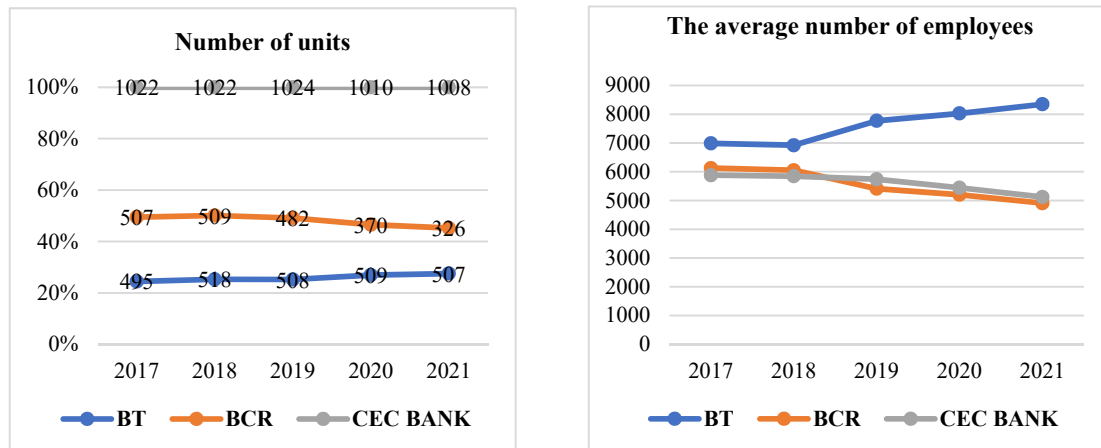
Figure no.6. The evolution of the number of customers using Internet Banking services



Source: elaborated by the author based on FSA Annual Reports

From the data reported by the 3 banks to Financial Supervisory Authority (FSA), we can follow the evolution of the number of active units and the average number of employees.

Figure no.7. Evolution of the number of active units and average number of employees



Source: elaborated by the author based on FSA Annual Reports

The graphical representation reflects the fact that BCR has drastically reduced the number of active agencies and, implicitly, the number of employees. The same reduction in staff and number of units can be found at CEC Bank. At BT there is an increase in the number of units, respectively in the number of employees. Because we do not have statistical data reported by banks, it cannot be assessed whether the downward trend practiced by BCR and CEC Bank is due to the digitalization process of banks.

## 5. Conclusions

Summing up, I believe that the Romanian banking system has constantly evolved since its established until now, banks have supported Romania's economy and population through financing, and digitalization makes banks use data and information obtained through new technologies, to personalize products and services to achieve a balance in maximizing sales and attracting and retaining customers.

Technology will play a key role in increasing the stability of the banking industry and will allow banks to regain pre-pandemic stability and cope with the consequences of the transformations that will follow in the years to come. In 2022, the banking system in Romania has made progress from the perspective of digitalization, which was also accelerated by the Covid-19 pandemic, bank customers also the power of technology and the multitude of benefits that come with using technology correctly. The implementation of new technologies allows banks to get to know customers better and develop long-distance relationships. New digital customers want more, and banks are aware of this, because they will be their main customers in the coming years.

Banking products and services must not lag, but explore and capitalize on the online environment, given that the impact of digital transformation will be a major one. Technology has changed all our lives and will continue to do so, and soon Human Intelligence will coexist with Artificial Intelligence.

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## Political Budget Cycles. Evidence from Romania

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### Abstract

*Political budget cycle (PBC) refers to the cyclical fluctuation of fiscal policies determined by political cycles, respectively by the time of elections.. More precisely, it consists in the opportunistic behavior of governments, of politicians, regardless of their ideology, who try to use fiscal-budgetary policies to increase their chances of re-election. Using the Generalized Model of Moments, this article analyzes the impact of the political cycle on the budgetary and fiscal policy in Romania in the period 2006-2022. The results of the empirical model show a positive link between the political cycle and expenditures, which means that politicians use an opportunistically expansionist spending policy in election years to gain advantages for themselves and/or the parties they belong to. Also, the constructed model shows a negative connection between the political cycle and the national budget revenues.*

**Key words:** political cycles, political budget cycles, budget policy, fiscal policy, Generalized Model of Moments (GMM)

**J.E.L. classification:** C68, C33, D72, E62, H61

### 1. Introduction

All aspects of economic life and more are influenced by government policies, which are, in fact, materialized in public policy decisions. Although the normative aspects of public investment criteria have been extensively studied, there are few theories that predict government investment behavior when governments are constrained by political realities. It was the basis of the reasoning of the political budget cycle research.

The political budget cycle (PBC) is used to describe a cyclical movement of fiscal policies driven by the election cycle (Efthyvoulou, 2012). Most of the time, this political budget cycle means increasing government spending or deficits, but it can also refer to decreasing taxes collected in an election year, actions determined by the incumbent's desire to be re-elected him or his party.

The direct cause of PBC lies in the opportunistic behavior of governments: incumbent politicians, regardless of ideology, use expansionary fiscal policies before elections to please voters, to increase their popularity and thus their chances of being re-elected.

The existence of the electorally motivated spending policy is still discussed and investigated in the specialized literature.

Downs (1957) first described the reciprocal relationship between economic strategies and political choices.

Nordhaus (1975) introduces the term *political business cycle*, investigating the behavior of political decision-makers during elections, in a simple model of intertemporal choice in which macroeconomic decisions are made in a political framework. In contrast to the political economic cycle literature – where formal models preceded empirical testing – regarding political budget cycles, much empirical research is based not on explicit models but on conceptual arguments. In this case, formal models were later developed to demonstrate the concordance between the existence of cycles and rational voters.

Two key issues are raised in the existing empirical studies. The first of them refers to the existence of political budget cycles in an enough country. Empirical studies show us that this is not reflected in the aggregate budget (national/general budget), except in the new democracies. The second

problem, which is the basis of the first, is whether the manipulation of fiscal-budgetary policies is an effective tool in obtaining votes. Existing empirical studies do not support the idea that spending cuts in an election year bring more votes for the incumbent. This article studies the political budget cycle at the national level in our country, through an empirical analysis, looking for evidence, in the national budget. The article is structured in five parts. After the introduction, the review of specialized literature in the field is addressed. In the third part, the data and the method used in the empirical analysis are presented. The next section presents the results of the analysis, and the entire approach ends with the conclusions that are drawn.

## 2. Literature review

The issue of the impact of the political budget cycle on various budgetary (or fiscal) indicators is discussed more at the national level. This impact refers to the possibility of manipulation of budgetary (or fiscal) policy by political incumbents, during elections, to increase their own chances of being re-elected. This manipulation can be done, for example, by allocations in the field of expenditure categories.

The political business cycle is usually perceived as a relationship between the regular use of fiscal instruments for re-election purposes by political incumbents (Bojar, 2017).

In literature, we find the following approaches related to the problem of the political budget cycle. First, it is about the opportunistic approach, formulated by Nordhaus (1975) who introduced the term political economic cycle. In their research, Castro and Martins (2015), specify, regarding this, that politicians do not have policy preferences, so they act "opportunistically" by selecting the policies that maximize their electoral support (p.3).

Another important approach concerns the ideological orientation of the government. Hibbs (1977) thus introduces the partisan theory, which depends on the ideological orientation of the government. According to Bove et al. (2017), left governments, during their tenure, will engage more in income redistribution and more expansionary policies than right governments.

According to the same study published by Castro and Martins (2015, p. 3), previously cited, the difference between the two theories lies in the moment of generating the effect. There is partisan model that generates policy effects after the elections, and the opportunistic model that generates policy effects before elections.

Versions of these theories emerged in the 1980s and 1990s, and analyzed the hypothesis that voters form their expectations rationally. In a research framework that considers competence and asymmetric information as key elements, both partisan rational models (Alesina, 1987; Alesina and Sachs, 1988) and opportunistic rational models (Rogoff and Sibert, 1988; Rogoff, 1990) have as a result reducing the ability of politicians to induce political cycles.

Research has shown that in developed countries partisan behavior is more frequent (Alesina et al., 1997), while in developing countries opportunistic behavior occurs much more often (Brender and Drazen, 2009 and Shi and Svensson, 2006).

In terms of the level at which research focused on political budget cycles has been conducted and the results obtained, the main scope of the research mirrors its existence at the level of national government, e.g. Efthyvoulou (2012), Enkelman and Leibrecht (2013), Bojar (2015), Klein and Sakurai (2015), Castro and Martins (2015), etc. At the level of local public administration, the political budget cycle is investigated in several countries, e.g. an analysis is provided on a sample of municipalities in Colombia (Drazen and Eslava, 2010), Israel (Baskaran, 2015), Spain (Balaguer-Coll et al., 2015), Greece (Chortareas et al., 2016), Denmark (Aaskoven, 2017), districts in Indonesia (Sjahrir et al. 2013), cities in West Germany (Furdas et al., 2015), etc.

There are also several studies, both at the national and multinational level, that have demonstrated the existence of a relationship between elections and fiscal policy manipulations.

Regarding studies conducted at multinational level, such as those for EU member states, Andrikopoulos et al. (2004) did not find a direct relationship between the electoral cycle and fiscal manipulations, Mink and de Haan (2006) concluded that there is an increase in the budget deficit in election years and a significant effect on fiscal aggregates. Efthyvoulou (2012) concludes that EU governments tend to generate opportunities for political budget cycles and that these are much more significant in euro area countries.

Persson and Tabellini (2002) highlight in their research the institutional features, showing that the form of government (presidential or parliamentary) and electoral rules (proportional or majoritarian) affect the configuration of budget cycles.

### 3. Research methodology

#### 3.1. Data

To analyze potential policy-driven changes in budget indicators, we used a series of annual data for seven budget indicators, as defined and found in Romania's state budget law, over the period 2006-2022. These seven indicators that must be taken into account to analyze the impact of policy cycles on budgetary (fiscal) policy are total public revenues, current public revenues, fiscal revenues, total public expenditures, current public expenditures, subsidies granted, but also insurance and protection expenditures social.

The resulting panel includes several economic, socio-economic and political variables. Government fiscal policy data and statistics on economic results are obtained from the consolidated general budgets published on the website of the Ministry of Finance, as well as from the database of the National Institute of Statistics of Romania available online.

The data on the demographic variables are extracted from the online version of the database of the National Institute of Statistics of Romania.

Since Romania is a semi-presidential country from the point of view of the form of government, the data of the presidential elections that took place during the analyzed period were considered. Information on election dates, form of government and government position on a left-right scale is taken from national electoral legislation, the online database of the Permanent Electoral Authority and supplemented, where necessary, by the author's personal research.

#### 3.2. Empirical Model Specification

To estimate the relationship between elections and the fiscal behavior of incumbent politicians, we used an adapted empirical model based on the models found in the research of Shi & Svensson (2002, 2006), Persson & Tabellini (2002) and Efthyvoulou (2012). The dynamic panel data model is estimated using the Generalized Method of Moments (GMM) framework and takes the following form:

$$Y_t = \sum_{j=1}^p \alpha_j Y_{t-j} + \beta * X_k + \gamma * GROWTH + \delta * ELECTION + \mu_t + \varepsilon_t \quad (1)$$

where

$Y_t$  - is a dependent variable of the unit cross section at time  $t$ ,

$Y_{t-1}$  - is a lagged dependent variable,

$X_k$  - is a vector of control variables,

GROWTH - is the GDP growth rate

ELECTION - is an independent explanatory variable that captures the choice effect,

$\mu_t$  - variable capturing specific unobserved effects

$\varepsilon_t$  - is an error term.

To capture the persistence of fiscal variables, the dynamic model is used (Chortareas et al., 2016). The Generalized Method of Moments is preferable to be used for small or medium time series to avoid the problems of unobserved region-specific country effects and bias caused by the lagged dependent variable (Shi and Svensson, 2006).

As dependent variables, we use seven fiscal policy instruments, all calculated as a share of GDP and expressed as percentages, namely: total public revenues (TREV), current public revenues (CrREV), tax revenues (TTAX), total public expenditures (TEXP), current public expenses (CrEXP), grants granted (GRANTS), but also insurance and social protection expenses (SAEXP).

Our control variables include the level of development (LnGDPT), as measured by the logarithm of real GDP, two demographic variables representing the percentage of the population aged 15-64 and 65+ (PROP1564t and PROP65t), and finally the government's position on a left-right scale



(EXECRLCt), measured by a dummy variable that equals -1 for left-wing governments, 0 for center-right governments, and +1 for right-wing governments. The situation in Romania regarding the positioning of the government and the years of the presidential elections is presented in Table no. 1. We note that the situation is particular because there were years when the government was led by the coalition formed by both the center-right and the center-left parties. For the periods when the government was led by this political quality, the dummy variable was considered to be equal to 0 (see Table no. 1).

