

**OVIDIUS UNIVERSITY  
ANNALS**

**ECONOMIC SCIENCES  
SERIES**

**Volume XXII  
Issue 1**

**Year 2022**

ISSN-L 2393-3119  
ISSN 2393-3127

**OVIDIUS UNIVERSITY ANNALS**

**ECONOMIC SCIENCES SERIES**

**Volume XXII**

**Issue 1**

**2022**

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

## Excess Mortality Associated with the Covid-19 Pandemic in Romania

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### Abstract

*The aim of the paper is to determine if there was an excess mortality in Romania in the 2020-2021 interval and to establish if this excess is explained only by increasing mortality directly resulting from Covid19 disease or/and by collateral deaths from various causes. Due to the fact that a simple international comparison of data directly associated with deaths caused by COVID-19 appears more and more debatable, the new approach of European Official Statistics (Eurostat), but also of other international statistical bodies by calculating an indicator of excess mortality over a period compared to a reference period (2016-2019), appears as a valid general measure of the health crisis real impact on the total mortality in a region/country. Based on these new statistics our findings reveal that Romania's excess mortality was caused by Covid19 disease but also in same proportion by collateral deaths.*

**Key words:** mortality, Covid19 Pandemic, excess mortality, Romania

**J.E.L. classification:** I10, I18, J11

### 1. Introduction

Basically, collection and analysis of statistical data regarding mortality in the EU belong to population and demography issues and account at national level. These mortality specific data also break down on groups of sex, age, education levels and nationalities and all these for each year. However, how could such a new accounting, be it accurate and detailed in itself, be ever able to reflect the proper size of the pandemic, since not related to the whole population of a country, a multi-country region and so on? Moreover, how to properly compare the current pandemic years situation to the one of the previous years in such circumstances, be it just on the mortality data side? Besides, obvious inter-State differentiations on healthcare systems and specific policies, caused by the ones of economic development (and not only), were producing in their turn differentiated effects, as the case of measures taken about the pandemic and about corresponding data reporting. International comparison on data so was all over suffering.

### 2. Literature review

Never neglecting the basic historical data on mortality collected, the year 2020 brought in the need of renewing the assessment method for mortality, together with the pandemic. World Health Organisation (WHO, 2022) representatives here argue for the concept of *excess mortality, related to Covid-19* that they find as closer to a proper evaluation of direct and indirect results of the pandemic (Table no. 1).

Table no. 1 Excess mortality. Definitions given in the literature

Author/Organisation	Definitions
Checchi, F. and Roberts, L. (2005)	Number of deaths during a specific health crisis, as compared to corresponding expectations for non-crisis (i.e. normal) periods. This term belongs to the public healthcare sector.
Eurostat (2022)	An unusual mortality level arising for a limited period on an also limited population/region.
University of Oxford Our World in Data (2022)	The simple difference between total number of deaths in a specific period/raw deaths and the same in non-specific periods / “normal” deaths or/and number of deaths just expected to happen.
OECD(2020)	Comparison between total deaths from all causes in a certain (specific) period (e.g. 2020, 2021) and annual average number of deaths of the previous periods. OECD here has opted for the five-year interval previous to the Covid-19 pandemic triggered. A period during which population’s adjustments on age and sex groups were made concomitantly with and according to deaths reported.
UK Health Foundation(2020)	The most accurate way to make international comparisons of deaths caused by Covid19
ECDC (2020)	The difference between number of deaths officially reported for a period done and previously expected deaths for the same length of period.

Source: Eurostat, OECD, ECDC

Actually, this equals the difference between total number of deaths attributed to a unit of territory (country, region or territorial district) for a given time period and expectable number of deaths in the absence of the pandemic in the same time and on the same territory.

Eurostat (European Commission's statistical body), on the European continent, took another initiative in April 2020: an exceptional weekly data collection on deaths for the help of political authorities and of research units to better and more closely approaching all about the pandemic content. The result did consist in a more mobile and adaptive statistic done for equally more rapid situation changes on the mortality side. In context, Eurostat itself does find the same *excess mortality* indicator as percentages comparing total current deaths (i.e. of all causes) with those expected previously, in the reference times with no pandemic – e.g. for 2020 and 2021 the reference period was considered the 2016-2019 time interval. The higher this index, the more current deaths as compared to the ones of the reference period; when negative, on the contrary, the current deaths get less numerous than those of the reference period (Eurostat,2022). It is finally this index expected as able to approach the true dimension of the recent health crisis and to offer a valid measure for the same crisis impact on mortality— i.e. it includes all existing and reportable deaths irrespective of their causes.

Our below analysis does base on this new statistic on Romania. Eurostat, again, here helps by offering data on *excess mortality in Romania*, as part of the EU region, here including by breaking it down on groups of sex and ages, as well as on interior regions and territorial districts.

Then, the excess mortality evaluation became an intense preoccupation for both epidemiologists and statisticians since the beginning of pandemic for better relate current happenings to the ones of the previous periods, taken as normal, i.e. off pandemics. There are to be mentioned international organisms and institutions of statistics working on excess mortality estimations: Office for National Statistics (ONS) for England and for Wales, U.S.-National Centre for Health Statistics (NCHS), Euro-MOMO’s. Besides, important media entities provided their own statistics and estimations, once more, for countries that made their own data as such collectable: The Economist (2022), The New York Times, The Financial Times, The Washington Post and, BBC. In April 2020 Eurostat, laid the groundwork for calculating a mortality rate based on data collection on deaths caused by Covid 19 and its specific procedure and methodology included deaths recorded weekly.

In another view the excess mortality came to be seen as the monthly percentage of the mortality surplus of 2020 and 2021, as related to the same month’s mortality average in the 2016-2019 years interval. And this last basing on the assumption that the Covid-19 pandemic was the factor causing these both directly and indirectly.

Last, but not least, the 2016-2019 years interval equals the normality basis in the view of the statistics' publishing department of the European Commission, i.e. Eurostat.

### 3. Methodology and data

Once more, the *excess mortality* will be here below taken as the difference between the number of deaths – i.e. weekly or monthly – officially reported within the 2020-2022 period and an estimation of mortality for this same period previously made in no pandemic moments (Ritchie et al, 2020). Such a methodology is equally used by Eurostat for evaluating the mortality done by the Covid-19 pandemic for both the EU and EFTA member countries, but with no country-pandemic profile here coming out. The Eurostat data estimate the number of deaths throughout the region by its averages on the four years preceding the pandemic, i.e. weekly averages on the 2016-2019 years interval. Then, these average numbers get compared to the equally weekly deaths reported by the authorities along the pandemic years when these deaths came. In context, it is well understood that no methodology implemented by Eurostat would be possible in the absence of huge efforts on data collecting in the EU member States and the other States involved in this project. Moreover, data were permanently updated so that our study here came to benefit also from the early 2022 data even in a moment where the pandemic wasn’t yet done.

It is basing on this Eurostat’s working model that our data were collected for just Romania – i.e. weekly data on the four years previous to the pandemic for corresponding averages to be computed as such. Then, there comes the turn of extreme – i.e. minimum and maximum – deaths reported in each of the 52-53 weeks of the year and then calculating standard deviations and upper & lower bound of numbers expected at 95% confidence level. Bogos at all (2021) previously applied this method on the Hungary’s case, with a regard on the Eastern European region as well.

See the calculating formula for the weekly excess mortality of 2020 and 2021—i.e. this is for both Eurostat regarding the EU and EFTA member countries and for Oxford University on its web-site called “Our World in Data”.

$$\begin{aligned} EXM_{2020} &= M_{c_{2020}} - M_{e_{2016,2019}} \\ EXM_{2021} &= M_{c_{2021}} - M_{e_{2016,2019}} \end{aligned} \quad (1)$$

In which:

- $EXM$  = *Excess mortality*. This results first in number of deaths (see the  $M_c$ ), so rather no comparability between countries and between regions on such a basis. This is why this number will be related to 100,000 persons in the alternative of the  $EXM\%$  calculated by either *Eurostat*, or University of Oxford.

- $M_c$  = *Crude mortality*, i.e. weekly official data.

- $M_e$  = *Mortality estimated*, i.e. its weekly average of previous 4 years (2016-2019).

Finally,  $EXM$  results as the percentage difference between total deaths of all causes and estimated deaths on the basis of the previous years’ averages, as in the following formula (other studies do call  $EXM$  (%) the “*P-score*”):

$$EXM (\%) = (M_c - M_e) / M_e * 100 \quad (2)$$

Naturally, when  $EXM > M_e$  there are more deaths in the current – i.e. pandemic, 2020-2021 – period, as compared to the reference period – i.e. just previous and taken as normal, 2016-2019. And, on the contrary, when  $EXM < M_e$  there are less deaths in the current period as compared the reference period and  $EXM$  itself is negative.

## 4. Findings

### 4.1 Crude mortality (M<sub>c</sub>) in Romania, 2016-2021 (weekly data)

It is to be noticed in Romania a certain pattern of mortality evolving without obvious ups and downs for the 2016-2019 years interval, unless in cold seasons. Then, the 2020-2021 new situations appear obviously distinct from the previous years’ ones (Table no. 2).

Table no.2. Mortality in Romania, 2016-2021

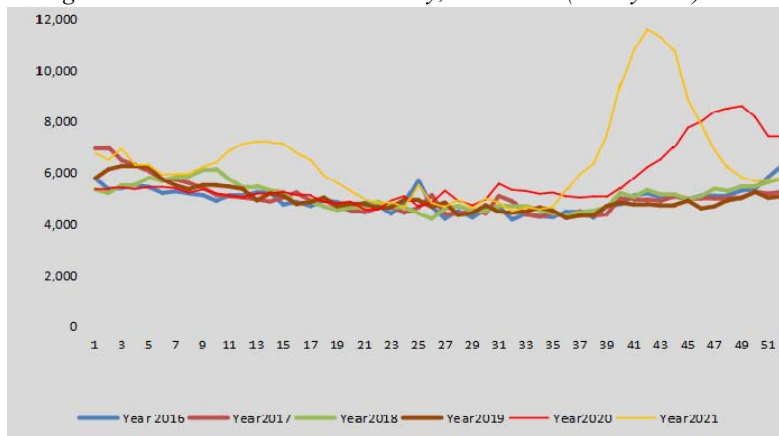
Year	Crude mortality	Males	Females	Crude mortality rate* (number/ 1000 pop.)
2016	258404	135251	123153	13.10
2017	262321	136725	125596	13.40
2018	263911	138224	125687	13.60
2019	259889	136245	123644	13.40
2020	301427	160672	140755	15.61
2021	332483	173059	159424	17.22

Source: countryeconomy.com, 2021

On the 11 March of 2020 the World Health Organization (WHO) declared the Sars-CoV-2 disease a pandemic. But actually during the first half of this first year of pandemic the country’s mortality data yet looked similar to the ones of the precedent years. It was the month of July 2020 – i.e. more precisely the 31<sup>st</sup> week of the year -- when all changed and mortality started growing higher than the one corresponding to the previous years’ trend. Overall, crude mortality increased in Romania from 13.4 deaths per 1,000 inhabitants in 2019 to 15.61 deaths per 1,000 inhabitants in 2020 (table 2). But then, in 2021 pandemic grew much higher, i.e. to 17.22 deaths per 1,000 inhabitants.