*Table no. 1. Dummy variable to control the positioning of the government (EXECRLC) and the electoral variable (ELECTION) in Romania during the period 2006-2022*

YEAR	EXECRLC	ELECTION
2006	1	0
2007	1	0
2008	1	0
2009	0	1
2010	0	0
2011	0	0
2012	0	0
2013	0	0
2014	-1	1
2015	-1	0
2016	-1	0
2017	-1	0
2018	-1	0
2019	-1	1
2020	1	0
2021	1	0
2022	0	0

Source: author's personal research

These aforementioned control variables were used in studies such as Cameron (1978), Rodrick (1998), Persson and Tabellini (1999), Perotti and Kontopoulos (2002), Hibbs (1977) and Alesina (1987) and were found to be correlated with the results of fiscal policy. Furthermore, the GDP growth rate (GROWTH) is also used to capture fluctuations in fiscal policy induced by the domestic business cycle.

The electoral variable (ELECTIONt) encodes the year in which the executive is elected. In other words, it is equal to 1 in years of legislative elections in parliamentary countries and in years of presidential elections in presidential countries, and 0 in all other years.

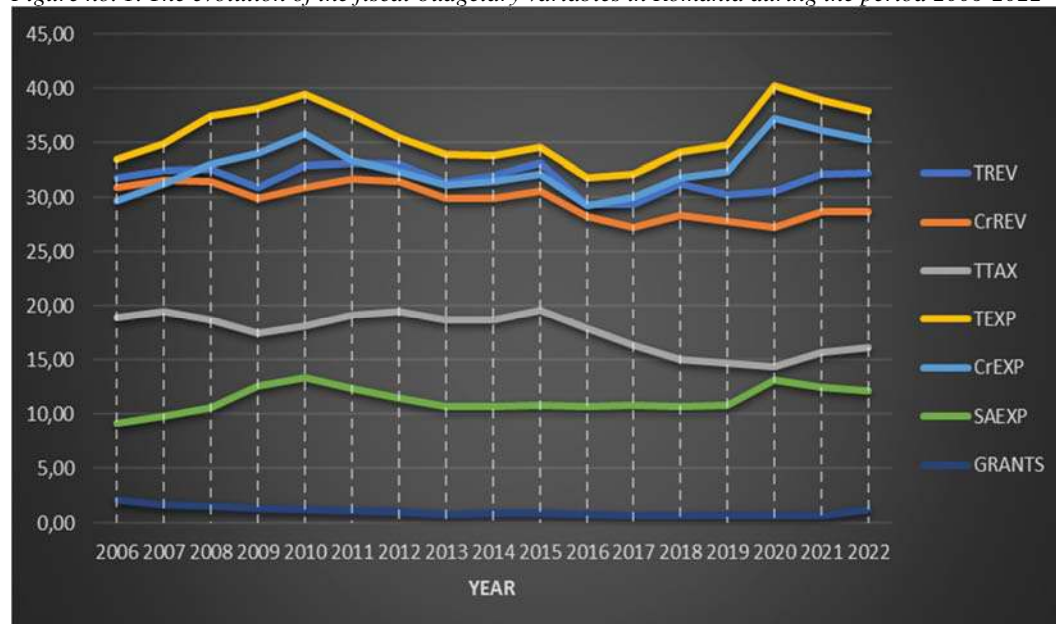
This article does not consider the scenario where the effects of fiscal policy cycles are found in pre-election years. For this, another model built for the years before the presidential elections in Romania would have been needed.

#### 4. Findings and Discussions

Figure 1 shows the evolution of the 7 dependent variables taken into account in the empirical model throughout the analyzed period (2006-2022) in order to capture their evolution in the electoral years, but also in the pre-electoral ones, as well as their evolution in depending on the positioning of the government (left-right).



Figure no. 1. The evolution of the fiscal-budgetary variables in Romania during the period 2006-2022



Source: author's own processing data from budget execution available online on: <https://mfinante.gov.ro/domenii/bugetul-de-stat/informatii-executie-bugetara>

As can be seen from figure no. 1, the variables that could be influenced by the political decision-makers in office to obtain competitive advantages in the elections, have, with some exceptions, the same trend in the analyzed period.

Presidential elections in Romania, during this period, took place in 2009, 2014 and 2019. Regarding the evolution of incomes, they recorded higher values in the years immediately following the elections, and this cannot be correlated with the government's positioning at that time (center-right, coalition or Centre-left). An exception to this trend is recorded by current and fiscal revenues in 2020, but this evolution can be attributed to the lockdown caused by the Covid-19 pandemic, when, in addition to the suspension of many economic activities, a series of measures to protect the private economic environment. Expenditure elements recorded smaller or larger increases in election years (from 0.10% of GDP, up to almost 2% of GDP social insurance) compared to previous years, but, as in the case of revenues, they have recorded higher increases in the post-election years, and these too cannot be correlated with the government's positioning. The biggest increases were recorded in 2020 (3% increase in social insurance spending as a share of GDP), but it cannot necessarily be correlated with the post-election year, but rather with the situation created by the measures taken in the context of the pandemic of Covid-19.

Table no. 2. The results of the dynamic panel data estimations by GMM for the dependent variables, the explanatory variable political cycle is expressed as an election year

	TREV	CrREV	TTAX	TEXP	CrEXP	SAEXP	GRANTS
<b>GROWTH</b>	-2,8730	-1,0899	-0,3815	-16,7946	-16,2803	-12,1156	0,1050
<b>LNGDP</b>	4,5679	3,8022	1,9202	7,4963	7,1495	3,4219	0,0220
<b>PROP1564</b>	0,0013	0,0006	0,0015	0,0031	0,0027	0,0020	0,0012
<b>PROP65</b>	0,5276	0,6414	0,5439	0,5706	0,4206	0,2463	0,0772
<b>EXECRLC</b>	0,1053	-0,1602	-0,3646	2,1060	1,8228	0,4072	0,0926
<b>ELECTION</b>	-1,1272	-0,8402	-1,6055	0,5000	0,2897	-0,2036	0,0280
<b>Adjusted R-squared</b>	0,685502	0,0712	0,3289	0,6083	0,6341	0,5807	0,7128

Source: author's computation

The expectation of a positive and significant relationship between GDP and total and current expenditures is supported by the results obtained. GDP growth creates additional financial resources, and authorities are free to use them for their own purposes, unlike allocated grants, although subsidies also increase revenue.

Except social security spending, empirical research shows us a positive relationship between the political cycle, expressed, in this case, as the election year, and spending, and a negative relationship between income and the political cycle.

In other words, in Romania, during the analyzed period, political decision-makers use the opportunistic deviation during the electoral period by increasing total expenses, current expenses and subsidies.

Table no. 3. Matrix of correlations between the political cycle and the dependent variables

	ELECTION	TREV	CRREV	TTAX	TEXP	CREXP	SAEXP	GRANTS
ELECTION	1.000000	-0.222814	-0.145578	-0.155750	<b>0.035212</b>	<b>0.016864</b>	-0.021761	<b>0.114873</b>
TREV		1.000000	0.820057	0.582395	0.409257	0.304315	0.118880	0.398727
CRREV			1.000000	0.868942	0.119791	-0.098879	-0.160734	0.659074
TTAX				1.000000	-0.251676	-0.421643	-0.355848	0.527208
TEXP					1.000000	0.957422	0.817941	0.094597
CREXP						1.000000	0.862582	-0.139699
SAEXP							1.000000	-0.292925
GRANTS								1.000000

Source: author's computation

In table no. 3, the areas highlighted in bold, show a positive correlation between the national political cycle variable and the dependent variables of the econometric model. The area highlighted in blue shows the highest value of positive correlation coefficients.

The correlation matrix shows us a positive link between the political cycle and the budgetary elements of expenses except for social insurance, which are not influenced by the opportunistic choices during the electoral period of the political decision-makers in office. This category of expenses is not used as an element of manipulation by politicians to obtain competitive advantages in elections.

## 5. Conclusions

The present article addresses the issue of political budget cycles in Romania, using annual statistical data for a period of 17 years (2006-2022) in which 3 rounds of presidential elections took place.

The article aims to analyze, using the Generalized Method of Moments, the influence of political decision-makers' manipulations on budgetary (or fiscal) variables to obtain competitive advantages for them or the parties they belong to, in the election process.

The evolution of the 7 dependent variables used in the model (TREV, CrREV, TTAX, TEXP, CrEXP, SAEXP and GRNATS) all reported as a share in GDP, shows us a more pronounced increase in them in the post-electoral years, rather than in the electoral ones, with the exception of 2020, which coincides with the outbreak of the Covid-19 epidemic. There is no correlation between the evolution of these indicators and the positioning of the Romanian government (left, right or center), captured in the model by the EXECRLC dummy variable, which was assigned values of -1 for center-left governments, 0 for coalitions of government and +1 for center-right governments, related to the situation in our country.

The results show us a negative relationship between the political cycle, captured in the previously presented model, by the ELECTION variable and the revenues recorded in the budget execution of each of the 17 years analyzed. Also, using GMM, the model returns positive results between the political cycle and budget expenditures (TEXP, CrEXP and GRANTS), except for social security expenditures. In other words, incumbent political decision-makers opportunistically use various elements of spending in election years to obtain electoral advantages for themselves and the parties they belong to, regardless of their position (left or right).

A possible econometric problem that arises here is that treating all executive elections as predetermined may bias our estimates of election cycles. Also, for more conclusive results, the time horizon should be extended, or other budget variables dependent on the political cycle could be used in the empirical model, such as the expenditure elements found in their functional structure, but also the deficit or the net loans.

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## A Brief Analysis on the Dynamic Effects of the Minimum Wage on the Economy in Romania

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### Abstract

*In view of the EU Council's requirements regarding the adequacy of legal minimum wages in order to ensure decent working and living conditions for European employees, this paper aims to analyze the evolution of the minimum wage in Romania and its motivational role in Romania. Although the Romanian government has substantially increased the minimum wage in order to help low-income workers, this increase has not exceeded the rapid growing pace of inflation, which has resulted in low living standards and purchasing power for the disadvantaged, as there are no other financial instruments to increase the income of the disadvantaged.*

**Key words:** remuneration, payroll, personnel, salary, minimum wage

**J.E.L. classification:** J1, M41, M54

### 1. Introduction

While there are pros and cons about the usefulness of the minimum wage, the literature is replete with studies on measuring the impact of the minimum wage using econometric models.

Wages for work need to be looked at from an economic point of view, as they are the equivalent, in value terms, of the work that employees perform in an employment relationship and, at the same time, represent the operation by which payment is made for work. (Vieru and Vieru, 2004, p. 398). Alexandru Țiclea, in his work Labour Law, he stated that "the wage system is an economic lever that can stimulate and motivate people to increase production and labor productivity. In a legal sense, labor wages could be seen as a set of laws and rules which establish the objectives, principles, forms and elements of labor wages, but also regulate the methods, means and instruments for achieving them, thus establishing the conditions for granting, and implicitly fixing, wages". (Țiclea, 2004, p. 547).

Minimum wage setting policies have expanded and developed particularly after the Second World War in both industrialized and developing countries. Initially, minimum wages covered relatively few categories of workers and aimed to protect those considered particularly vulnerable. Minimum wages were often seen as a temporary measure, to be phased out once wage negotiations between the social partners were stable. Early forms of minimum wages sometimes targeted protection of homeworkers or women. Over time, the minimum wage has become a main instrument of wage policy, aimed at combating poverty and imposing a lower limit on pay for that category of employees most at risk of poverty and with extremely low bargaining power in the labor market, thus guaranteeing them a satisfactory level of pay (Kirițescu, 1999, p. 10).

"In Romania, the concepts of wage and salary are synonymous, they refer to the amount received by an employee: wage represents the daily remuneration of an employee, while salary represents the weekly or monthly remuneration of an employee". (Moroșan and Fercal, 2022, p. 2)

Perhaps the most important question is what would be an appropriate level of minimum wage. Although there are recommendations in the latest EU Directive on adequate minimum wages to ensure this adequate level, a balanced approach is needed, as the minimum wage is a redistributive tool that has both benefits and costs.

While initially, in many countries, the concept of a minimum wage was directly "associated with the concept of providing an adequate living wage, today this notion is transformed into the concept of an adequate minimum living wage." (Belser and Sobeck, 2012)

## 2. Literature review

Although protection against poverty was one of the main functions and objectives of the minimum wage, other functions were added later.

Belman and Wolfson have underlined that the support provided by the minimum wage is underlined by the fact that it helps to improve the lives of the most vulnerable in the labour market. (Belman, 2014, p.21)

Bauducco and Kaniak studied the quantitative macroeconomic impact of raising the minimum wage on employment, the stock of capital and the wage distribution and found that a moderate increase in the minimum wage barely affects employment, a compression on the wage distribution and a positive effect on wages more. (Bauducco and Kaniak, 2018, p. 11).

Economic theory predicts that a minimum wage can contribute to growth and employment if some scenarios are taken into account. For example, in the case of a monopsony, a mandatory minimum wage (i.e. one set above the monopsony equilibrium level) can increase the number of people employed in the firm.

A popular and convincing argument in favor of raising the statutory minimum wage is that the higher the minimum wage, the more it will reduce poverty. While this is supported by theoretical research, the effects are not the same in practice. For example, in the informal sector, where workers are not effectively covered by minimum wage legislation, especially in developing countries, the effect is the reverse, meaning that poverty tends to become more prevalent in the informal sector (Gindlin, 2018, p. 1).

In the current economic situation, European policy places a strong emphasis on the relationship between national wage developments and international competitiveness, which means that wages should evolve in line with productivity in order to ensure the stability of unit labour costs, otherwise increasing minimum wages could have an effect on inflation, "because companies, employing workers paid at the minimum wage, may increase their prices after an increase in the minimum wage"(Macias and Soriano, 2013, p. 6).

The same was supported by the authors Belser P., Sobek K. who found in their study that "if the minimum wage is set at a sufficiently high level, it can increase the earnings of low-paid employees, helping to reduce the number of poor employees, reduce the gender pay gap and reduce wage inequality. If set too high, however, the minimum wage can be counterproductive, causing price inflation, affecting the workforce and proving unworkable for small and medium-sized enterprises". (Belser and Sobek, p. 3).

Analyses of the minimum wage in Romania are based on several sources of data both by researchers and by specialised state bodies.

Pantea examined the effect of minimum wage increases in Romania on regional employment over the period 2008-2016 and found that "on average minimum wage increases had an insignificant effect on employment over the period analyzed." (Pantea, 2020, p. 3)

Other researchers have studied the impact of minimum wage increases in Romania on average wages, income distribution, inflation, employment over the period 2013-2016 and found that employment increased, mainly at the minimum wage level, which contributed to a more balanced wage distribution and a relatively limited impact on CPI (Consumer Price Index) inflation and economic growth of average wage increases as a result of minimum wage increases. (Heemskerk, Voinea and Cojocaru, 2018, p. 4)

J.J. Sabia studied whether there is a relationship between minimum wage increases and gross domestic product in Romania and found that a 10% increase in the minimum wage is associated with a 1% to 2% short-term decrease in GDP generated by lower-skilled industries compared to higher-skilled industries. It also found no evidence that minimum wage increases were associated with changes in GDP (Sabia, 2015).

It was also investigated based on a regression model what is the impact of labor productivity and minimum wage adjustment in Romania, the results showing that a 1% increase in productivity induces a 0.74% increase in the minimum wage. (Antonie, Cristescu and Catanicu, 2010, p. 6).

Another study conducted by Davidescu and Schneider on the existence or not of a relationship between the underground economy and the minimum wage in Romania, shows that during the period 2000-2015 the Romanian underground economy decreased until 2008 to a value of about 27.8 percent of the official GDP, but in the short term the results obtained indicate that there is no effect between the increase of the minimum wage and the reduction of the underground economy (Davidescu and Schneider, 2017).

Since 2016, these studies have been complemented by the analyses constantly carried out by the working group (made up of experts from the following institutions: the National Forecasting Commission, the Ministry of Public Finance, the Ministry of Labor and Social Protection and the National Institute of Statistics) set up at government level to draw up the impact analysis on the minimum wage in order to base a transparent decision by the Romanian Government to adjust the minimum wage. As a result of these impact analyses, it was found that "increases in the minimum wage can decrease the relative poverty rate among employees paid at the minimum wage and increase employee motivation as they put more effort into their own work tasks after certain wage increases, thus increasing the level of labor productivity." (INCSMPS, 2016, p. 56) Despite the fact that, in general, the impact of an increase in the gross minimum wage is positive on the target category to which it is addressed, due to the fact that this increase is intended to maintain the purchasing power of employees, the working group formed in the Office of the Prime Minister of Romania recognized in the study conducted in 2020 that in order to achieve the objective of reducing poverty and improving the living standards of the low-income population, the minimum wage policy is not sufficient, and it is necessary to implement public policies, mechanisms and complementary measures that can have the effect of increasing income. (INCSMP, 2020, p. 1) Experts also continue to support the usefulness of the minimum consumption basket as a tool to assess poverty at a given point in time (INCSMP, 2023, p. 20)

### **3. Research methodology**

The research methodology was mixed, combining qualitative and quantitative analysis. The quantitative analysis aimed at collecting and interpreting data by comparing them both at national level and among EU member countries, so that the conclusions drawn in this article are in line with the research objectives. Another objective of the paper was to document the existing studies and legislative provisions on the basis of decisions on the adjustment of the minimum wage in Romania and the dynamic effects of these adjustments according to the objectives pursued by the government during the period under analysis: reducing the risk of poverty, reducing the number of employees paid the minimum wage, improving the standard of living.

### **5. Findings**

Minimum wage setting is a labor market regulatory tool in all European countries, but the level of the minimum wage and the procedures and means used to set it differ considerably. Thus, in Europe, two minimum wage regimes can be distinguished: universal and sectoral. (Schulten, 2014)

All EU countries have set some form of minimum wage threshold which is either regulated by the government (the legal minimum wage) for 21 member states: Belgium (1975), Bulgaria, Czech Republic, Germany (from 1 January 2015), Estonia (1991), Ireland (2000), Greece (1991), Spain, France, Croatia (2008), Latvia (1991), Lithuania (1990), Luxembourg, Hungary (1991), Malta, Netherlands, Poland, Portugal (1974), Romania (1949), Slovenia (1995) and Slovakia (1991), or collectively agreed (through collective agreements), as is the case in 6 Member States: Italy, Austria, Cyprus, Denmark, Finland and Sweden. Cyprus has set a statutory minimum wage only for a few professions where employees have little negotiation power. The highest minimum wages in the EU in 2022 are in Luxembourg (€2,313), Ireland (€1,774) and Germany (which introduced the national minimum wage from 1 January 2015), and the lowest in Bulgaria, Latvia and Hungary, with Romania being into the group of countries with a minimum wage between €500 and €1,000.



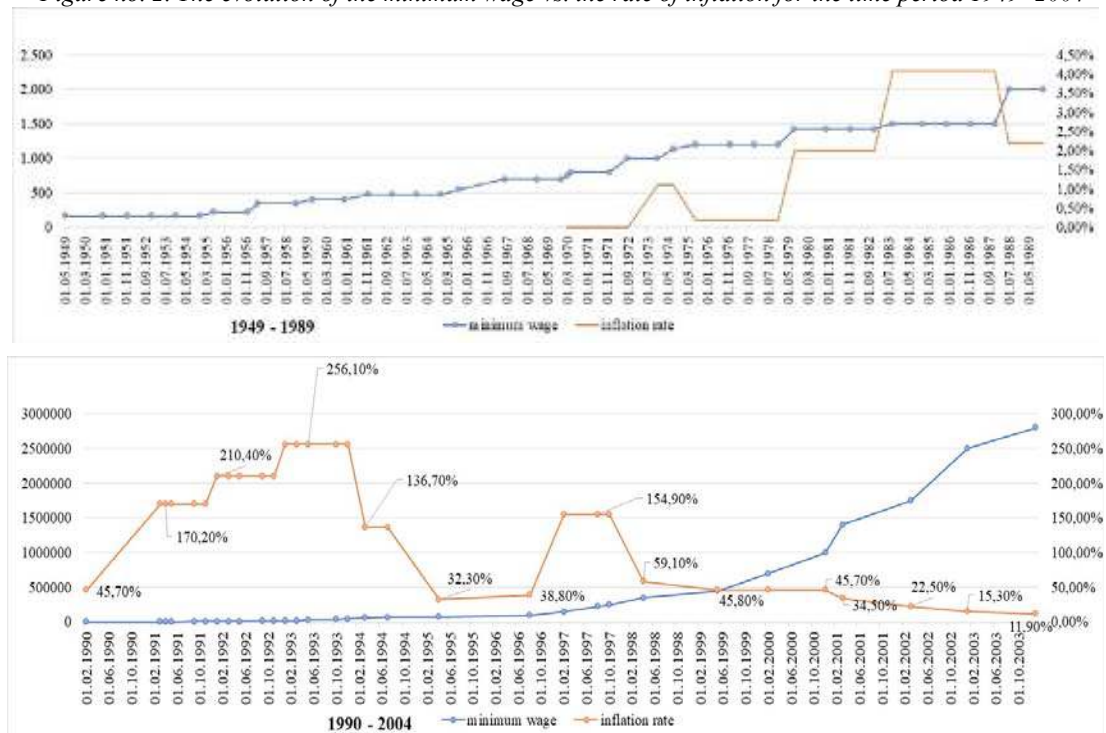
Figure no. 1. The evolution of the minimum EU wage for the period 1999-2022



Source: Adapted by author from: <https://ec.europa.eu/eurostat/statistics>

Analyzing figure no. 1 one can find that in 2022 the minimum wage in EU Member States ranged from 363 euros per month in Bulgaria to 2,313 euros per month in Luxembourg, compared to 1999 when the minimum wage ranged from 27.46 euros per year (Romania) to 1,162.08 euros per month in Luxembourg. In Romania the minimum wage level was and is set for all employers by government decision, after consultation with trade unions and employers. The gross minimum wage at country level was first introduced in 1949 for a normal working day of 8 hours a day, 40 hours a week, Romania being the first of the countries that joined the EU to introduce a legal minimum wage, followed by Spain, Bulgaria, the Netherlands, Germany being the last country to adopt the minimum wage in 2015.

Figure no. 2. The evolution of the minimum wage vs. the rate of inflation for the time period 1949 -2004



Source: INSSE



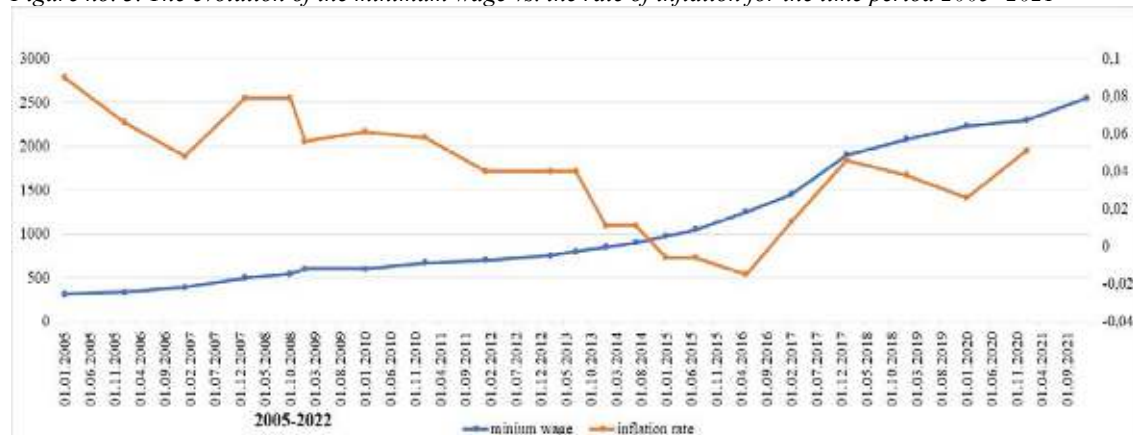
Figure 2 shows that from 1949 to 2005 the minimum wage was adjusted 45 times, with the pace of adjustment in the early years being rather slow but covering the increase in purchasing power. Since 1991, the Romanian government has increased the minimum wage rapidly, adjusting it six times a year, due to the accelerated rise in inflation, which this year reached a threshold of 170.2 per cent, the historical maximum being reached in 1993, when the inflation rate was 256.1 per cent. During the period 1991-2005, when inflation remained high, the gross minimum wage in the country increased by more than 154.9 percent compared to 1991, the unemployment rate increased by 73 percent and the poverty rate reached 33.8 percent of the total population, the threshold being equivalent to 60 percent of the average monthly consumption expenditure for an adult. Since 2000, the government has established, by Emergency Ordinance No 217/2000, that the adjustment of the gross minimum wage in the country is based on the value of the minimum monthly goods basket for a decent living.