The following graph of crude mortality is supposed to accurately reflect the size of pandemic. This latest’s impact on mortality was both direct and indirect, i.e. collateral deaths, as to be detailed about in the next below paragraph. Each of the years 2020 and 2021 included two pandemic waves brought in as assumed to be in infectious agent pandemic cases.

Figure no. 1. Romania: crude mortality, 2016-2021 (weekly data)

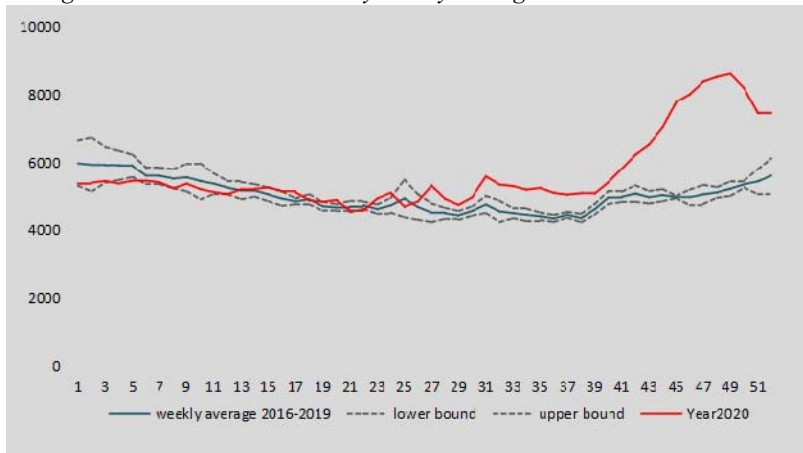


Source: calculations based on Eurostat, 2022

#### 4.2. Mortality estimated(Me) and excess mortality(EXM) in Romania

In our research order crude mortality ( $M_c$ ) of the 2020-2021 pandemic period to be compared to the previous 2016-2019 one ( $M_e$ ) required the statistic calculus on weekly averages for the latter, here including their maximal and minimal numbers expected at 95% significance level.

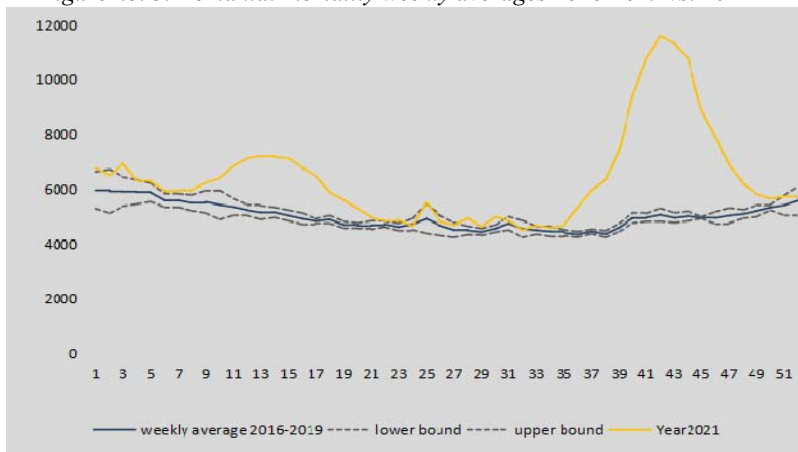
Figure no. 2. Romania: mortality weekly averages 2016-2019 vs. 2020



Source: calculations based on Eurostat, 2022

In Figure 2 these minimal and maximal numbers come on the dotted line that drags in its middle the previous years' specific averages. The 2020 crude mortality numbers here come on the red line – i.e. see the primary 27 weeks of the year (up to the week between the 29 June and 5 July) in which the accounted numbers stayed underneath the up estimation limit (17.51%) made in the reference period. Then, a second pandemic wave came up in September and got obvious after the 41<sup>st</sup> week of the year (11-20 October) to reach its maximum in the 48<sup>th</sup> week (23-29 November) together with as high as 67.4% rise as compared to the reference period.

Figure no. 3. Romania: mortality weekly averages 2016-2019 vs. 2021

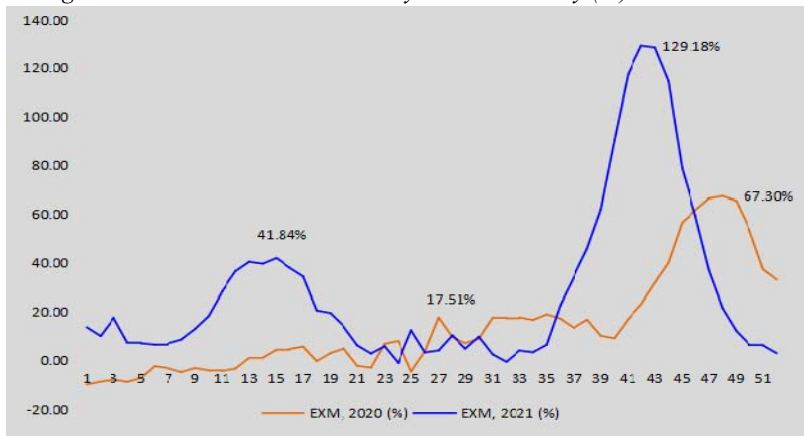


Source: calculations based on Eurostat, 2022

Then in 2021 a new mortality peak came up in early April – i.e. see the 15<sup>th</sup> week case with 36 deaths per 100,000 inhabitants and a 41.8% excess mortality as compared to the same weeks of the years 2016-2019 averages, with 26 deaths per 100,000 inhabitants.

Total number of deaths in Romania lowered between April and August of 2021, but this turned into a new rise in September (the 38<sup>th</sup> week of the year) that went on in October and November. The maximum here reached in the 42<sup>nd</sup> week brought in a 129.18% excess mortality related to its estimation (Figure 4) -- i.e. actually, more than 100% excess mortality means more than double than estimated for that week. Equation 2 was applied for these growth percentages.

Figure no. 4. Romania: EXM- weekly excess mortality (%)



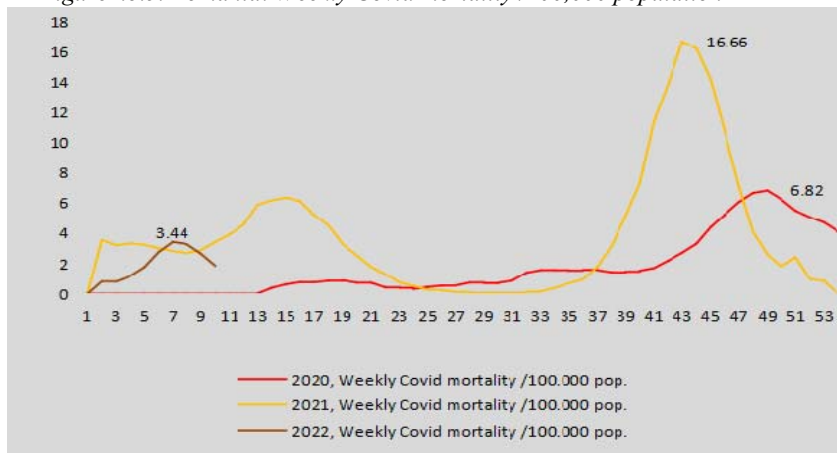
Source: calculations based on Eurostat ,2022

The per 100,000 inhabitants excess mortality cumulated for the successive years 2020 and 2021 places Romania on the 7<sup>th</sup> position world-wide, according to publication “*The Economist (2022)*” – i.e. more exactly, it was about 561.95 deaths as excess mortality per 100,000 inhabitants.

#### 4.3. Romania: Covid-19 related deaths and excess mortality data – an analysis

At the end of 2020 the Covid-19 related deaths in this country were 17,428, meaning 90.16 deaths per 100,000 inhabitants. At the end of the next 2021 there were 39,606 total deaths, so 204.9 deaths per 100,000 inhabitants. Figure 5 sees the four pandemic waves as a whole and equally shared between the two respective years and the year’s maximums in the 48<sup>th</sup> week of 2020 with 6.82 deaths per 100,000 inhabitants and in the 42<sup>nd</sup> week of 2021 with 16.66 deaths per 100,000 inhabitants.

Figure no.5. Romania: Weekly Covid mortality /100,000 population



Source: calculation based on ECDC data, 2022



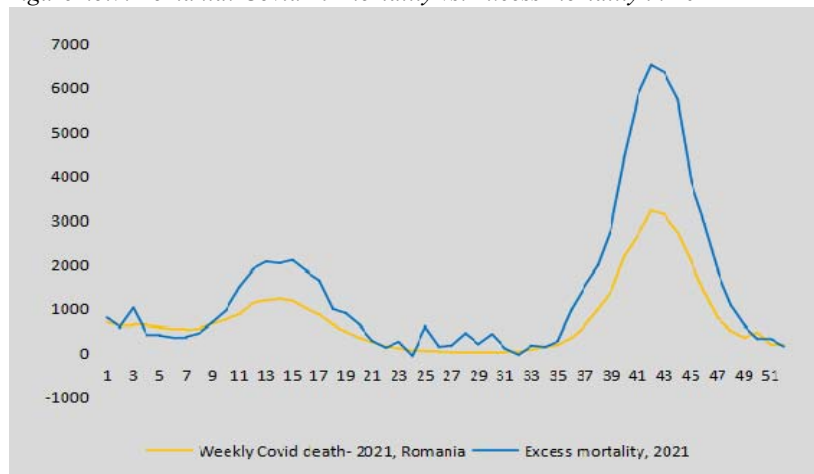
The next following 6<sup>th</sup> and 7<sup>th</sup> graph-figures underline the officially declared Covid-19 related deaths and excess mortality – i.e. here computed on the basis of the difference between the general mortality and the four pre-pandemic years average found by Eurostat.

Figure no.6. Romania: Covid-19 mortality vs. Excess mortality in 2020



Source: calculation based on ECDC data, 2022

Figure no.7. Romania: Covid-19 mortality vs. Excess mortality in 2021



Source: calculation based on ECDC data, 2022

To be here noted that the Covid-19 related deaths do reflect the above defined excess mortality only partly – i.e. 48%, the rest of 52% being due to collateral deaths. In spring 2020 most chronicle disease hospitals in Romania were turned into exclusive Covid-19 treating patients hospitals by Government decision. And this would be suspected as decisively causing the significant fall in hospitalizations of all causes. The *Romanian Health Observatory (RHO, 2021)* reports in context in 2020 that one of the obvious pandemic impacts did consist in the people’s lowered access to healthcare services – i.e. there were 70% less hospitalizations between April and the 2020 year end than in the same period of the previous 2019. See the most affected hospitals from this point of view: the “Matei Bals” Institute of Bucharest, as a Covid-19 hospital (mentioned with as high as 90% activity reduction in the March-August interval, as compared to the same period of 2019) and “Colentina” hospital, equally in Bucharest and as a Covid-19 one (Cosac, 2022). Besides, the other non-Covid-19 hospitals rather similarly suffered: the “Fundeni” Clinical Institute with 35-79% activity reduction, here including the fall of surgery for patients with cancer, the Cluj District Emergency Hospital with 21-68% activity reduction, the Iasi District Emergency Hospital with 56-79% activity reduction (Cosac, 2022). RHO (2021) here adds that public hospitals suffered

more than the private ones. Moreover, during the March-August time interval hospitalizations fell by 80% for HIV patients, by 67% for diabetes patients, by 57% for multiple sclerosis, by 50% for tuberculosis and by 46% for cancer.