The structure and components of the minimum monthly consumption basket for a decent living for a family consisting of two employed adults aged 35-45 and two dependent children aged 12-14 and 8-10 respectively are established by government decision, with the value of the minimum consumption basket for a decent living being established quarterly by the National Institute of Statistics and approved by government decision. The minimum monthly consumption basket for a decent living set by the government covered only the expenditure necessary to cover the general biological and social needs existing at a given time, with food accounting for 51.3 percent of the total amount.

The analysis showed that "the structure of the minimum consumption basket established by the government was deficient in a number of ways, such as: the lowest prices were taken into account without taking into account the sometimes significant differences in the quality of products, the duration of use of clothes was not appropriate to reality, there was a lack of medical expenditure, except for medicines, and there was a lack of expenditure on childcare". (Guga, Mihailescu and Spatari, 2018, p. 5). The last indexation of the minimum basket was in the second quarter of the year 2003, following that, starting from 2004 the approval to be removed by law, and the minimum basket was removed from the basis of the country's gross minimum wage.

A study carried out by the Romanian Economic and Social Council shows that the mismatch between the gross minimum wage and this minimum standard has led to an increase in the number of people working but living on the poverty line (ETUC, 2014). According to EU standards, you are at risk of poverty if your usable income is less than 60% of the median usable income (per employee) in your country. Romania has been ranked the first in the EU since integration and so far in terms of the share of those working and at risk of poverty in the total employed population.

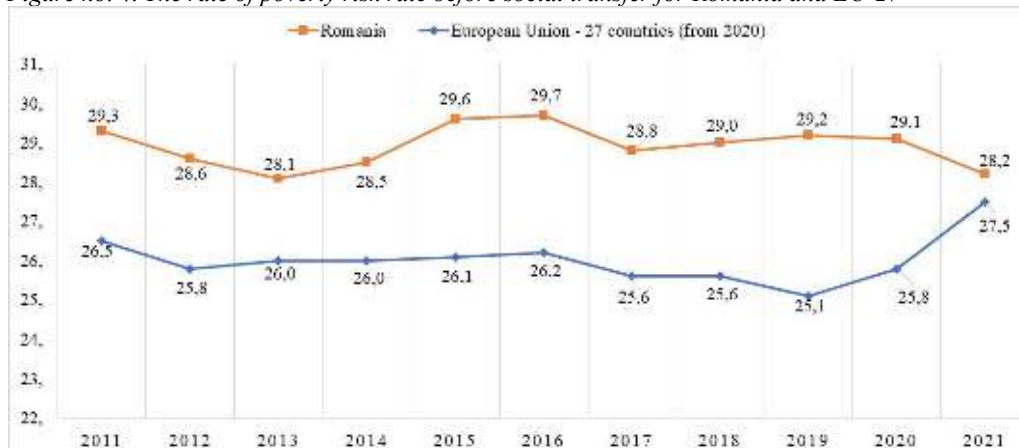
Figure no. 3. The evolution of the minimum wage vs. the rate of inflation for the time period 2005 -2021



Source: INSSE

Figure 3 shows that, from 2005 to 2021, the Romanian government substantially increased the minimum wage in order to help low-income workers, this increase covering the rapid pace of inflation starting from 2015.

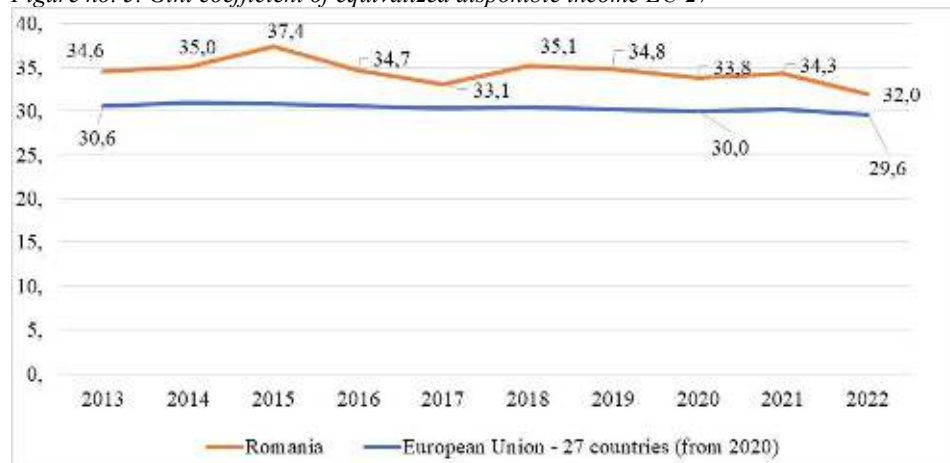
Figure no. 4. The rate of poverty risk rate before social transfer for Romania and EU-27



Source: Eurostat

We can see from Figure 4 that the situation in Romania worsened in 2015 when, for the first time more than 29.6% of Romanian workers were at risk of poverty. The situation then improved in 2021 when the risk of poverty reached 28.2%, but we continue to have the highest share of employees at risk of poverty in the EU, exceeding the EU27 average by more than 3 percent.

Figure no. 5. Gini coefficient of equivalized disposable income EU 27



Source: Eurostat

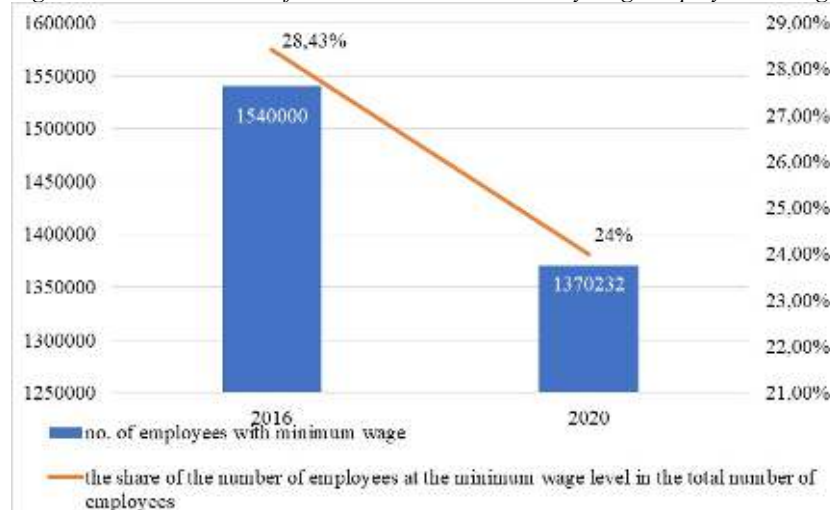
Concerning the inequality of income distribution between members, the Gini index in 2008 was about 34.6% (4 percent more than the EU-27 average), recording a steady downward trend since 2019, reaching a minimum of 32% in 2012. In the period of economic recovery, the Gini coefficient tends towards a slight increase (37.4% in 2015), thus widening the gap between population incomes, but less than at the beginning of the period analyzed.

Until 2017, employees who were unskilled for the occupied position were the only ones who were paid at the level of the gross minimum wage, while for the other occupational levels the remuneration was based on certain ranking coefficients that applied to the level of the gross minimum wage in the country. In 2013, the last National Collective Labour Contract in Romania was repealed, which regulated the application of hierarchical coefficients in the remuneration of employees according to the level of training required to apply for a job. The removal of the hierarchical coefficients led to the application of the regulations for the remuneration of employees in conformity, i.e. each employee, regardless of the level of training required for the job, was paid at the level of the minimum gross wage in the country. However, the share of the number of employees paid at the level of the gross minimum wage in the country as a proportion of all employees was 24.4 per cent in 2014

compared to 26.85 per cent in 2006, down by 9 per cent as many companies continued to apply differentiated pay according to the level of training and experience required for the job, especially in the case of newly hired employees.

By approving the National Strategy on Social Inclusion and Poverty Reduction and the Action Plan for the period 2022-2027, the Government aims to reduce the number of people at risk of poverty or social exclusion by at least 7% by 2027 compared to 2020.

Figure no. 6. The number of Romania minimum economy wage employees during 2016 -2020



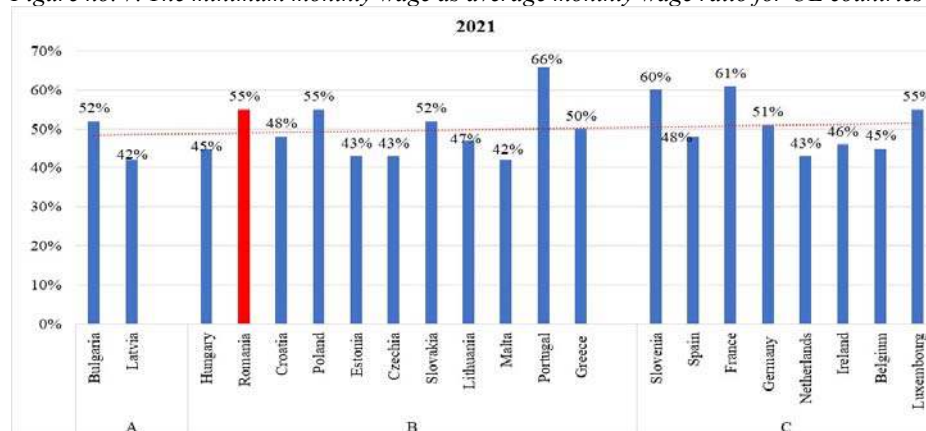
Source: Processed by author using: <https://mmuncii.ro/j33/index.php/ro/transparenta/statistici/date-statistice>)

We note from Figure 6 that in 2016 there were about 1.54 million active contracts at the minimum wage level, about 1.2 million employees with minimum wage incomes. The share of the number of employees at the minimum wage level in the total number of employees was 28.43% in 2016 compared to 24% in 2020, "this increase is justified by the faster growth of the minimum wage than the average wage earnings in the national economy" (MMFPSPV, 2016). In Romania in 2020 a 1370232 employees benefit from the guaranteed gross minimum wage, which represents a percentage of about 24% of the total number of active employees. In 2020, retail trade excluding motor vehicles and motorcycles, wholesale trade excluding motor vehicles and motorcycles, and land transport and transport via pipelines will account for more than 30% of employees paid at the minimum wage level, and are thus the main branches affected by the minimum wage increase measure. (INCSMP, 2020, p. 1)

In recent years, the Romanian government has made extensive use of the minimum wage as a tool to achieve the objectives set out in the Europe 2020 Strategy to reduce the number of people at risk of poverty and social exclusion by 580,000. In order to reduce the number of employees who are paid the minimum wage, the Romanian government issued in December 2021 the Emergency Ordinance no. 142 which will compel employers "to increase the wages of employees to the minimum wage, starting from 2024. Although the ordinance will apply from 2024, it also covered employment contracts for a minimum wage concluded on or after 1 January 2022, which must be amended within a maximum of 24 months in order for the employee to be paid a basic wage higher than the minimum wage on the economy in force." (GEO No. 142, 2021). Also, in order to combat the negative social consequences caused by price increases in 2022, as of 1 June 2022, the Romanian Ministry of Finance has regulated "the tax regime for the voluntary increase of the minimum wage per economy by the amount of 200 lei per month, with employees being exempt from income tax and mandatory social contributions". (MF, 2022)

An important criterion when assessing overall wage levels is the share of the gross minimum wage in gross average earnings. In assessing the adequacy of their existing statutory minimum wages, Member States may use a basket of goods and services at real prices as a reference, or they may set the reference to 60% of the gross median wage and 50% of the gross average wage.

Figure no. 7. The minimum monthly wage as average monthly wage ratio for UE countries



Source: Processed by author using: <https://stats.oecd.org/>

Figure no.7 depicts that, in 2021, minimum wages accounted for more than 60 percent of average gross earnings in just three Member States: Portugal (66%), France (61%) and Slovenia (60%). Minimum wages ranged between 50 percent and 60 percent of average gross earnings in 7 Member States: Luxembourg, Poland, Romania, Bulgaria, Slovakia, Germany and Greece. In 11 Member States: Spain, Lithuania, Ireland, Croatia, Lithuania, Belgium, Hungary, Latvia, Estonia, the Czech Republic and Malta, minimum wages were below 50 per cent of the gross average wage. From the analysis of the data presented, we see that, in most Member States, the adequacy of minimum wage is insufficient and/or there are gaps in the coverage of minimum wage protection, even though minimum wage protection exists in all EU Member States, either through legislative provisions (statutory minimum wage) and/or collective agreements.