October 2021 brought in the peak of the 4<sup>th</sup> Covid-19 wave and the highest mortality rate in Romania in peacetime according to INSSE – i.e. 110%, as 10,700 Covid-19 related deaths reported by the authorities, more than double than the same month average along the 2016-2019 years interval. The ability of hospitals to receive Corona virus-infected patients has got exceeded, and non-urgent procedures were stopped. The Eurostat data place Romania of this period (month) on the top position in the EU for its excess mortality – i.e. also the only three-digit value excess mortality country since the beginning of the pandemic and so far in the whole EU region.

There also might be mentioned another study published in August 2021 by the research specialized company called *Ipsos* (one of the largest market research companies in the world). This last argues that the second pandemic year did not reveal any much better situation than previously, in 2020 – e.g. about half of the urban population saw less or not at all the family physician (43%) or specialist doctor (50%). A quarter of the Romanian population didn't take any blood test and one of three Romanians did not resort to investigations, follow-up or ultrasound monitoring or prevention. *Ipsos* (2021) believes that such a behaviour might be due to the general fear against the Covid-19 infection wherever, including or even especially in hospitals and clinics. Then, in spring 2021 54% of family physicians and 68% of specialist doctors interviewed noticed chronicle disease emergencies rising in connection with the idea that those patients were becoming collateral victims of the pandemic.

Many patients diagnosed with cancer have discontinued treatment for several reasons, such as delays in scheduling and the focus of medical resources over these years on just reducing the risk of Covid-19 spreading. Or, the patients with cancer certainly were those collateral victims of pandemic, says the *Federation of the Patients with Cancer of Romania (FPC, 2021)*, since hospitals stayed open just for emergencies and nowhere for speciality medical care. In the meantime cancer diagnosis has dropped by 40% in Romania, according to FPC here cited by *Ipsos*.

The same study then reveals that the new *Telemedicine* in Romania stays in a “gray area” – i.e. this is much less developed on specific platforms than by *WhatsApp* and by the classical phone(calls). All the less, it seems that only under 44 years old individuals do actually use it.

## 5. Conclusions

In Romania, as in the rest of the world, *Covid-19* made victims directly by the actual infection with the virus Sars-Cov-2, but collateral victims at the same by the indirect action on the increase of mortality (FPC,2021).

The indicator of excess mortality – i.e. the reported number of deaths from all causes exceeding the expected number of deaths based on the reference value of previous years -- provides a broader measure of direct and indirect deaths caused by Covid-19 and appears less affected by problems related to testing and registration of death causes (OCDE/European Observatory on Health Systems and Policies, 2021). Our above paper searches for such an excess mortality in Romania during the 2020-2021 period, compared to its four previous years by using the Eurostat methodology.

Deaths from all causes in Romania had been even lower in early 2020 than the average of the four previous years of the pandemic and social distance specific measures – e.g. closing non-essential stores, restricting free movement, suspending hospitalizations for non-acute conditions -- were coming to be taken a little later, on 22-23 March 2020. In the year end general (crude) mortality in Romania went as high as 301,427 deaths with an excess mortality of 35,797, as compared to the 2016-2019 reference period, of which only 17,428 deaths (i.e. 48%) were directly due to Covid-19, the rest (52%) being collateral deaths of the pandemic. Then, the highest numbers of deaths as weekly reported were coming up in the 48<sup>th</sup> and 49<sup>th</sup> weeks of the same year, i.e. between 23 November and 6 December, 1,319 (ECDC,2020). And in the excess mortality of late 2020 the role of the more aggressive new Covid-19 variants isn't to be excluded (Hu et al, 2021).

In the end of 2021 in Romania the general (crude) mortality was as high as 332,483 with the excess mortality of 72,437 related to the reference 2016-2019 period, of which just 39,606 directly due to Covid-19. There were obviously more deaths in Romania in the 2021 year end than previously, in 2020, despite that the collateral ones dropped by 8% -- i.e. possibly, due to the meanwhile advance of the experience in the management of chronic diseases.

The excess mortality cumulated for 2020 and 2021 – i.e. simply, for the number of deaths cumulated – might make 108,234, of which only 57,037 officially declared as Covid-19 related. In this order, 51,197 deaths result as collateral for these two years as about 47% of the also cumulative excess mortality. As related to the officially declared Romanian population, 19,328,842 inhabitants, the same excess mortality so would be as high as 560 deaths to 100,000 inhabitants (i.e. our calculation).

Concomitantly, this part of the excess mortality not Covid-19 related could be attributed to causes similarly coming up in other countries: limited testing capacity for those diseases (OCDE/European Observatory on Health Systems and Policies, 2021, p5) then scarcity of treatment in needed time due to hospitals turned into Covid-19 exclusive treatment, the patients' reticence to meet their physicians in medical offices during pandemic, under reporting of cases and implicitly of deaths, scarcity of hospital treatment spaces, here including the ones of intensive therapy, scarcity again of personnel skilled in these specialities, all these might have led to such excess mortality (Rocks and Idriss, 2020). Last, but not least there might be about inconsistent measures taken by the Romanian authorities.

Last but not least, mental diseases, actually the whole mental state of the people in pandemic were affected as additionally: i.e. the emotional stress, which led to depression and anxiety among the population. Negative effects will remain even after the end of the medical crisis (Neagu. 2022).

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# Do European Funds Contribute to the Sustainable Development of Romania?

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## Abstract

*The social, economic well-being and the sustainability of the planet are European strategic goals that characterize a good standard of living, but often, a successful economy depletes natural resources far beyond limits. The European Union is achieving its objectives by providing European non-reimbursable funds to the member states, thus enabling the development of those states to reduce regional inequalities. The economic growth is an important factor in the economic development of a country, several factors being able to favour this growth, and which can be measured through the gross product per capita. This study focuses on the sustainable development of Romania by measuring two relevant indicators, gross product per capita and the Happy Planet Index in relation to the value of the funds absorbed per capita. This study also identifies the trend line of the correlation between the aforementioned indices and established the intensity through the Pearson correlation coefficient.*

**Key words:** European funds, correlation report, gross domestic product per capita, Happy Planet Index, sustainable development

**J.E.L. classification:** C1, C2, C12.

## 1. Introduction

The sustainable development idea is a concept aimed at achieving a balance between social aspects, economic activities, and the environment, thus the sustainable development term is frequently addressed in current political and environmental discourses. Today, most countries in the world face countless challenges, from youth unemployment to population aging, climatic changes, pollution, sustainable energy sources, international migration, and depopulation of rural areas. The United Nations (UN) Agenda 2030 for Sustainable Development was adopted in 2015, it is an international plan for global well-being for present and future generations, at the heart of which are the most important 17 Sustainable Development Goals (SDGs), representing a continuation of the Millennium Development Goals (European Commission, 2019).

The European Union promotes a policy of economic and social cohesion whose main goal is to reduce the existing regional inequalities and prevent regional imbalances by formulating guidelines and setting priorities at community level for the harmonization of national regional policies with the help of financial instruments, specially created for this purpose (Gheorghiu, 2008). Since 2007, Romania has faced one of the biggest challenges for it as a country, joining the European Union as part of the fifth wave of its enlargement. This debut marked the beginning of a new stage of economic development based on the principle of economic and social cohesion, while emphasizing the reduction of regional development gaps, economic growth, sustainable and balanced development and ensuring a high level of employment.

By becoming an EU member state, our country had the opportunity to access European non-reimbursable funds, financial instruments through which the country's development and modernization projects can be implemented, primarily pursuing EU objectives.

The chosen research topic is important since EU development policy does not only target the European space but also that of third-party countries, giving it worldwide notoriety. Development policy does not consist only in economic development, but in progress at all levels considering the social, technological, political, and economic field. World welfare and peace are closely linked to continuous and uniform development, not only in the European or American space, but throughout the planet. The object of the research is in line with the current realities as we are facing the end of a development period 2014-2020 and in the beginning of a new stage of development at European level, being thus a favourable moment for the analysis of the results.

The main objective of the proposed research is to identify and measure the effects of the use of EU funds in Romania in terms of sustainable development and quality of life. In this context, this paper aims to conduct a study on the indirect effects and impact of European projects on the sustainable development of Romania. The research is structured in two parts, the first chapter of the paper outlines the theoretical framework by basing the theme on the defining aspects of sustainable development and identifying the main benefits of European projects involving grants. The second chapter aims to conduct an empirical study starting with the presentation of the methodology used, implicitly the ways to measure sustainable development at national and international level through specific indicators such as Gross Domestic Product per capita, Happy Planet Index (Happy Life Year Index, Ecological Footprint Index), but also the correlation between them. The analysis carried out in this chapter aims to highlight the impact of European projects on the sustainable development of Romania. Subsequently, the results obtained, and their analysis are presented, and the end of the paper contains discussion and conclusions.

## **2. Theoretical background. Perception regarding the concept of sustainable development**

The sustainable development concept did not appear in the twentieth century, as most of us tend to believe, due to the prominent emphasis that has been placed in recent years on the many issues related to the environment and sustainability, but it has made his presence felt in 1789, when Thomas Jefferson, the president of the United States, referred to it in a speech.

In Romanian, the terms sustainable development and sustainable change do not have a uniform definition, being frequently used as synonyms, "Sustainable change is a complex and dynamic process that promises a step forward towards the balance of sustainable development" (Gończ, 2007). Sustainability is not just about ecology. In most of the definitions of sustainability, we often find concerns about social equity and economic development. In the report entitled *Our Common Future*, also known as the *Brundtland Report* (1978) prepared by the United Nations World Commission on Environment and Development (WCED), we find one of the best-known definitions of this concept, "sustainable development is the development of which meets the needs of the present without compromising the ability of future generations to meet their own needs".

At the European level, sustainable development is considered a major challenge, being included as a key objective in the 1997 Treaty of Amsterdam. The European Union's Sustainable Development Strategy, adopted by the European Council in 2006, addresses economic, social and environmental issues in an integrated way, with the aim of continuously improving the quality of life and well-being of the present and future generations (European Commission, 2009). Morton (2009) argues that in a dynamic environment with a high level of competitiveness, there has been a need to make progress towards economic development without depleting natural resources or harming the environment. Improving territorial cohesion and raising regions of difficulty is the main reason why change is needed at European level.

Nagy et al. (2018) conducted a study that addresses sustainability at the local level before measuring the rate of achievement of the objectives by which a Romanian metropolitan area achieves the SDG. The paper analysed 16 of the 17 objectives of sustainable development through quantitative data, using the method of normalization and aggregation based on arithmetic mean to calculate the scores obtained by each component locality of the metropolitan area (Cluj-Napoca) within the SDG and the general index to the SDG. The study showed that the municipality had very good results in

the metropolitan area where a process of vertical development from west to east predominated.

There are different approaches to sustainable development indicators, with different portfolios of indicators being used by international organizations or governments to measure sustainable development. The portfolio of indicators must be balanced in terms of the dimensions approached, be transparent, accessible to the public and not offer contradictory messages. All indicators selected for sustainable development must meet well-defined criteria (Wolff, 2006):

- The indicators must capture the essence of the problem and have a clear and universally accepted interpretation.
- The data used must be statistically valid, so that the values can be compared over time and the fluctuations can be explained;
- Indicators must be influenced by policy interventions, reflect results, but cannot be manipulated;
- The way of measuring the indicators must be comparable in different countries and, if possible, be comparable with the standards applied at the national level;
- Indicators must be timely and can be revised if necessary;
- Where possible, indicators should be based on existing data collections provided by internationally recognized sources.

Many scientific papers discuss the results of EU-funded projects in relation to the level of financial resources allocated, contracted, and absorbed, or analyse the dimensions of sustainable development from different perspectives and perform analyses and measurements at the level of projects or regions. The work is largely aimed at EU Member States, such as Georgescu (2007), who presents the conclusions regarding the lack of appropriate indicators of absorption rates in EU countries.

For other authors, such as Zidanšek (2007), environmental sustainability indicators mainly measure whether development improves the quality of life and the quality of the environment, as a rule they are often directed towards economic and environmental measures regarding development. He argues that the link between indicators of sustainable development and life satisfaction is often difficult for an individual to measure, and at the same time raises the question of whether the current generation must sacrifice its happiness to have a more prosperous future. The researcher argues that strategies and measures need to be developed to improve happiness and sustainability at the same time.

Grzebyk and Stec (2015) compared the levels and assessed the progress made by EU countries in the fields of sustainable development, for the period 2005-2012 using statistical analyses. Using the dynamic approach of the median method, the authors designed, for the analysed period, a synthetic measure, which was the basis for ordering EU countries in terms of their levels of sustainability, as well as their classification into groups of countries with similar levels of the phenomenon. The results of the research show that a gradual progress in the implementation of sustainability concepts was observed in EU countries in the period 2005-2012. The highest values of the applied measurements were reached in Sweden, Latvia, Finland, Denmark and the Czech Republic, and the lowest were recorded in Malta, Cyprus, Romania, Greece and Slovenia. Although there is a gradual convergence of developing EU countries in terms of sustainable development levels, most countries still have sustainability measures below EU average levels.

Moldan et al. (2011) analysed the different approaches and types of indicators used to assess environmental sustainability, emphasizing that an important aspect is setting targets and then measuring the distance to that target to obtain information about the current state or trend. It also suggests that once sustainable development indicators are defined, they need to be measured broadly, both by qualitative and quantitative techniques, but more and more often, the availability of data, i.e., the value of sustainability indicators, is not a problem. Difficulties arise in the selection, interpretation, and use of indicators. He mentions that in recent decades, a lot of environmental sustainability indicators and targets have been developed, tested, and suggested to be used, but there is still a difficult correlation between indicators that reflect environmental quality and target levels created by perspective of sustainable development, therefore considers that the indicators should be linked in the analysis to well-defined reference values and targets.

In 2006, Nic Marks, founder of the New Economics Foundation's Welfare Centre (NEF), developed the Happy Planet Index (HPI), a relatively new indicator that reports national well-being in terms of living a long, happy, and sustainable life. Unlike other indicators, it does not explicitly use income or income-adjusted variables but uses both objective and subjective data. It is one of the indicators frequently mentioned in studies to monitor the performance with which it is measured whether a good standard of living can be achieved without depleting the Earth's resources. This indicator represents a combination of three objectives: life expectancy, experienced well-being, and ecological footprint. The HPI level varies between 0 and 100, high levels can only be achieved by meeting all the objectives set by the index, mentioned above. The HPI report (Marks, 2006) set the standard when it proved that the most economically developed countries are not necessarily the happiest. Studies also show that these countries have been inefficient in terms of population happiness. The report confirmed that there was no correlation between material consumption and happiness. Once basic needs (food, shelter, and health) are covered, other expenses arise due to cultural pressures and values. On the other hand, it has been shown that social capital and activities such as socializing, exercise, participation in cultural activities, and engaging in activities of interest are closely associated with happiness (Escobar, 2009).

The results of the HPI 2021 - NEF Report reveal the extent to which countries around the world offer a long and happy life to their people. Western countries with richer populations are not at the top of the HPI rankings, they recognize the financial standard of living as a measure of their success. Thus, the study included 152 countries, and in the top of the countries ranked with the highest score in Europe we find the following: Germany - 29 (52.7), Spain - 30 (52.3) and France - 31 (51.8). We also identified three countries with the lowest score: Lithuania - 125 (36.9), Estonia - 133 (34.4) and Luxembourg - 143 (31.7), while Romania is on the 64th place (46.2).

On the other hand, one of the most relevant indicators for a country's economy is the Gross Domestic Product per capita (GDP per capita expressed in standard purchasing power parity - PPS), which is often considered an indicator of a country's standard of living. There has been a continuous growth over the last 10 years, with Romania reaching 73% of the EU average in 2021, compared to 2011. Today, Romania is still at a disadvantage compared to the average of European countries.

### **3. Research methodology**

Sustainability assessment is a complex process and involves a thorough analysis. Ever since the concept of sustainable development came to light, efforts have been made to develop a set of methods and sustainability indicators to monitor progress in implementing this concept worldwide or individually in each country. Sustainability indicators are the parameters or values that characterize the state of economic, social, and environmental phenomena that make up the concept of sustainable development. They allow the interpretation of the condition and through time analysis, determine the modification trends for the individual parameters. In the current research the following indicators were chosen to measure the effects of the use of EU funds in Romania in terms of sustainable development and quality of life:

- Happy Planet Index - since in relation to the level of funds absorbed, the level of well-being and satisfaction of people should be measured, respectively if it is improved through the use of funds received;
- GDP / capita - because it measures the level of quality of life of a country and the level of prosperity felt by each country for each of its citizens.

This research reflects a statistical analysis of the intensity of the correlation between GDP per capita, Happy Planet Index and the value of funds absorbed by Romania in the period 2014-2020. The aim of the research is to determine the trend model and the intensity of the correlation between the variables listed above. Thus, the following hypothesis can be formulated:

H1: There is a positive correlation between GDP per capita and the value of funds absorbed by Romania in the period 2014-2020.

H2: There is a positive correlation between Happy Planet Index and the value of funds absorbed by Romania in the period 2014-2020.



The statistical methods applied in the research are the following:

- the coefficient of variation method,
- the least squares method, used to calculate the parameters of the regression equation,
- the Pearson correlation coefficient method, used to measure the statistical relationship between the variables mentioned above.

The first part of the data analysis refers to the methodology for achieving the trend model, applying the least squares method to solve the linear system between the value of non-reimbursable funds absorbed per capita and GDP per capita in 2014-2020, to obtain the coefficient Pearson correlation and its interpretation. In the second part, the ratio between the value of non-reimbursable funds absorbed per capita and Happy Planet Index was analysed, the trend model was determined, the system was solved, and the Pearson correlation coefficient was interpreted.

In table no.1 are presented the following indicators for the 2014-2020 financing period: GDP, population, GDP per capita and the value of contracted non-reimbursable funds. The following upward trend in GDP per capita can be seen until 2020, which was deeply marked by macroeconomic imbalances due to the pandemic, when production and population fell sharply.

*Table no.1 Statistical data regarding the period 2014-2020 in Romania*

Year	Annual GDP (EUR)	Population (mil)	GDP/ capita (EUR)	Contracted grants (EUR)
2014	150,708.6	19.94	7,040	0
2015	160,149.8	19.87	7,290	666,249,202
2016	170,063.4	19.76	7,670	1,272,081,645
2017	187,722.7	19.64	8,280	2,495,304,769
2018	204,496.9	19.53	8,700	10,025,782,682
2019	223,162.5	19.41	9,120	18,059,087,321
2020	218,863.3	19.32	8,820	24,496,959,481

*Source:* own conception based on Eurostat Data, 2021 and MIPE, 2022

Regarding the table no.2, it presents data about Happy Planet Index, as well as its components such as Life Expectancy, Wellbeing and Ecological Footprint. At the bottom, we have the results of the Pearson ( $r$ ) correlation coefficients calculated in advance. Correlation coefficients demonstrate the dependence between HPI and its components with the value of grants paid per capita in Romania in the period 2014-2020.

*Table no.2 Correlation between paid grants per capita and, HPI and index components*

An	Contracted grants /capita ( EUR)	HPI	HPI Rank	Life expectancy (years)	Wellbeing (0-10)	Ecological Footprint (g ha)
2014	-	49.6	37	75.3	5.73	2.73
2015	33,530,408	48.9	37	75.5	5.78	2.93
2016	64,376,601	49.6	38	75.6	5.97	3.03
2017	127,052,178	48.5	42	75.8	6.09	3.40
2018	513,352,928	47.6	55	75.9	6.15	3.64
2019	930,401,202	46.2	64	76.0	6.13	3.93
2020	1,267,959,565	48.4	-	74.6	-	3.72
$r$		-0.6489	-0.2917	-0.3547	-0.7045	0.8447

*Source:* own conception based on data from Happy Planet Index Report, 2021

#### 4. Data analysis and results interpretation

##### 4.1. GDP/capita vs Paid Grants/capita

To identify the value of the correlation between the factor X (GDP per capita) and the factor Y (the value of grants per capita) (H1), we performed the following steps:

Step 1 – the analysis of the correlation regarding the factor Y, where Y equals the value of non-reimbursable funds absorbed per capita, as the next function  $Y_{ti} = a + b \cdot X_i$ , and the parameters a and b of the adjusted linear function, can be calculated using the following system:

$$\begin{cases} n \cdot a + b \sum_{i=1}^n X_i = \sum_{i=1}^n Y_i \\ a \sum_{i=1}^n X_i + b \cdot \sum_{i=1}^n X_i^2 = \sum_{i=1}^n X_i Y_i \end{cases} \quad \begin{cases} a = \frac{\sum_{i=1}^n X_i^2 \sum_{i=1}^n Y_i - \sum_{i=1}^n X_i \sum_{i=1}^n X_i Y_i}{n \sum_{i=1}^n X_i^2 - (\sum_{i=1}^n X_i)^2} \\ b = \frac{n \sum_{i=1}^n X_i Y_i - \sum_{i=1}^n X_i \sum_{i=1}^n Y_i}{n \sum_{i=1}^n X_i^2 - (\sum_{i=1}^n X_i)^2} \end{cases}$$

Table no.3 Estimation of the value for the coefficient of variation in case of adjustment of the linear function, assuming the linear evolution of the correlation between GDP per capita and the value of non-reimbursable financing absorbed per capita in the period 2014-2020

Years	$X_i$	$Y_i$	LINEAR TREND			
			$X_i^2$	$X_i Y_i$	$Y_{X_i} = a + b \cdot X_i$	$ Y_i - Y_{X_i} $
2014	7,040	-	49,561,600	-	-151,665,718	151,665,718
2015	7,290	33,530,408	53,144,100	244,436,672,647	-20,830,250	54,360,658
2016	7,670	64,376,601	58,828,900	493,768,533,338	178,039,662	113,663,060
2017	8,820	127,052,178	68,558,400	1,051,992,030,775	497,278,204	370,226,027
2018	8,700	513,352,928	75,690,000	4,466,170,472,780	717,081,791	203,728,863
2019	9,120	930,401,202	83,174,400	8,485,258,957,682	936,885,377	6,484,176
2020	8,820	1,267,958,565	77,792,400	11,183,394,545,860	779,882,816	488,075,750
<b>TOTAL</b>	<b>56,920</b>	<b>2,936,671,882</b>	<b>466,749,800</b>	<b>25,925,021,213,083</b>	<b>2,936,671,882</b>	<b>1,388,204,251</b>

Source: own conception

After calculating the statistical data for the adjustment of the linear function according to the previously mentioned system, we obtain the following values for parameters a and b:

$$a = \frac{466,749,800 \cdot 2,936,671,882 - 56,920 \cdot 25,925,021,213,083}{7 \cdot 466,749,800 - (56,920)^2} = -3,835,992,503$$

$$b = \frac{7 \cdot 25,925,021,213,083 - 56,920 \cdot 2,936,671,882}{7 \cdot 466,749,800 - (56,920)^2} = 523,342$$