## 5. Conclusions

The protection against poverty has been, over time, one of the main functions and objectives of the minimum wage, but other functions have been added. In the literature, the main functions of the minimum wage have been summarized as follows: supporting deprived groups; determining fair wages; setting a lower threshold of rewards as a tool against poverty, but also as a basis for the wage system; an instrument of macroeconomic policy. To these must also be added others: maintaining the purchasing power of employees, avoiding conflicts in the workplace, preventing unfair competition, supporting labor productivity and reducing social inequalities.

During the period subject to analysis, 1999-2021, we found out that the Romanian government substantially increased the minimum wage in order to help low-income workers, without this increase covering the rapid pace of inflation, which has resulted in a low standard of living and purchasing power for deprived people, as there are no other financial instruments to increase the income of this category. Although there was a normative act specifying that the adjustment of the minimum wage should be based on the minimum monthly basket of goods, even at that time, although the gross minimum wage per country was adjusted annually, the net salary per country obtained by an employee paid at the level of the gross minimum wage per country did not exceed 50 per cent of the minimum monthly basket of goods, which indicates that the income obtained is insufficient to ensure a decent living for the person concerned, further increasing the poverty rate.

From the analysis we've carried out, one can see that the increases in the minimum wage were made without objective criteria on the basis of which the increases were made. The absence of such criteria has created and will create a high degree of unpredictability for the business environment, as well as increasing poverty among employees. Furthermore, the lack of correlation between increases

in the minimum wage and the value of the minimum consumption basket may create social problems and further increase poverty among employees. As per the inequality of income distribution between members, the evolution of the Gini coefficient has shown us that it is partially correlated with the dynamics of the minimum wage.

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## The Competitiveness of the Romanian Agri-Food Sector in the Context of Sustainable Development

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### Abstract

*The agri-food sector in our country faces development gaps compared to other states in the European Union. The agricultural potential of our country is high and European Union finances this sector through the two pillars of the Common Agricultural Policy, namely market measures and rural development policy. The paper represents an analysis of GDP, population employed in agriculture, productivity and investments realized in the agricultural sector from Romania, in the period 2009 – 2021.*

**Key words:** competitiveness, rural area, sustainability

**J.E.L. classification:** Q13, Q01, Q18

### 1. Introduction

Increasing the competitiveness of the agri-food sector is a priority of the European Union, as a result of the structural and economic challenges faced by all states. In order to achieve this objective, the member states benefit from non-reimbursable European funds for making investments in the agri-food sector. Agriculture has a major role in the Romanian economy, both as a share of GDP, in the total population employed in the agricultural sector in the total population, as the main generator of jobs and incomes in the rural environment, but especially for ensuring the food security of the population. This notes the need to increase the competitiveness of the agricultural sector, considering, at the same time, ensuring a sustainable development. The difficulty of meeting the objectives is generated by the pressure exerted on natural resources and global warming.

Considering that a main indicator for measuring competitiveness is the GDP, the purpose of the work is to research the influence of the sector on the GDP, the population employed in agriculture and the investments in this sector.

### 2. Literature review

Swedass and Toit (2014) mention that in each country, in order to achieve greater international competitiveness, companies should obtain products at lower costs and with higher quality. (Istudor N. and Petrescu I.E., 2021), the competitiveness of an economic organization or a product is based on two pillars: product quality and low production costs that are below the market price (both conditions being necessary at the same time). For farmers, it is increasingly important that they become entrepreneurial to remain competitive and improve profits (Hochuli *et. all*, 2021).

Other authors consider the competitiveness of the agricultural sector to be given by the export capacity of the respective state, but (Long Y., 2021) states that another important factor is given by the sustainability of its agricultural sector, mentioning, at the same time, that it is difficult to improve the international competitiveness of a country's agricultural products while maintaining the sustainability of its agricultural sector.

Countries in the European Union established the Common Agricultural Policy (CAP) to ensure agricultural sustainability through increased inputs, additional subsidies, marketing efficiency, labor productivity growth, risk management, and others (Vavrina and Martinovicova, 2014).

The Common Agricultural Policy is based on two pillars, the first pillar finances subsidies for farmers and other measures designed to support the market, such as intervention prices, export refunds, etc., and the second pillar, rural development, finances the increase in competitiveness in this sector, the development of alternative activities and the improvement of living conditions in the rural environment, as well as the improvement of the quality of the environment. All these measures are aimed at ensuring a sustainable development of the European rural area. The allocation and utilization of land resources for agriculture decisively condition the economic competitiveness of the agri-food sector and its capacity to fulfil its social role of food security and safety supplier for the country's population in general and for each member of the population households in particular (Tudor M., 2014).

### 3. Research methodology

Competitiveness was assessed through GDP. Also, the factors that influence the GDP were considered the followings: occupied population, labor productivity and total investments. The historical method was used, using data from the National Institute of Statistics for the last 12 years. In order to observe the evolution of the indicators, the average and the rate of evolution of the indicators were calculated. In order to better observe the evolution of the GDP, as the main indicator that measures the level of competitiveness of an economy and the agri-food sector, it was adjusted with the consumer price index from the year 2021. Also, the evolutions of each indicator were represented through graphic method.

### 4. Findings

The Romanian agri-food sector faces numerous gaps in competitiveness compared to other member states of the European Union. The gaps in competitiveness mainly concern the yields obtained in agri-food holdings, both for plant and animal production.

One of the main indicators that measure the level of competitiveness is the contribution of the agricultural sector to the formation of GDP. (Popescu M., 2016), economic growth represents a particularly important objective for Romania, and agriculture constitutes a component of the economy that has remarkable possibilities for achieving this objective. Also, (Popescu M., 2016) mentions that economic growth expresses the real size, in a certain period of time, of the aggregate indicator GDP total or per inhabitant. In a broad sense, economic growth is the form in which the set of quantitative, structural and qualitative transformations that occur within the economic life, in a long period of time, giving the aggregate indicators an upward trend.

Table no. 1. Gross Domestic Product, in the period 2009 – 2021, from Romania

YEAR	GDP mil. lei current prices	GDP from agriculture mil. lei current prices	Share of agriculture in GDP %	Contribution to GDP growth %	Consumer price index %	GDP in comparable prices mil. lei	GDP from agriculture in comparable prices mil. lei
2009	510522,8	27776,7	5,4		141,58	722798,18	39326,25
2010	533881,1	29915,7	5,6	0,2	133,45	712464,33	39922,50
2011	565097,2	36363,1	6,4	0,2	126,15	712870,12	45872,05
2012	596681,5	27885,8	4,7	-0,3	122,08	728428,78	34042,98
2013	637583,1	34776,1	5,5	0,2	117,4	748522,56	40827,14



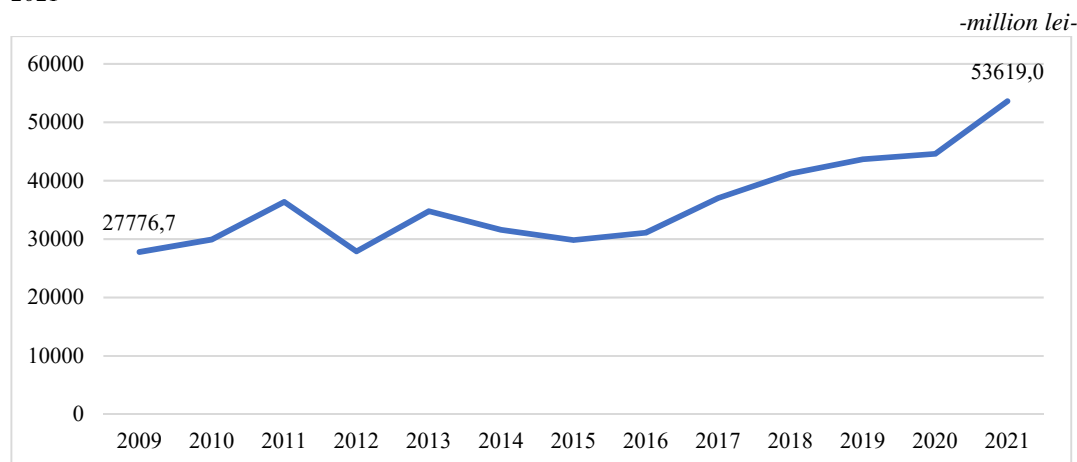
<b>2014</b>	668143,6	31568,5	4,7	0,2	116,16	776115,61	36669,97
<b>2015</b>	712658,5	29825,4	4,2	-0,5	116,85	832741,46	34850,98
<b>2016</b>	765135,4	31077,8	4,1	0,2	118,69	908139,21	36886,24
<b>2017</b>	857895,7	37003,6	4,3	0,6	117,12	1004767,44	43338,62
<b>2018</b>	951728,5	41227,3	4,3	0,4	111,94	1065364,88	46149,84
<b>2019</b>	1058973	43668,1	4,1	-0,2	107,81	1141679,01	47078,58
<b>2020</b>	1066781	44579,2	4,2	-0,7	105,05	1120652,92	46830,45
<b>2021</b>	1187402	53619,0	4,5	0,2		1187402,41	53619,00

Source: data processing from National Institute of Statistics

The gross domestic product represents the value expression of all the goods and services produced within an economy, by domestic and foreign economic agents, in a certain period of time.

From the analysis of the evolution of GDP at the level of the national economy, expressed in current prices, in the period 2009 - 2021, it can be seen that it grew constantly, with a rate of 56,406 million lei/year. In 2021, the GDP at the level of the national economy was 1,187,402 million lei, representing an increase of 132% compared to the level of 2009, of 510,522.8 million lei.

Graph no. 1. Evolution of the Gross Domestic Product from agriculture, in Romania, in the period 2009 – 2021



Source: data processing from National Institute of Statistics

The variation of GDP in agriculture is determined by a number of factors, from the climate factor to the intermediate consumptions used in this sector. The factors that influence the GDP in agriculture are especially the natural factors, the Romanian agricultural sector being dependent on the climate. Also, the natural factor is determined by the agricultural land available to our country. The agricultural potential of our country is about 14 million hectares of agricultural land, which places Romania in 7th place in the European Union, according to this indicator.

A challenge for agriculture, even more so in our country, will be to ensure the increase of the competitiveness of the sector, that can be achieved through investments and the increase of intermediate consumption, simultaneously with ensuring a sustainable development.

Another factor that influences the GDP obtained in agriculture is the human factor. The employed population followed the trend of the total population, registering significant decreases in the last period. At the level of the employed population, in 2021, there were 7,6 million people, and in 2009, there were 8,41 million people, which represents a decrease of 10%. In the period 2009 - 2020, the decreases were very small, the highest decrease, of approximately 10%, as it was in the entire period, is recorded in 2021.

Moreover, analyzing the significant decrease from 2021, at the level of the total employed population, this is 841 thousand people, and in agriculture, in the same period, the decrease is 835 thousand people. This demonstrates the fact that the massive decrease recorded in 2021 compared to 2020 is almost entirely caused by the decrease in the population employed in the agricultural sector.