Therefore, the coefficient of variation for the linear function is:

$$v_l = \left[ \frac{\sum_{i=m}^m |Y_i - Y_{X_i}^l|}{n} : \frac{\sum_{i=m}^m Y_i}{n} \right] \cdot 100 = \frac{\sum_{i=m}^m |Y_i - Y_{X_i}^l|}{\sum_{i=m}^m Y_i} \cdot 100 = \frac{1,388,204,251}{2,936,671,882} \cdot 100 = 47.2713\%$$

Step 2 - the analysis of the correlation regarding the Y factor, where Y equals the value of non-reimbursable funds absorbed per capita, as the next quadratic function  $Y_{X_i} = a + bX_i + cX_i^2$ , where the parameters a, b and c of the quadratic linear function can be calculated using the following system:

$$S = \sum_{i=1}^n (Y_i - Y_{X_i})^2 = \min \Leftrightarrow S = \sum_{i=1}^n (Y_i - a - bX_i - cX_i^2)^2 = \min$$

$$\begin{cases} \frac{\partial S}{\partial a} = 0 \\ \frac{\partial S}{\partial b} = 0 \\ \frac{\partial S}{\partial c} = 0 \end{cases} \Rightarrow \begin{cases} 2 \sum_{i=1}^n (Y_i - a - bX_i - cX_i^2)(-1) = 0 / \left(-\frac{1}{2}\right) \\ 2 \sum_{i=1}^n (Y_i - a - bX_i - cX_i^2)(-X_i) = 0 / \left(-\frac{1}{2}\right) \\ 2 \sum_{i=1}^n (Y_i - a - bX_i - cX_i^2)(-X_i^2) = 0 / \left(-\frac{1}{2}\right) \end{cases} \Rightarrow \begin{cases} n \cdot a + b \sum_{i=1}^n X_i + c \sum_{i=1}^n X_i^2 = \sum_{i=1}^n Y_i \\ a \sum_{i=1}^n X_i + b \sum_{i=1}^n X_i^2 + c \sum_{i=1}^n X_i^3 = \sum_{i=1}^n X_i Y_i \\ a \sum_{i=1}^n X_i^2 + b \sum_{i=1}^n X_i^3 + c \sum_{i=1}^n X_i^4 = \sum_{i=1}^n X_i^2 Y_i \end{cases}$$

Table no.4 Estimates of the value for the coefficient of variation in the case of the quadratic function, in the hypothesis regarding the parabolic evolution of the correlation between GDP per capita and the value of non-reimbursable financing absorbed per capita in the period 2014-2020

PARABOLIC TREND				
$X_i^3$	$X_i^4$	$X_i^2 Y_i$	$Y_{xi} = a + bX_i + cX_i^2$	$ Y_i - Y_{xi} $
348,913,664,000	$2,456,352,194 \cdot 10^6$	-	17,586,193	17,586,193
387,420,489,000	$2,824,295,364 \cdot 10^6$	$1,781,943,343 \cdot 10^6$	-7,387,988	40,918,396
451,217,663,000	$3,460,839,475 \cdot 10^6$	$3,787,204,650 \cdot 10^6$	37,484,562	26,892,039
567,663,552,000	$4,700,254,210 \cdot 10^6$	$8,710,494,014 \cdot 10^6$	318,468,499	19,416,321
658,503,000,000	$5,728,976,100 \cdot 10^6$	$38,855,683,113 \cdot 10^6$	661,614,085	148,261,157
758,550,528,000	$6,917,980,815 \cdot 10^6$	$77,385,561,694 \cdot 10^6$	1,126,829,805	196,428,604
686,128,968,000	$6,051,657,497 \cdot 10^6$	$98,637,539,894 \cdot 10^6$	782,076,726	485,881,839
<b>3,858,397,864,000</b>	<b><math>32,140,355,658 \cdot 10^6</math></b>	<b><math>229,158,426,710 \cdot 10^6</math></b>	<b>2,936,671,882</b>	<b>1.107.384,549</b>

Source: own conception

To obtain the parameters a, b and c of the quadratic function we solved the system by the Cramer method, implicitly by the rule of triangles, and we obtained the following values:

$$\begin{cases} 7a + 56,920 \cdot b + 466,749,800 \cdot c = 2,936,671,882 \\ 56,920 + 466,749,800 \cdot b + 3,858,397,864,000 \cdot c = 25,925,021,213,083 \\ 466,749,800 \cdot a + 3,858,397,864,000 \cdot b + 32,140,355,658,260,000 \cdot c = 229,158,426,710,852,000 \end{cases}$$

$$\Rightarrow a = 18,478,326,856, b = -5,058,131, c = 346$$

Therefore, the coefficient of variation for the quadratic function has the following value:

$$v_{II} = \left[ \frac{\sum_{i=m}^m |Y_i - Y_{xi}^I|}{n} : \frac{\sum_{i=m}^m Y_i}{n} \right] \cdot 100 = \frac{\sum_{i=m}^m |Y_i - Y_{xi}^I|}{\sum_{i=m}^m Y_i} \cdot 100 = \frac{1,107,384,549}{2,936,671,882} \cdot 100 = 37.7088\%$$

To reflect the intensity of the linear correlation between the two variables we use the Pearson correlation coefficient denoted by r:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}} = \frac{2,045,683,570,334}{2,442,567,917,985} = 0.8375$$

#### 4.2. Happy Planet Index vs. Paid Grants/capita

To identify the value of the correlation between factor H - Happy Planet Index and factor G - the value of non-reimbursable funds absorbed per capita (H2), the following steps were made:

Step 1- the analysis of the correlation regarding the factor G, where G equals the value of the non-reimbursable funds absorbed per capita, considering the following function  $G_i = a + b \cdot H_i$

Table no.5 Estimation of the value for the coefficient of variation in case of adjustment of the linear function, in the hypothesis regarding the linear evolution of the correlation between HPI and the Value of non-reimbursable financing absorbed per capita in the period 2014-2020

Years	$H_i$	$G_i$	LINEAR TREND			
			$H_i^2$	$H_i G_i$	$G_{Hi} = a + b \cdot H_i$	$ G_i - G_{Hi} $
2014	49.61	-	2,461	-	85,866,075	85,866,075
2015	48.86	3,530,408	2,387	1,638,295,724	292,964,442	259,434,034
2016	49.56	64,376,601	2,456	3,190,504,369	99,672,633	35,296,031
2017	48.54	127,052,178	2,356	6,167,112,702	381,326,411	254,274,234
2018	47.63	513,352,928	2,269	24,450,999,956	632,605,763	119,252,835

2019	46.21	930,401,202	2,135	42,993,839,521	1,024,712,003	94,310,802
2020	48.40	1,267,958,565	2,343	61,371,307,824	419,524,555	848,434,011
<b>TOTAL</b>	<b>338.81</b>	<b>2,936,671,882</b>	<b>16,407</b>	<b>139,812,060,097</b>	<b>2,936,671,882</b>	<b>1,696,868,022</b>

Source: own conception

Since for 2020 we could not obtain the HPI value due to the non-existence of all data, we estimated an average of it. After calculating the statistical data for adjusting the linear function according to the afore mentioned system, we obtain the following values for parameters a and b:

$$a = \frac{16,407 \cdot 2,936,671,882 - 339 \cdot 139,812,060,097}{7 \cdot 16,407 - (339)^2} = 13,784,732,693$$

$$b = \frac{7 \cdot 139,812,060,097 - 339 \cdot 2,936,671,882}{7 \cdot 16,407 - (339)^2} = -276,131,155$$

Therefore, the coefficient of variation for the linear function is calculated below:

$$v_I = \left[ \frac{\sum_{i=m}^m |G_i - G_{Hi}^I|}{n} : \frac{\sum_{i=m}^m G_i}{n} \right] \cdot 100 = \frac{\sum_{i=m}^m |G_i - G_{Hi}^I|}{\sum_{i=m}^m G_i} \cdot 100 = \frac{1,696,868,022}{2,936,671,882} = 57.7820\%$$

Step 2 – the analysis of the correlation regarding the factor G, where G equals the value of the non-reimbursable funds absorbed per capita, as the next quadratic function  $G_{Hi} = a + bH_i + cH_i^2$ , where a, b and c are parameters of the quadratic linear function.

Table no.6 Estimation of the value for the coefficient of variation in case of adjustment of the quadratic function, assuming the linear evolution of the correlation between HPI and the value of non-reimbursable financing absorbed per capita in the period 2014-2020

Years	$H_i$	$G_i$	PARABOLIC TREND				
			$H_i^3$	$H_i^4$	$H_i^2 G_i$	$G_{xi} = a + bH_i + cH_i^2$	$ G_i - G_{Hi} $
2014	49.61	-	122,098	6,057,270	-	155,884,734	155,884,734
2015	48.86	33,530,408	116,643	5,699,199	80,047,129,058	321,220,462	287,690,054
2016	49.56	64,376,601	121,729	6,032,887	158,121,396,541	167,023,700	102,647,098
2017	48.54	127,052,178	114,367	5,551,356	299,351,650,562	390,623,182	263,571,004
2018	47.63	513,352,928	108,054	5,146,623	1,164,601,127,912	584,258,813	70,905,886
2019	46.21	930,401,202	98,675	4,559,780	1,986,745,324,281	875,394,669	55,006,533
2020	48.40	1,267,958,565	113,392	5,488,343	2,970,473,584,210	420,414,207	847,544,359
<b>TOTAL</b>	<b>338.81</b>	<b>2,936,671,882</b>	<b>794,958</b>	<b>38,535,458</b>	<b>6,659,340,212,564</b>	<b>2,914,819,766</b>	<b>1,783,249,667</b>

Source: own conception

To obtain the parameters a, b and c of the quadratic function we solved the system by the Cramer method, implicitly by the rule of triangles, and we obtained the following values:

$$\begin{cases} 7a + 339 \cdot b + 16,407 \cdot c = 2,936,671,882 \\ 339 + 16,407 \cdot b + 794,958 \cdot c = 139,812,060,097 \\ 16,407 \cdot a + 794,958 \cdot b + 38,535,458 \cdot c = 6,659,340,212,564 \end{cases}$$

$$\Rightarrow a = 3,018,207,290 ; b = 107,552,897 ; c = -3,330,969$$

Therefore, the coefficient of variation for the quadratic function has the following value:

$$v_{II} = \left[ \frac{\sum_{i=m}^m |G_i - G_{Hi}^{II}|}{n} : \frac{\sum_{i=m}^m G_i}{n} \right] \cdot 100 = \frac{\sum_{i=m}^m |G_i - G_{Hi}^{II}|}{\sum_{i=m}^m G} \cdot 100 = \frac{1,783,249,667}{2,936,671,882} = 60.7235\%$$

To reflect the intensity of the linear correlation between the two variables we use the Pearson correlation coefficient denoted by r:

$$r = \frac{n(\sum HG) - (\sum H)(\sum G)}{\sqrt{[n \sum H^2 - (\sum H)^2][n \sum G^2 - (\sum G)^2]}} = \frac{-2,327,753,424}{3,586,996,428} = -0.6489$$

Applying the coefficient of variation method as a selection criterion for the best unidentified trend model, the following can be observed, the fact that a lower coefficient of variation indicates a better grouping around, because of which:

- In the case of the first test, according to the obtained results, the correlation between the two variables reflects a parabolic trend, so the hypothesis is confirmed.  $H_2$  ( $v_{II} = 37.7088\% < v_I = 47.2713\%$ )
- In the case of the second tests, we have a linear tendency, so the hypothesis is confirmed.  $H_1$  ( $v_I = 57.7820\% < v_{II} = 60.7235\%$ ).