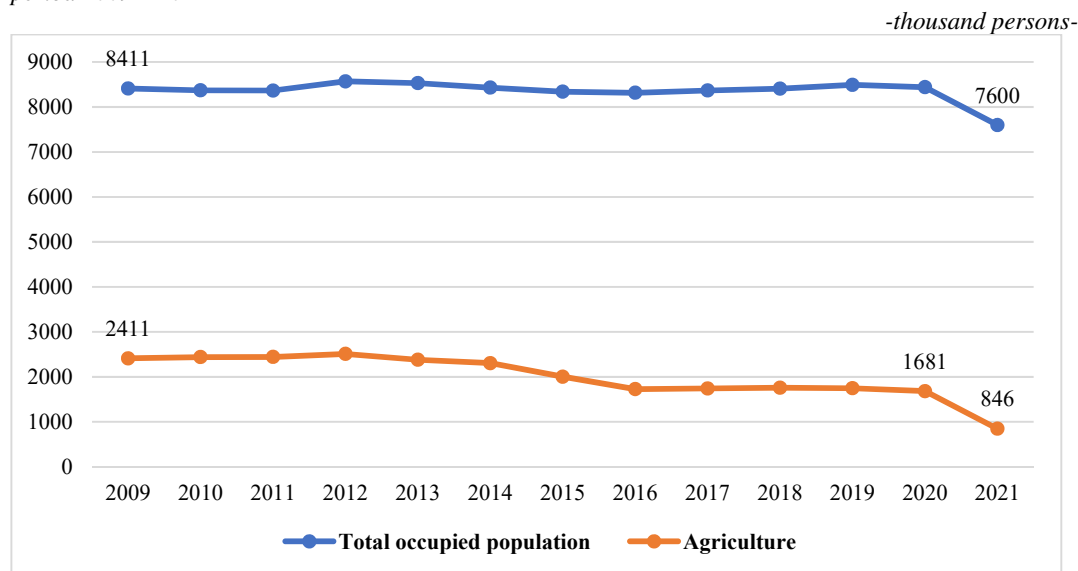
Table no. 2. Employed population, employed population in agriculture and share of employed population in agriculture in total employed population, in Romania, in the period 2009 - 2021

Year	Total occupied population thousand persons	Agriculture thousand persons	Share %
2009	8411	2411	28,66
2010	8371	2440	29,15
2011	8366	2442	29,19
2012	8570	2510	29,29
2013	8531	2380	27,90
2014	8431	2304	27,33
2015	8341	2003	24,01
2016	8318	1727	20,76
2017	8367	1742	20,82
2018	8408	1759	20,92
2019	8493	1747	20,57
2020	8441	1681	19,91
2021	7600	846	11,13

Source: data processing from National Institute of Statistics

The population employed in agriculture was decreasing both numerically and as a share in the total employed population. In 2009, the share of the population employed in agriculture was 28.66% of the total employed population, and in 2021, this will reach 11.13%.

Graph no. 2. Evolution of employed population and employed population in agriculture, in Romania, in the period 2009 – 2021



Source: data processing from National Institute of Statistics

In the period 2009 - 2021, the population employed in the national economy recorded an annual decrease, on average, of -67,583.33 people, while the population employed in agriculture recorded an average annual decrease of -130,416.7 people. The highest decrease in the population employed in agriculture is recorded, in the period 2020-2021, falling from 1.681 thousand people, to 846 thousand people, a decrease of 835 thousand people, representing 50%.

The decrease of the population employed in agriculture is a consequence of the demographic decline, especially in rural areas where the main economic activity is agriculture, followed by the decrease in the interest of employees in the primary sector due to low incomes, services predominating in the choice of jobs, but also a consequence of the massive investments in this sector, which determined a technology of agriculture, especially in the case of large crops.

*Table no. 3. Total productivity, productivity from agricultural sector and share of agricultural productivity in the total productivity, in Romania, in the period 2009 - 2021*

<b>YEAR</b>	<b>Total Productivity, lei/person</b>	<b>Agriculture lei/person</b>	<b>Share %</b>
2009	60697,04	11520,82	18,98
2010	63777,46	12260,53	19,22
2011	67546,88	14890,70	22,04
2012	69624,45	11109,88	15,96
2013	74737,21	14611,81	19,55
2014	79248,44	13701,61	17,29
2015	85440,41	14890,36	17,43
2016	91985,50	17995,25	19,56
2017	102533,25	21242,02	20,72
2018	113193,21	23437,92	20,71
2019	124687,77	24996,05	20,05
2020	126380,82	26519,45	20,98
2021	156237,16	63379,43	40,57

*Source:* data processing from National Institute of Statistics

Labor productivity was calculated as a ratio between GDP and the number of the employed population. From the analysis of this indicator, it appears that the total productivity increased, from 60.697 lei/person, in 2009, to 156.237,16 lei/person, in 2021, representing an increase of 157%. Regarding the agricultural sector, it is found that productivity is 11.520,82 lei/person, in 2009, and 63.379,43 lei/person, in 2021, representing an increase of 450%.

Another factor that influences the variation of the GDP obtained in agriculture is represented by the investments made in this sector. Since 2000, the agricultural sector in Romania has benefited from numerous investments financed through the European pre-accession funds, but also from national and private funds.

Starting with 2007, Romania, as a member state of the European Union, began to benefit from non-reimbursable European funds that specifically financed the competitiveness of the sector, having allocations of about 40% of the total funds for rural development. The total funds for rural development represent, in average, about 8 billion Euro from European Union, without the national contribution, for a period of 7 years.

In order to ensure a sustainable development of the sector and the rural area, the non-reimbursable European funds also finance the improvement of the environment in the rural area, agriculture representing a polluting activity for the environment. Also, in order to increase the quality of life in the rural environment and for the rejuvenation of the rural area, a series of alternative activities, generating added value and jobs, such as agritourism, crafts, etc., are financed, starting from 2007 and until now.

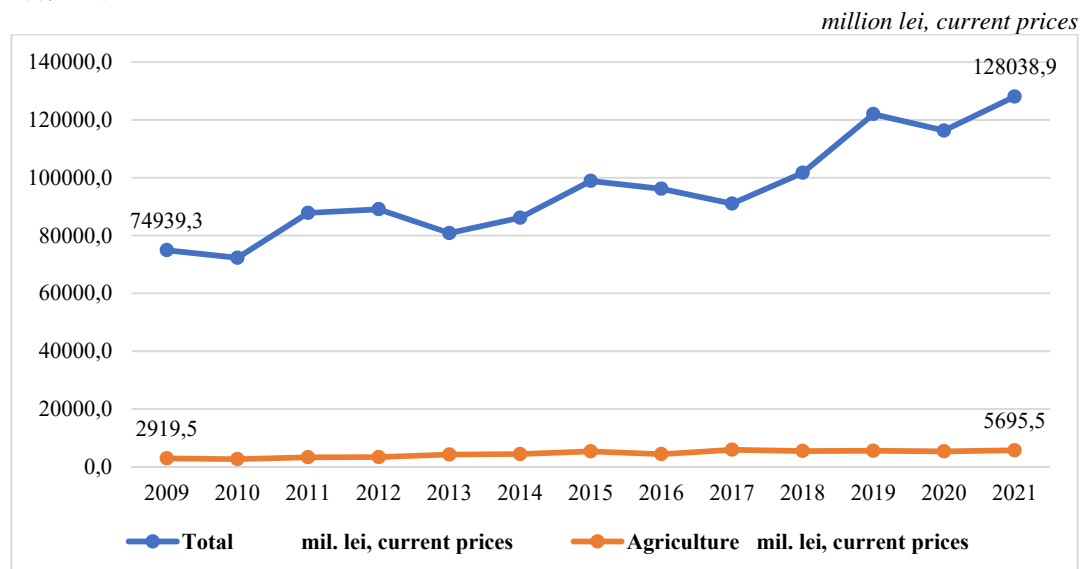
Table no. 4. Total investments, investments from agricultural sector and share of investments from agricultural sector in total investments, in Romania, in the period 2009 - 2021

Year	Total investments mil. lei, current prices	Agriculture mil. lei, current prices	Share %
2009	74939,3	2919,5	3,90
2010	72294,7	2659,8	3,68
2011	87815,8	3285,1	3,74
2012	89092,3	3371,7	3,78
2013	80849,0	4257,3	5,27
2014	86160,0	4391,0	5,10
2015	98888,0	5333,5	5,39
2016	96162,9	4371,3	4,55
2017	91045,5	5878,2	6,46
2018	101702,5	5475,1	5,38
2019	121992,9	5552,0	4,55
2020	116305,5	5344,0	4,59
2021	128038,9	5695,5	4,45

Source: data processing from National Institute of Statistics

In 2009, the total investment amounted 74.939,3 million lei, in current prices, while in 2021, the total investments amounted 128.038,9 million lei, representing an increase of 70,8%. The agricultural sector has benefited from a higher increase in the same period, of 95%, as in 2009, the investments from agriculture amounted 2.919,5 million lei, and in 2021 they amounted 5.695,5 million lei. It is found that the weight held by the investments in the agricultural sector in the total investments made at the level of the national economy is equal to the weight of the GDP obtained in agriculture in the total GDP.

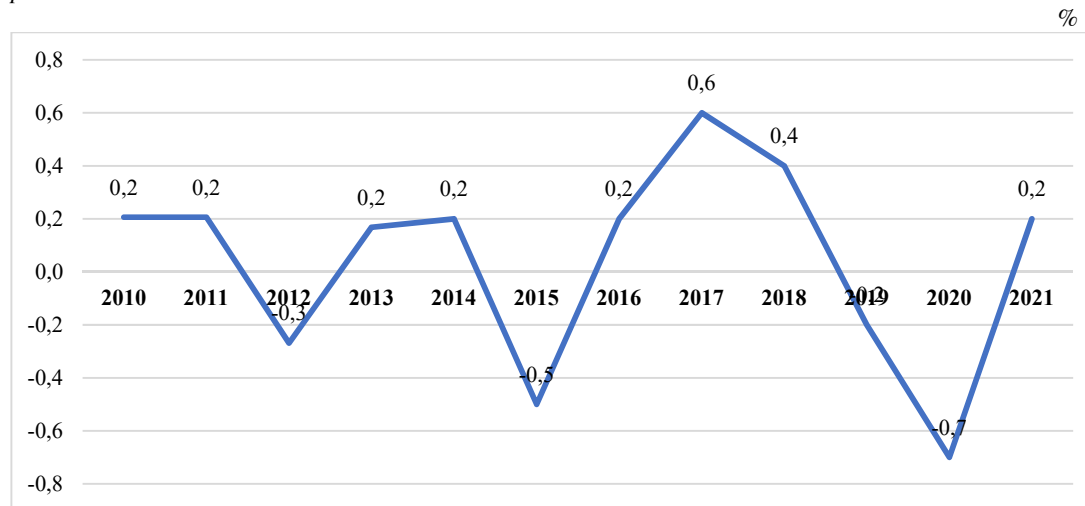
Graph no. 3. Evolution of Total investments, investments from agricultural sector, in Romania, in the period 2009 – 2021



Source: data processing from National Institute of Statistics

During the analyzed period, investments at the level of the national economy registered an increasing trend. Every year, the increase was, on average, 4.424 million lei. Also, investments in the agricultural sector registered the same upward trend. Every year, the increase was, on average, 231 million lei.

*Graph no. 4. Contribution of agricultural sector to Gross Domestic Product growth, in Romania, in the period 2009 - 2021*



Source: data processing from National Institute of Statistics

The contribution of the agricultural sector to GDP growth was calculated as the ratio between the variation of the agricultural GDP and the variation of the total GDP, based on the chain. In the period 2010 – 2021, the agriculture sector has contributed to the GDP growth annually with 0,2%, with the exception of 2017, when it reached the highest contribution to GDP growth, with 0,6%, and 2018, when it contributed 0,4%. The dependence of the agricultural sector on the climate factor can also be seen in the dry years, in which the agricultural sector contributed to the decrease of GDP by 0,3% in 2012, by 0,5% in 2015, and by 0,7%, in 2020.

The contribution of the agricultural sector to GDP growth is also determined by its role in training other industries, both upstream and especially downstream. Therefore, the real contribution of this sector is difficult to quantify, especially since this sector ensures the security and food security of the population.

## 5. Conclusions

Competitiveness is a term often found in specialized literature, especially recently. Moreover, the competitiveness of the agricultural sector is studied by numerous authors and quantified through numerous indicators. In the work, the competitiveness of the agricultural sector was assessed through the main macroeconomic aggregate, respectively GDP. The analysis of this indicator shows an increase both at the level of the national economy, but also at the level of the agricultural sector. The increase in relative sizes is approximated in the case of the GDP from agriculture with the GDP obtained at the level of the national economy. However, the share of the GDP obtained in agriculture in the total GDP is decreasing, reaching 4.5%, in 2021. The evolution of some indicators that influence the results of the agricultural sector, namely the employed population, productivity was also analyzed work and investments in the sector. Although the employed population drops drastically in 2021, in agriculture reaching half, nevertheless labor productivity increases significantly, in the case of the national economy by 157%, in 2021 compared to 2009 and in the case of agriculture by 450%.

In order to increase the competitiveness of the agricultural sector it is necessary to increase the quantity and especially the quality of the products. For this, the European Union finances, through the National Strategic Plan, a series of intervention measures designed to support domestic agricultural producers. Thus, the modernization of agricultural holdings to contribute to increasing yields and, in particular, the quality of products, represents a condition for increasing the sector's competitiveness and penetrating foreign markets, a fact that would contribute to balancing the trade balance. Considering the sustainable development objectives assumed through the 2030 Agenda and the National Strategy for Sustainable Development of Romania 2030, a balance must be found between increasing competitiveness, especially against the background of increasing yields per hectare, which implies an increase in intermediate consumption with a direct impact on environment and environmental production in rural areas.

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## Analysis of Fulfillment of the Objectives for Sustainable Development in Romania

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### Abstract

*The paper represents an analysis of the fulfillment of the indicators assumed in SDG no. 1 "No poverty", from Romania. The analysis aims at ranking all the member states of the European Union, with an emphasis on Romania, according to three indicators, respectively: real GDP/capita, persons at risk of poverty or social, severe housing deprivation rate. The correlation of the ranks of the three indicators demonstrates that, although there are states with a high standard of living, registering high values of the macroeconomic aggregate GDP/capita, however, they also face social problems, especially regarding persons at risk of poverty or social exclusion.*

**Key words:** sustainable development, target, poverty

**J.E.L. classification:** Q01, Q56

### 1. Introduction

The 2030 Agenda establishes 17 sustainable development goals, containing 169 indicators that each country must meet by 2030. It was adopted in September 2017, by the United Nations, for 193 states. The agenda establishes a common framework for implementing objectives to ensure sustainable development, divided into 3 components: economic, social and environmental. In order to implement the objectives established within the 2030 Agenda, Romania developed the Strategy for the Sustainable Development of Romania 2030. This was adopted by Government Decision in 2018. Through this strategy a new set of values is brought into consideration, which is the basis of the economic, social and environmental development of our country. The monitoring of the fulfillment of the objects is necessary to be carried out permanently in order to determine possible gaps and to identify methods and tools intended to lead to the fulfillment of all indicators. The purpose of the paper is to determine the gaps between Romania and the European Union states, regarding the fulfillment of some indicators that belong to the objective of sustainable strategy no. 1 "No poverty".

### 2. Literature review

Sustainable development addresses humanity's aspiration for a better life while observing the limitations imposed by nature (United Nations Brundtland Report, 1987). Although over time there have been criticisms and divergent opinions, nevertheless the 17 objectives represent the main topic of discussion in the development of policies in all fields (Kopnina H., 2015). Given the importance of these goals and their short time horizon, it is critical that policy makers receive relevant and timely information to facilitate potential mitigation or adaptation policies on SDG trade-offs (Scherer *et. all*, 2018). Implementing the SDGs also requires collaboration across countries (Stafford-Smith M., 2017).

According to the United Nations, 1997, economic development, social development, and environmental protection are interdependent and mutually reinforcing components of sustainable development. (Fonseca L.M. *et. all*, 2020) consider that each of these factors has played a major role in recent years in terms of efforts for innovation, financing and global development.

The major role of Agenda 2030 is to improve the quality of life of all citizens as well as to increase prosperity. The large number of targets make interactions between targets inevitable. Given the importance of these goals and their short time horizon, it is critical that policy makers receive relevant and timely information to facilitate potential mitigation or adaptation policies on SDG trade-offs (Scherer *et. all*, 2018).

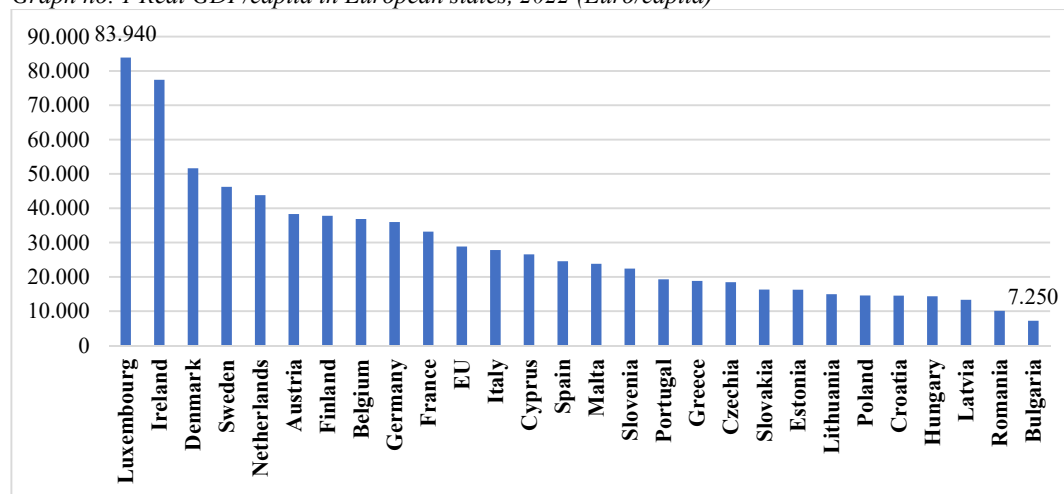
### 3. Research methodology

In order to fulfill the objective of the work, the ranking method was used, through which all the member states of the European Union, with an emphasis on Romania, were ranked, according to three indicators, respectively: real GDP/capita, persons at risk of poverty or social, severe housing deprivation rate. In order to determine the gaps between the member states, the correlation between the Real GDP/capita, Persons at risk of poverty or social exclusion and Severe housing deprivation rate by poverty status, in 2022, was also calculated. The data used had Eurostat as the main source.

### 4. Findings

One of the most important indicators used in order to rank regions and states is Gross Domestic Product per capita. GDP represents a macroeconomic aggregate that represents the basis for the elaboration and development of European policies and strategies. In 2022, the GDP/capita for the European Union was 28.840 Euro/capita.

Graph no. 1 Real GDP/capita in European states, 2022 (Euro/capita)

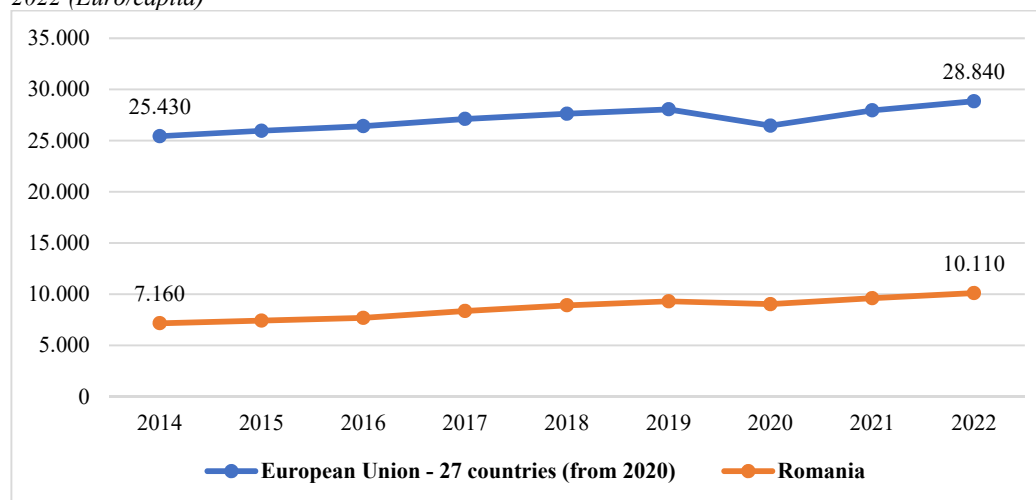


Source: Eurostat data processing

Luxembourg has the highest GDP/capita, of 83.940 Euro/capita, with 191% more than the average of the EU. Ten of the countries from European Union have the GDP/capita over the average of 28.840 Euro/capita, as follows: Luxembourg, Ireland, Denmark, Sweden, Netherlands, Austria, Finland, Belgium, Germany and France. In the same time, 17 countries have the GDP/capita under the European average, as follows: Italy, Cyprus, Spain, Malta, Slovenia, Portugal, Greece, Czechia, Slovakia, Estonia, Lithuania, Poland, Croatia, Hungary, Latvia, Romania and Bulgaria.



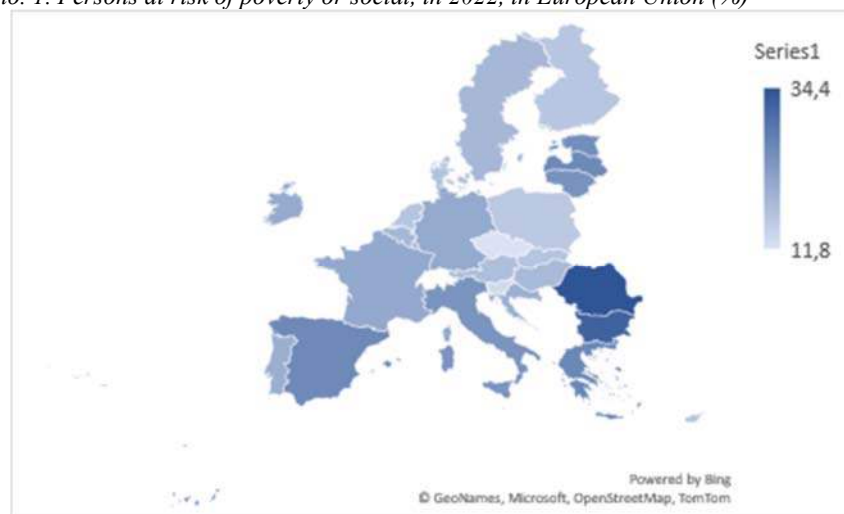
Graph no. 2. Evolution of the real GDP/capita, in European Union and Romania, in the period 2014 – 2022 (Euro/capita)



Source: Eurostat data processing

In 2022 the real GDP/capita, in European Union, has increased at 28.840 Euro/capita. Romania level of real GDP/capita, in 2022, is 10.110 Euro/capita, placing our country on the penultimate place and Bulgaria on the last rank. Although, the level of the real GDP/capita is still a lot under the European Union average level, we can see that the rhythm, in the period 2014 – 2022, of Romania is similar with European Union. In Romania, the increasing rhythm is 369 Euro/capita and in European Union is 426 Euro/capita. Furthermore, the GDP/capita growth in Romania is representing 41,2%, for the same period, compared with European Union of 13,40%. Romania's growth rate for real GDP/capita can also be seen in the weight it holds in the average registered at the EU level. The share registered a positive evolution throughout the analyzed period, growing continuously, from 28,16%, in 2014, to 35,06%, in 2022. Although we are still far from approaching the EU average for this indicator, we can say that Romania is making progress in terms of bringing the GDP level closer to the EU average.

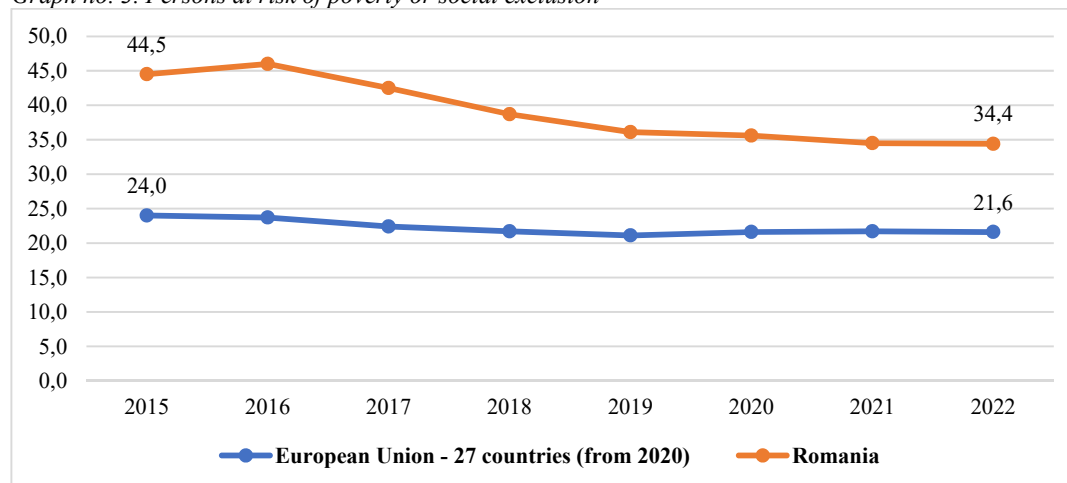
Figure no. 1. Persons at risk of poverty or social, in 2022, in European Union (%)



Source: Eurostat data processing

This indicator is one of the most important for the first Sustainable Development Goal "No Poverty". As mentioned by the Agenda 2030, European countries should eradicate the extreme poverty for all citizens and should reduce by a half the number of the persons that live in relative poverty. In 2022, the European Union average for this indicator is 21,6% of total population represent persons at risk of poverty or social exclusion. There are big differences at the level of the member states of the European Union, starting with our country which registers the highest level, of 34.4% and at the opposite pole is the Czech Republic, with a percentage of 11.8%.