The Pearson correlation coefficient can take values between 1 and -1. In the analysed case, the coefficient calculated for the two variables from the first test is 0.8375. This indicates a positive link of very strong intensity. Therefore, due to the positive intensity, we can say that the increase of the value of one variable determines the increase of the value of the other variable. Respectively, in the second test, the Pearson coefficient registers the value of -0.648, which indicates a strongly negative intensity connection.

## 5. Conclusions

According to the mentioned hypotheses, we can specify the fact that there is a parabolic correlation between the GDP/ capita values and the values of the absorbed / per capita non-reimbursable financing, in Romania in the period 2014-2020. Also, regarding the negative correlation between Happy Planet Index and the values of non-reimbursable absorbed/ per capita funding, we can say that the well-being of the population is not necessarily due to EU-funded support. In other words, EU-funded projects do not necessarily lead Romania to sustainable development. If the HPI is accepted as an index that reflects the sustainable development of a country, then a significant negative correlation has shown that Romania will not achieve sustainable development just based on the absorption of European funds, other measures and efforts being needed to support the sustainable change at national level.

A limitation of the current research is that sustainable development can be measured in a variety of ways, using different sets of indicators, so for future research other sets of indicators can be analysed to identify the trend and test correlations. Also, the time lag can be considered a limitation of the study since achieving sustainable development is a long-term objective. The research should be replicated on longer periods of time to confirm the results.

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## Perspectives on the Development of Public Health System's Infrastructure in the Context of PNRR's Implementation

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### Abstract

*In Romania, infrastructure investments are vital for improving the state of the Romanian public health system, with a need for them to be massively directed towards the construction / modernization of hospital buildings, the development of the transport system, the taking over and the care system of critically ill patients, the national transfusion system, the laboratory network, etc., since they involve a considerable usage of financial resources, and given that Romania cannot fully cover them, the solution of resorting to European funds is highly recommended. In this context, PNRR (the National Recovery and Resilience Plan) is an obvious opportunity for the national authorities. This is the reason why we insist on this particular topic, providing this paper with a structure that includes, among others, institutional preparations for the implementation of PNRR in order to achieve the goals of health infrastructure development and expected results on the development of the public health system's infrastructure by implementing PNRR, etc.*

**Key words:** medical infrastructure; public health; financial resources; hospital investments; the European Union

**J.E.L. classification:** H11; H51; H70; I15; I18; M48

### 1. Introduction

At present, most developing countries find it difficult to provide acceptable conditions for the health care of their own populations. Generally, as expected, the causes are economic / financial. That is, as there are not enough resources for financing the services, their allocation is not based on adequate optimizations in the system of the collected funds, in relation to the social needs, the services' distribution being organized poorly, etc., ultimately leading to limited access for certain segments of the population to information, prevention and healthcare (Stanciu, 2003). We need to speak about Romania, which with its “medical system which has been underfunded for several decades, and whose attempts at reform have not brought the long-awaited improvements of the medical act, with the system suffering, in recent years, from the massive reduction in the number of specialists, one of the main threats to public health being, in addition to the extremely difficult economic situation, the deplorable state of the public health sector” (Stanciu, 2013).

In fact, after Romania's accession to the European Union, a comprehensive analysis of the health system revealed the existence of multiple dysfunctions directly connected to the health state of the population. The respective system was then (2008) rated as "the most underperforming in Europe and characterized by lack of transparency as regards the allocation of funds and inefficiency as regards the use of resources" (Romanian Presidency, 2008). As a result, the health status was also precarious, with many local rural communities lacking medical services (i.e., in rural areas, the gross

mortality rate was double compared to the one recorded in urban areas). The phenomenon of population aging exacerbates this state, being well-known that there is a direct proportion between the number of illnesses and the advancing age. Added to these deficiencies was the fact that, frequently, the medical act performed was characterized by discontinuity and did not have the required quality, with the doctors intending to leave the country, not being adequately motivated by the payroll systems, etc. It is enlightening in this sense that, during the respective period, one in ten doctors trained in Romania was practicing in other countries.

## **2. Theoretical background**

The large-scale study mentioned above (Romanian Presidency, 2008), after conducting a diagnosis of the analyzed system, identified the major areas that require massive interventions, including: (i) Organization and financing of the health system, (ii) Medicine Policy, (iii) Primary Care, (iv) Hospital Services and (v) Human Resources. Several recommendations have been made for each of these, all aimed at producing significant improvements to the public health system.

A particular emphasis was placed on increasing the capacity to attract external funds for investments in the infrastructure of this system. At the level of the Third Millennium, Romania still has hospitals „with buildings located at a distance from each other (...); old buildings are used (even over 100 years old) which do not allow the optimal integration of intra-hospital circuits and create difficulties in adopting new technologies due to the physical limitations of the buildings (...)" (MEIP, 2020).

It was evident, immediately after Romania's accession to the EU, that the success in increasing the capacity to attract external funds for significant investments in the infrastructure of the public health system depends on the "cooperation of the central and local authorities, including by creating new institutions to facilitate the access to such funds" (Romanian Presidency, 2008). It is necessary to act quickly and efficiently in this regard, all the more so as the deficit is substantial, beyond the physical infrastructure, at the level of information and communication systems, medical equipment and devices, etc.

Against this background, our approach sets out to expand on the issue of developing the public health system's infrastructure in the context of implementing the National Recovery and Resilience Plan (PNRR), when Romania would benefit from significant funds (29.2 billion euros) given by the European Union, in equal proportions (1/2) non-reimbursable/grants and loans.

## **3. Research methodology**

The importance of the research topic chosen by the authors has been justified in the introductory section and unanimously acknowledged by reputable specialists, determining the investigative effort focused on significant works in the specialized literature - articles in periodicals, books or book chapters, etc.

Given the legal and economic complexity of the tackled issue, the authors also resort to an in-depth study of certain normative acts drafted by legislatures in the EU or Romania, as an EU member state, aimed at the development of public health system's infrastructure in the context of PNRR implementation.

Then, out of the desire to convey a pronounced topical character to our paper, through the data and information it contains, we have analyzed and referred to the recent reports issued by certain prestigious organizations / institutions. The sources of our documentation, considered by us as being current and credible, are listed in the bibliography at the end of the paper.



## 4. Findings

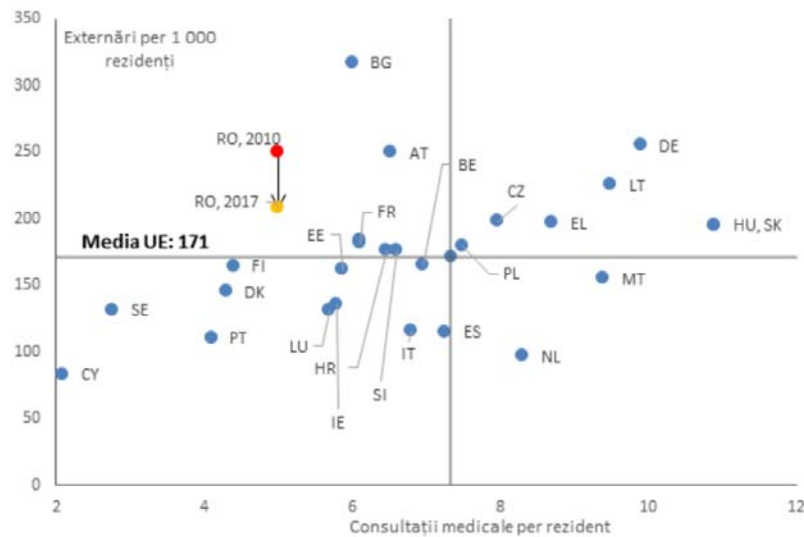
### 4.1. Landmarks of the Romanian public health system and the design of the "Health" Operational Program 2021-2027

Long before the opportunity to resort to PNRR, the Romanian health system had been characterized by a whole series/host of critical issues, which made us occupy one of the last places in the European Union, even though some indicators have improved in recent years.

Those critical issues referred to (EC, 2020): the temporization of capacity building reforms in primary care and development of community health care (no integrated community health care centers were created, the delayed construction of regional hospitals, etc.), the limited administrative capacity at the level of the Ministry of Health and local public health departments, deficient investment planning, underuse of the outpatient care system, cumbersome transfer of medical services provided in the hospital to the outpatient health system.

According to the same source, "The total health care costs are low and they primarily cover hospital services. Population aging and emigration are putting increasing pressure on the health care system" (Figure 1).

Figure no. 1. Use of outpatient health care vs. use of hospital health care



Source: Eurostat database, OCDE, apud. (EC, 2020).

Obviously, several works by Romanian specialists show that the (non) performance of the Romanian public health system is correlated with the allocated resources (Drugus et al., 2015; Tamba et al., 2016), which affect the results throughout the entire chain of medical activities, from the field of microbiology, laboratories (hematological diagnosis, microbiological, biochemical, anatomic-pathological, imaging), etc., and up to, for example, the field of advanced medical scientific research (Santini et al., 2021).

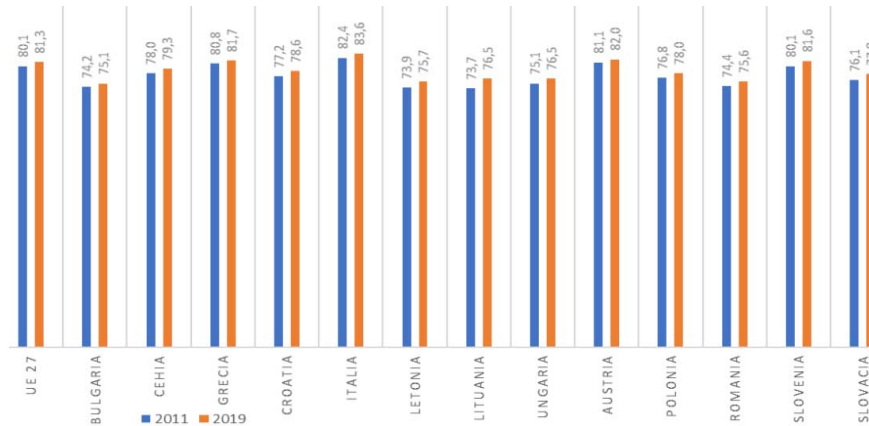
Specifically, in the pre-pandemic phase, health expenditure in Romania was the lowest in the EU, both per capita (1,029 euro, the EU average being 2,884 euro) and as a percentage of GDP (5% compared to 9.8% in the EU) (EC, 2020). In 2020, largely driven by the Covid-19 pandemic, total health care expenditure increased to 6% of GDP, of which about 80% came from public sources (Ministry of Health, 2022).

#### 4.2. The state of the Romanian public health system in the pre-pandemic stage. Deficiencies in health infrastructure and service provision framework

Despite all the difficulties shown, the index of access to health care and of quality of services reached 78.3 in 2016 (compared to 66.8 in 2000), close to that of Hungary, but standing at 2/3, for example, compared to that of France.