Graph no. 3. Persons at risk of poverty or social exclusion



Source: Eurostat data processing

In the period 2015 – 2022, all the member states of the European Union registered a decreasing rate of the people at risk of poverty or social exclusion indicator. Thus, at the EU level, the rate of decrease was 0.34 percentage points/year, and the average value of the indicator between 2015 and 2022 was 22.2%. As far as our country is concerned, a faster rate of decrease is observed, from a value of 44.5% in 2015 to 34.4% in 2022. The rate of decrease was 1.44 points percentages/year, much higher than that registered at the EU level. However, our country registers the highest of this indicator, still requiring efforts to approach the EU average, as well as the target set at the level of SDG 1, until 2030.

Figure no. 2. Severe housing deprivation rate, in 2020, in European Union(%)



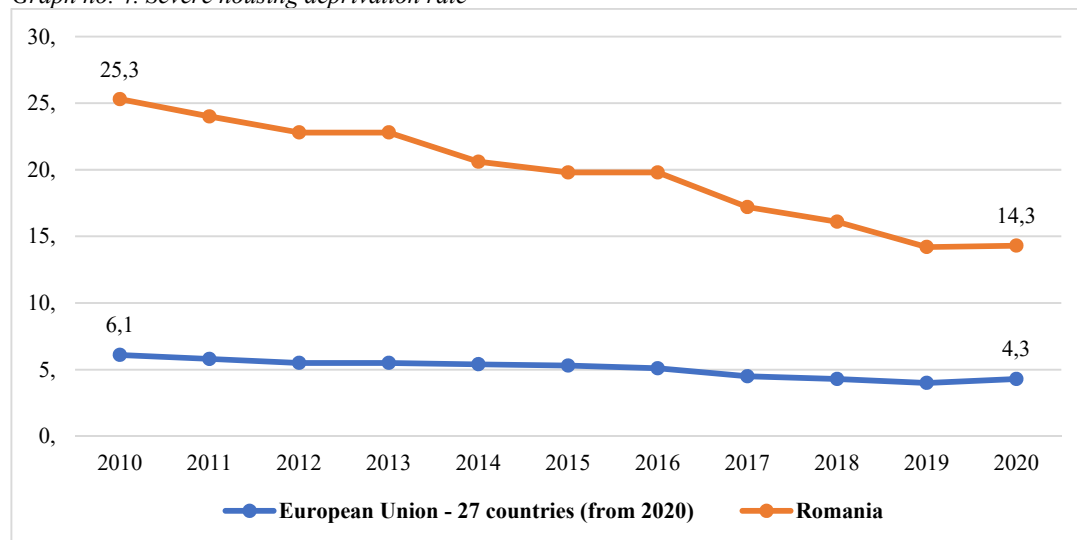
Source: Eurostat data processing

According to (Hick R.. *et. all*, 2022), in policy and academic discussions there are still concerns regarding the measurement and monitoring of the housing deprivation. They mention that one immediate problem regarding this issue is based on statistical analysis from surveys and sampling could exclude different categories of people that suffer from the most extreme way of poverty.

As well, different authors consider that housing problems could cover a wide range of problems (Nolan B., Winston N., 2011), while an OECD report from 2021, mentions that no agreed definition of housing deprivation exists across countries.

In 2020, the rate of severe housing deprivation in European Union records 4,3%. Malta and Finland records the smallest rate, of only 1%, followed by Germany with 1,2%, Ireland with 1,4%, Netherlands with 1,5%, Cyprus and Luxembourg with 1,6%. From all European countries, 18 of them record the rate under the average of 4,3% and 9 countries have this rate over, as follows: Croatia 5,1%, Lithuania 5,4%, Greece 5,8%, Italy 6,1%, Hungary 7,6%, Poland 7,9%, Bulgaria 8,6%, Latvia 11,5% and Romania 14,3%.

Graph no. 4. Severe housing deprivation rate



Source: Eurostat data processing

In the period 2010 – 2020, the average rate of severe housing deprivation in European Union was 5,07%, while in Romania was 19,72%. It is found that throughout this period, both the European Union and Romania register a decreasing trend every year, registering a rate of decrease of 0.18 percentage points in the EU and 1.1 percentage points in Romania. In the 11 years analyzed, Romania manages to reduce the level of this indicator to almost half of the level of 2010. However, our country registers the highest level of all the member states of the European Union, thus having to develop a series of strategies and policies intended to align with the average level in the EU and with the target set in the Sustainable Development Strategy of Romania 2030.

Table no. 1. Ranking of the European Union states according to the Real GDP/capita, persons at risk of poverty or social exclusion and severe housing deprivation rate, in 2022\*

Real GDP per capita (Euro/capita) y			Persons at risk of poverty or social exclusion (%) x1		Severe housing deprivation rate by poverty status (%) x2		Average rank
State	Euro/pers	Rank	%	Rank	%	Rank	
Austria	38.340	6	17,5	9	3,0	13	9,33
Belgium	36.860	8	18,7	12	2,3	10	10,00
Bulgaria	7.250	27	32,2	26	8,6	25	26,00
Croatia	14.540	23	19,9	14	5,1	19	18,67

<b>Cyprus</b>	26.550	12	16,7	7	1,6	7	8,67
<b>Czechia</b>	18.460	18	11,8	1	2,0	8	9,00
<b>Denmark</b>	51.660	3	17,1	8	2,8	12	7,67
<b>Estonia</b>	16.250	20	25,2	22	2,1	9	17,00
<b>Finland</b>	37.780	7	16,3	4	1,0	2	4,33
<b>France</b>	33.180	10	21,0	19	3,8	17	15,33
<b>Germany</b>	36.010	9	20,9	18	1,2	3	10,00
<b>Greece</b>	18.830	17	26,3	25	5,8	21	21,00
<b>Hungary</b>	14.370	24	18,4	10	7,6	23	19,00
<b>Ireland</b>	77.430	2	20,7	17	1,4	4	7,67
<b>Italy</b>	27.860	11	24,4	20	6,1	22	17,67
<b>Latvia</b>	13.320	25	26,0	24	11,5	26	25,00
<b>Lithuania</b>	14.970	21	24,6	21	5,4	20	20,67
<b>Luxembourg</b>	83.940	1	19,4	13	1,6	6	6,67
<b>Malta</b>	23.810	14	20,1	15	1,0	1	10,00
<b>Netherlands</b>	43.800	5	16,5	5	1,5	5	5,00
<b>Poland</b>	14.600	22	15,9	3	7,9	24	16,33
<b>Portugal</b>	19.290	16	20,1	16	3,9	18	16,67
<b>Romania</b>	10.110	26	34,4	27	14,3	27	26,67
<b>Slovakia</b>	16.300	19	16,5	6	3,2	15	13,33
<b>Slovenia</b>	22.450	15	13,3	2	3,1	14	10,33
<b>Spain</b>	24.580	13	26,0	23	3,4	16	17,33
<b>Sweden</b>	46.250	4	18,6	11	2,5	11	8,67

*\*except the Severe housing deprivation rate by poverty status, the level of the indicator is from 2020*

*Source: Eurostat data processing*

The data processed in table number 1 ranks the member states of the European Union according to three indicators, respectively: real GDP/capita, Persons at risk of poverty or social exclusion and Severe housing deprivation rate by poverty status. For each state, an average rank was calculated, as an arithmetic mean between the rank obtained by each of the three indicators. From the analysis of the data, it is found that Finland is in first place, based on the three indicators, obtaining an average rank of 4.3. This is followed by the Netherlands which obtains an average rank of 5.00 and Luxembourg with 6.67. Although Luxembourg registers the highest standard of living, having the highest GDP/capita, it ranks 1st in this indicator, with a value of 83,940 Euro/capita, twice the EU average, however, in the Persons at risk of poverty or social exclusion, ranks 13th, with a fairly high value of 19.4%.

On the last places is Latvia, obtaining an average rank of 25, followed by Bulgaria with an average rank of 26 and on the last place is Romania, obtaining an average rank of 26.67. Considering the high values of the indicators aimed at the fulfillment of SDG 1 "No poverty", respectively Persons at risk of poverty or social exclusion and Severe housing deprivation rate by poverty status, Romania must make great efforts in order to eradicate the extreme poverty for all citizens and should reduce by half the number of persons who live in relative poverty. Although GDP/capita grew at a rate close to that of the EU, and the other two indicators decreased at a rapid rate that exceeds the rate recorded by the EU, nevertheless our country must orient its social policy in order to reduce the values of the indicators Persons at risk of poverty or social exclusion and Severe housing deprivation rate by poverty status.

Table no. 2. The correlation between the Real GDP/capita, Persons at risk of poverty or social exclusion and Severe housing deprivation rate by poverty status, in 2022\*

State	Rank			d2x1x2	d2x1y	d2x2y
	Y	x1	x2			
<b>Austria</b>	6	9	13	16	9	49
<b>Belgium</b>	8	12	10	4	16	4
<b>Bulgaria</b>	27	26	25	1	1	4
<b>Croatia</b>	23	14	19	25	81	16
<b>Cyprus</b>	12	7	7	0	25	25
<b>Czechia</b>	18	1	8	49	289	100
<b>Denmark</b>	3	8	12	16	25	81
<b>Estonia</b>	20	22	9	169	4	121
<b>Finland</b>	7	4	2	4	9	25
<b>France</b>	10	19	17	4	81	49
<b>Germany</b>	9	18	3	225	81	36
<b>Greece</b>	17	25	21	16	64	16
<b>Hungary</b>	24	10	23	169	196	1
<b>Ireland</b>	2	17	4	169	225	4
<b>Italy</b>	11	20	22	4	81	121
<b>Latvia</b>	25	24	26	4	1	1
<b>Lithuania</b>	21	21	20	1	0	1
<b>Luxembourg</b>	1	13	6	49	144	25
<b>Malta</b>	14	15	1	196	1	169
<b>Netherlands</b>	5	5	5	0	0	0
<b>Poland</b>	22	3	24	441	361	4
<b>Portugal</b>	16	16	18	4	0	4
<b>Romania</b>	26	27	27	0	1	1
<b>Slovakia</b>	19	6	15	81	169	16
<b>Slovenia</b>	15	2	14	144	169	1
<b>Spain</b>	13	23	16	49	100	9
<b>Sweden</b>	4	11	11	0	49	49
<b>TOTAL</b>				<b>1840</b>	<b>2182</b>	<b>932</b>

\*except the Severe housing deprivation rate by poverty status, the level of the indicator is from 2020

Source: Eurostat data processing

From the analysis of the rank correlations, it is found that there are large variations between the ranks obtained by the member states of the European Union. The state that does not show variations, obtaining the 5th rank for all the analyzed indicators, is the Netherlands. The states that show smaller variations in the ranks, thus obtaining similar values for all three indicators, are Lithuania and Romania.

## 5. Conclusions

As mentioned by the Romanian Strategy for Sustainable Development 2030, Romania, as a member state of the United Nations (UN) and the European Union (EU), expressed its adherence to the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda, adopted by UN General Assembly Resolution A/RES/70/1, during the UN Summit on Sustainable Development in September 2015.

The EU adopted the EU Council Conclusions of 20 June 2017 through the document "A sustainable future for Europe: the EU response to the 2030 Agenda for Sustainable Development", which define the main directions of action of the EU member states for the implementation of the 2030 Agenda for Sustainable Development.

Regarding SDG 1 "No poverty", Romania must make great efforts and changes within economic and social policies to be able to reach the targets for the year 2030, namely the eradication of extreme poverty for all citizens and its reduction by at least half of the number of citizens living in relative poverty. Analyzing these indicators, it is found that Romania obtains the highest values for Persons at risk of poverty or social exclusion and Severe housing deprivation rate, placing our country in last place among the 27 member states of the European Union. Although Romania managed to reduce the value of these indicators in the last 10 analyzed years, it is still far from the average recorded at the level of the European Union and the target for the year 2030 established by the 2030 Agenda. The correlation of the ranks of the three indicators demonstrates that, although there are states with a high standard of living, registering high values of the macroeconomic aggregate GDP/capita, however, they also face social problems, especially regarding persons at risk of poverty or social exclusion.

The monitoring of these indicators allows the establishment of a set of policies aimed at contributing to the increase of the quality of life and reducing the gaps with the other member states.

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ISSN-L 2393-3119  
ISSN 2393-3127