Life expectancy in Romania, although increased by more than four years since 2000 (from 71.2 years to 75.6 years in 2019) (Ministry of Health, 2022), is among the lowest in the European Union; its growth rate has decreased, the rise recorded in the period 2011-2019 being of only one year (Figure 2).

Figure no. 2. Life expectancy at birth in EU countries (2011, 2019)



Source: Eurostat, apud. Ministry of Health (2022).

From the perspective of the accessibility to medical consultations, 46% of the population has access to a consultation (45% with the family doctor and 17% with the specialist) and 4% to a hospital stay, which situates Romania far below similar indicators from the EU (OCDE, 2019).

On the other hand, the mortality rate in the case of both preventable and treatable diseases, which can be influenced by treatment, is well above the EU's rates; at the level of 2018, the mortality rate per 100,000 inhabitants, by main illnesses, was determined by: diseases of the circulatory system (673.4 / 100,000 inhabitants), tumors (232.9 / 100,000 inhabitants), diseases of the respiratory system (77 / 100,000 inhabitants), diseases of the digestive tract (9.8 / 100,000 inhabitants), trauma / poisoning (44.8 / 100,000 inhabitants), endocrine diseases, nutrition, metabolism (13.4 / 100,000 inhabitants) (INSP – CNEPSS, 2019).

An issue to be considered by the Romanian decision-maker is that Romania spends very little on prevention (18 euros per person in 2017, or 1.7% of total health spending, compared to 3.1% in the EU), ignoring the fact that prevention and primary care have become a *strong* element in European policies, since "investments in these segments generate much greater savings for the other categories, mainly hospitals and hospital services" (Bechir, 2019). Failure to take into account this *strong* element determines, in fact, the existence of a large number of deaths that occur prematurely in Romania.

With regard to Romania's health infrastructure and service provision framework, the lack of needed equipment is evident, the existing one is below the standards of EU countries, and its territorial distribution and its use in medical units are not correlated with the local profile of the health status and health needs of the population.

At the level of 2020, the entire Romanian public health system had 385 computed tomography devices (approx. 20 devices per 1,000,000 inhabitants) and 298 nuclear magnetic resonance devices (approx. 15 per 1,000,000 inhabitants). Just two years earlier (2018), the number of mammograms was 163, in the context in which nine county emergency clinical hospitals do not have such a device, and 28 such units have a single, more than 10 years old, mammograph (MEIP, 2020).

We also add here that the National Health Strategy for the 2014-2020 period was implemented to a small extent, very few of the objectives being implemented during the respective period, highlighting the fact that, only due to the severe manifestation of the Covid-19 pandemic, some favorable results were obtained regarding the part related to modern communication and information technology, e-health system and intersectoral collaboration (Marinescu, 2022).

#### 4.3. Investment priorities that can be financed under the "Health" Operational Program 2021-2027

The analysis of the content of the Health Operational Program 2021-2027 shows that investments of several natures are a priority. That is, from those related to the infrastructure of regional hospitals (Cluj, Iași and Craiova - stage II), including that of hospitals with major territorial impact, to those on innovative approaches in medical research and digitization of the medical system, or the promotion of modern methods of investigation, intervention, treatment – the development of centers of excellence in innovative cell therapies in hematology and bone marrow transplantation, digestive diseases and liver transplant, urology and kidney/renal transplant (MEIP, 2020).

To the above-mentioned are also added investments in: (i) Primary, community and outpatient healthcare services: family physician office infrastructure, school and community healthcare services infrastructure; (ii) Rehabilitation, palliative and long-term care services; (iii) Increasing the efficiency of the medical sector through investments in infrastructure and services, by developing: the transport system, the taking over and the care units dedicated to critically ill patients, including children, etc.

The estimated budget of the program (Table 1) is approx. 4.7 billion euros, being based on ERDF/European Regional Development Fund, ESF/European Social Fund and the National Contribution (from the State Budget).

*Table no. 1. Distribution of the budget of the Health Operational Program 2021-2027 by investment priorities, in correlation with the European funding sources (ERDF and ESF) (million euro)*

Priority ranking	Name of priority	ERDF	ESF	Total
Priority No. 1	Investments for the construction of regional hospitals and hospital infrastructure	1,000	62	1,062
Priority No. 2	Primary and community health care services and services provided in	143	211	354
Priority No. 3	Adapted rehabilitation, palliative care and long - term care services	143	143	286
Priority No. 4	Increasing the efficiency of the medical sector through investments in infrastructure and services	757	1,214	1,971
Priority No. 5	Innovative approaches in medical research	454	-	454
Priority No. 6	Digitization of the medical system	260	-	260
Priority No. 7	Measures that support research, computerization in health and the use of investigation, intervention, treatment	100	244	344
Total	-	2,857	1,874	4,731

*Source:* Calculation based on the data contained in the "Health" Operational Program 2021-2027, <https://mfe.gov.ro/wp-content/uploads/2020/07/5e0bdcbddcca4d66d74ba8c1cee1a68.pdf>

It should be noted that the eligibility of expenditure is to be limited to the period January 1, 2021 - December 31, 2029, even if this Operational Program ("Health"), to which we are referring here, concerns the multiannual financial framework for the period 2021-2027.

## 5. Institutional preparations for the implementation of PNRR and some expectations regarding the development of the public health system’s infrastructure

### 5.1. Introduction to PNRR

The European preparations regarding PNRR (CUE, 2021) aim at directing to the Romanian economy 14.248 billion euros in the form of grants (non-reimbursable amounts) and approx. 14.935 billion euros – in loans. Based on the “NextGenerationEU” tool, several reforms have been designed that would include a whole series of components (pillars), from environment, energy, digitalization, smart growth, social and territorial cohesion, to health and education. Discussions arise about the chances of achieving the PNRR’s targets (Bostan, 2021), Professor Daniel Dăianu considering that “PNRR is a great chance for Romania, which can help (...) to: ”a better funding of education and public health (...)” (Barbuta, 2021).

In trying to understand the expectations of the executive itself, who has the paternity of the PNRR, by carefully reading the text of the respective document (the form assumed by the Government), we notice that regarding the macroeconomic impact of attracting PNRR funds several calculations were done by simulating three hypothetical scenarios. Those scenarios are (CUE, 2021):

**Scenario I.** Full absorption of the grants and loans (A. Gradual use of grants in the 2021-2026 period; B. Use of 25% of loans in 2021-2024 and 75% in 2025-2026);

**Scenario II.** Full absorption of grants and partial absorption of loans (A. Gradual use of grants in the 2021-2026 period; B. Gradual use of approximately 33% of loans in the 2022-2026 period);

**Scenario III.** Full absorption of grants without accessing the loans.

Attention: In all three scenarios, a 3:1 ratio between capital and current expenditures was considered. The information in the PNRR text conveys the certainty that during its implementation, regardless of the scenario, all macroeconomic indicators would increase considerably (Table 2).

Table no. 2. The impact of PNRR implementation on real GDP compared to a "no/ without PNRR" scenario (% GDP)

Absorption scenarios	2021	2022	2023	2024	2025	2026	Cumulative impact 2021-2026
Scenario I: 100% grants and 100% loans	+0.1	+0.6	+1.1	+1.2	+1.4	+1.0	+5.4
Scenario II: 100% grants and 33% loans	+0.1	+0.6	+1.0	+0.9	+0.8	+0.9	+4.3
Scenario III: 100% grants și 0% loans	+0.1	+0.6	+0.9	+0.7	+0.6	+0.5	+3.4

Source: <https://mfe.gov.ro/pnrr>

The projected surplus of economic growth (2021-2026) involved reporting to what would happen (theoretical / the baseline scenario “without PNRR”), if PNRR were not accessed at all, but the other EU funds were.

According to the above-mentioned official document, in the most optimistic scenario (I. - degree of absorption 100% grants and loans), in the first two years of PNRR implementation (2021 and 2022), "the impact expressed in real GDP is less pronounced, as the distribution of funds is weaker and the most pronounced impact on economic growth (reflected in real GDP) is recorded in 2025 (+ 1.4%), as the allocation of funds gradually increases".

While in the middle scenario, economic growth would be 4.3% for the entire 2021-2026 period, bringing into question the third scenario, it is important that there would be "a GDP growth of 3.4% throughout the period considered, suggesting that even at a lower level, the economic impact of PNRR loans remains significant" (CUE, 2021).

Noteworthy is the fact that the forecast part in this matter, found in PNRR, matches the CNSP/National Strategy and Forecast Commission data, included in the Summer Forecast for the 2021-2025 period. It states that: "(...) assuming the absorption of 29 billion euros in the 2021-2026 period, shows a positive impact that generates an additional economic growth of about 0.9% on average throughout the period considered, compared to the baseline scenario, respectively without PNRR, but with other European funds: MFF (Multiannual Financial Framework) 2014-2021 + n3 and MFF 2021-2027" (CNSP, 2021).

## **5.2. PNRR - the "Health" component in investment terms (total budget of 2.45 billion euros)**

The drafting of Pillar V of the PNRR, entitled "Health, as well as economic, social and institutional resilience (...)" starts from the fact that the health of the Romanian population is below the EU average, the preventable mortality rate is more than double the EU rate, healthcare costs are low and staff shortages considerable, all of which show that there are major difficulties in ensuring access to healthcare (about 11% of the population remains uninsured and has access to only a limited package of services). Reference is also made to the fact that community health care is far from satisfactory, and hospital units (based on an infrastructure designed over five decades ago) generally do not comply with safety and sanitary standards, and therefore multiple risks emerge.

With these justifications, the Component 12 "Health" of PNRR proposes three reforms regarding: (i) - Increased capacity for the management of public health funds; (ii) - Increased capacity to undertake investments in health infrastructure and (iii) - Increased capacity for health management and human resources in health.

The investments they entail - aimed at developing the pre-hospital and public hospital medical infrastructure - have a total budget of 2.45 billion euros, and the expected results are the construction of 200 community centers (built or renovated), with new amenities and adequate staff ("in order to reduce inequalities in terms of the access to health care by creating and implementing legal and financial mechanisms so as to encourage the involvement of health care and community care staff in the provision of medical services to the vulnerable population, including through telemedicine") and 3,000 (associations of) equipped / equipped and renovated primary care offices (CUE, 2021).

At the same time, the following will be achieved: 26 compartments / intensive care units for newborns, equipped, including with ambulance transport for newborns (regional centers), 30 outpatient / extended / equipped units, 25 public health units / public hospitals that benefit from a new infrastructure, 10 mobile medical units - for the areas with limited access to specialized health care services, etc. (CUE, 2021). The respective funds also aim at training / instructing 1,000 people in the field of health services management.

## **5.3. Preparing the institutional framework for the implementation of PNRR in order to achieve the targets related to the development of public health system's infrastructure**

The preparation of the institutional framework for the implementation of PNRR entailed, among other things, the authorization of the Minister of Health to negotiate and sign the technical assistance contract between the Romanian Government represented by the Ministry of Health and the World Health Organization on the necessary technical support (advice / assistance) in order to implement the respective Plan (Romanian Government, 2022a).

Pillar V of the PNRR (CUE, 2021), entitled "Health, as well as economic, social and institutional resilience (...)", comprises a series of steps necessary to be completed during 2022 for the operationalization of the agency specialized in investments in the field of health, which involve its establishment and entry into operation in sem. I / 2022, appointment of the agency's management, recruiting personnel, etc.

This was the reason for the initiation by the Romanian Government of the Emergency Ordinance on the establishment, organization, and operation of the National Agency for Development of Health Infrastructure (ANDIS), subordinated to the Ministry of Health, fully funded from the state budget. In fact, in Romania there was no specialized entity with responsibilities exclusively in the field of health infrastructure, able to ensure the preparation and implementation of major investment objectives / projects in this field. Based on the explanatory memoranda to the GEO on the establishment, organization and operation of ANDIS (Romanian Government, 2022b), we will show that the special scope of these projects to be funded by PNRR and the positive effects of their implementation on health infrastructure and public access to medical services call for the existence of an entity with distinct legal personality, with the development of health infrastructure as its sole object of activity. The role of ANDIS is to develop health infrastructure, by preparing, implementing and completing the objectives of the mentioned type, its activity starting with 79 people.

Of particular importance in making the respective decision were the facts described in Quadrant 1, which call for the development of a modern healthcare infrastructure that meets current healthcare needs.

*Quadrant 1. The state of the health infrastructure - precarious, outdated and insufficient (Romanian Government, 2022b)*

*Out of a total of 1,392 buildings of the health units with beds, 302 are operating without sanitary and fire safety authorizations, and 52 are only partially authorized. The high number of buildings with seismic risk in which Romanian hospitals operate is worrying, the risks regarding the damage to the public health structures being difficult to anticipate. According to the data provided by the General Inspectorate for Emergency Situations in 2018, 137 hospitals located in Bucharest and in 15 counties of the country operate in buildings with seismic risk, and 37 of them are in buildings with high seismic risk, RsI and RsII, which means a high risk of collapse in the event of a strong earthquake or where the probability of a collapse is low, but major structural damage is expected in the incidence of the design earthquake. The need for interventions so as to improve the quality and safety of health infrastructure is therefore acute, especially given that building users are largely people who cannot evacuate on their own in the event of an emergency.*

The institutional framework for the implementation of PNRR in order to achieve the targets related to the development of public health system's infrastructure would also undergo other normative changes:

- The provisions of Government Decision no. 144/2010 on the organization and functioning of the Ministry of Health are to be correlated with legal norms related to the establishment and functioning of ANDIS;
- The Approval of a Government Decision on the organization and functioning of ANDIS, establishing the headquarters and the maximum number of positions;
- The Approval of a Government Decision on the methodological norms for the implementation of the GEO on the organization and functioning of ANDIS, which would establish a whole series of normative details, of great importance in the following period.

Among these, the detailed activities carried out by ANDIS in the exercise of its legal powers require such a regulation, the criteria details for the selection of objectives / projects involving significant investments – having as object the investment in the hospitals pertaining to the Ministry of Health's health network (entrusted to ANDIS) and the methodology for their implementation.

Obviously, just as important is the methodology for conducting the multi-criteria analysis for establishing objectives / projects involving significant investments, which are to be included in the multi-annual program of investment projects of significant importance for health infrastructure.

## 6. Conclusions

This approach presents the state of the Romanian public health system (in the pre-pandemic stage), with all its weaknesses, showing that the previous strategies and programs, in the manner in which they have been implemented, did not lead to the expected performance. There was only one exception - due to the severe manifestation of the Covid-19 pandemic, some favorable results were obtained regarding information technology and modern communication, the e-health system and intersectoral collaboration. In general, with regard to Romania's health infrastructure and service provision framework, the conclusion was that there is still a lack of necessary equipments, the existing ones being below EU countries' standards, and the territorial distribution and their use in medical units are not correlated with the local health profile and the health needs of the population.

The perspectives regarding the development of public health system's infrastructure in the context of PNRR implementation display a certain optimism, as the “Health” Component in investment terms (total budget of 2.45 billion euros) provides multiple premises and chances in connection with the fulfillment of the objectives envisioned to be achieved: 200 community centers with new amenities and adequate staff, 3,000 equipped primary care offices / associations of offices, 26 equipped compartments / intensive care units for newborns, 30 equipped outpatient clinics, 25 public health units / public hospitals with new infrastructure, etc.

In our opinion, the program is achievable in a considerable proportion, especially given the creation within the Romanian institutional system of an entity with distinct legal personality, the National Agency for Development of Health Infrastructure (ANDIS), having as its sole object of activity the development of health infrastructure, through the preparation, implementation and completion of the objectives of the type mentioned above.

Along the same lines, other normative elements are being finalized aiming at the implementation of PNRR in order to achieve the targets related to the development of the health system's infrastructure: regulation of the detailed activities carried out by ANDIS in the exercise of its legal powers, detailing the criteria for selecting objectives / projects involving considerable investments, the methodology for conducting the multi-criteria analysis for establishing objectives / projects involving significant investments which are to be included in the multi-annual program of investment projects of significant importance for health infrastructure.

Regarding the limits of the research, we consider that these arise from the fact that the period in which the PNRR is to be implemented could be characterized by unknown / unforeseen factors, regardless of their nature. In fact, in the case of Romania's accessing of external funds, even when no significant critical factors were involved, in certain past periods, a very good absorption was still not achieved.

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## ESF Funding for the Development of Romanian Social Enterprises – Regional Distribution

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### Abstract

*Social enterprises have been proved to be important actors in the regional development through market approaches to societal problems. The development of the social entrepreneurship sector in Romania was supported in a great measure by the European Social Fund (ESF), which granted funds within the “Development of social economy” calls for proposals in the period 2007–2014. These actions were taken before legislation regarding social entrepreneurship or social economy would come into force. The research presented in this paper is based on data provided by the Romanian authorities managing grants for the development of social enterprises and the Romanian Ministry of Public Finances. Data were further analysed, classified and transposed in visual maps. The correlations made with the GDP/development regions showed a lack of perspective regarding the distribution of funds depending on the development needs. The paper wishes to emphasize the importance of strategic planning in the European funds distribution.*

**Key words:** social enterprise, social economy, regional development

**J.E.L. classification:** L31, Y91, R11

### 1. Introduction

European Commission’s priorities have included during the last programming periods, among others, issues like supporting European businesses, developing skills and investing in education, increasing employment, fight against poverty and social exclusions (European Commission, 2010, 2019). A solution for these issues is thought to be the concepts of social economy, social entrepreneurship and social enterprises, which represent rather new activities which combine market economy solutions and non-profit strategies to solve social, cultural or environmental problems. That is why the European Union has shown a continuing interest in the development of social entrepreneurship, by including social enterprises in public enterprise policy, stimulating social investment, modernizing public funding, launching development programs for social enterprises and raising awareness and building confidence in social enterprises (Rodert, 2011).

One of the first steps taken in the European Union’s 7th Framework Program was the development of pilot projects to research and promote social inclusion and the social economy. Many of these projects dealt directly with the social inclusion of the various groups excluded from the labour market, the development of the social economy and social innovation. In 2010, the European Commission proposed a new policy strategy called "Europe 2020" which aimed to support increased employment, productivity and social cohesion (European Commission, 2010). The Europe 2020 strategy included interests in social inclusion, innovation, business support and employment, which reflect social entrepreneurship’s core values. Moreover, in the framework of the European Union Regulations on cohesion policy for the 2014-2020 programming periods, the social economy has emerged as a priority for investments in the European Regional Development Fund, the European Social Fund and the European Union Program for Social Change and social innovation.

In Romania, the European Social Fund dedicated a field of intervention for the development of social enterprises, through the Sectoral Operational Program Human Resources Development (POSDRU) 2007-2013, Priority Axis 6, Major field of intervention 6.1. "Development of the social economy."

Since data regarding the Romanian social entrepreneurship sector is still very limited, and an important part of the sector by large is represented by organizations founded through POSDRU projects, we considered of great importance a detailed research of the status of these organizations in the sustainability and post-project phase at large. More than that, our research analysed the distribution of the number of funded organizations by development regions of Romania.

Out of the total of 8 development regions of Romania, in 2009, 6 regions were included in the Top 20 regions of Europe with the lowest GDP per capita (Eurostat, 2012). Only the Bucharest-Ilfov and West regions did not enter this top. Until 2018, only the North-East and South-West Oltenia regions remained in this top 20 regions with the lowest GDP per capita in the EU27 (Eurostat, 2020). The classification is made according to the GDP per capita, calculated in the Purchasing Power Standard (PPS) as a variation from the European Union average. PPS is a common currency used to compare living standards, consisting of the ratio of the price of a package of goods and services to national income (Uniunea Europeană, 2020).

## 2. Theoretical background

Even if no common definition regarding social entrepreneurship has been developed, the sector of social entrepreneurship has found its development at different paces in most economies (Cagarman et al. 2020). It is based on the same pre-conditions necessary for the development of classical entrepreneurship: the existence of an opportunity, of some characteristics necessary to take advantage of opportunities and the desire to obtain a series of results. It is often said that classic entrepreneurs are marked by the desire to make solely money, and social entrepreneurs are driven by altruism. But classic entrepreneurs do not act exclusively from the desire of a financial entrepreneur, both the classic entrepreneur and the social entrepreneur being motivated by the opportunity they discover, constantly pursuing the vision they have. What differentiates them are the values they learn. Classic entrepreneurs serve the markets through the product or service they offer and which is created for financial profit, while social entrepreneurs want to create a larger added value, serving the neglected, disadvantaged and all those who lack the means to obtain the benefit of social transformation on their own (Martin & Osberg, 2007).

Social enterprises, as organizational form under which social entrepreneurship functions, have a similar theoretical background. They lack a general definition, but have been agreed to be characterised by a set of cumulative elements: they are part of the non-profit or civil society sector, mainly the social economy sector (Pearce, 2003, 2009), they act in the interest of the community they represent and they reinvest part of their profits in their social purpose (Carlo Borzaga et al., 2020).

In Romania, various researches in the field have tried to perform analyses of several segments of the social enterprise sector:

- Definition of this type of organizations (Boeru, 2011);
- General presentation of the sector (ICF Consulting Services, 2014; Lambriu & Petrescu, 2019);
- POSDRU 2007-2013 Major field of intervention 6.1. "Development of the social economy" evaluation report (Ministry of Investments and European Projects, 2021).

However, related to the size of the social enterprise sector, only approximations were made, which numbered approximately 7,000 social enterprises in 2012 (ICF Consulting Services, 2014y) and 6,317 social enterprises in 2017 (Lambriu & Petrescu, 2019). As the legislation providing for the creation of a single Register of Social Enterprises was implemented at the end of 2016, and it provides for voluntary registration and is not sufficiently stimulated, even now we do not detect the premises for a realistic sizing of the social enterprise sector.

Knowledge over any sector of activity, and respectively the effects it can have on the socio-economic framework of a country requires a detailed analysis of each element of that sector. Thus, in the case of the social enterprise sector in Romania, the identification and analysis of social

enterprises is essential for any research, such as: presentation of the composition of the social enterprise sector and its characteristics; analysis of dependency / interdependence relations with the legislative, social and business environment; analysis of the effects that social enterprises can have on the Romanian social and economic environment; analysis of the evolution of social enterprises in the socio-economic market; analysis of the potential of social enterprises in solving social problems that have not been effectively addressed.

### 3. Research methodology

Our research initiative over the Romanian social enterprises created with the support of the European Social Fund was supported by a series of vital factors: the funded projects are public; the results of the funded projects, i.e. the number of social enterprises and related information are largely easy to identify, through the beneficiary's websites, press releases and activity reports published in the context of the project's visibility; information from the central databases of the Ministry of Public Finance on the registration of legal entity taxpayers, tax liability declarations (VAT, excise duties) and company balance sheets are available on the online platform [www.mfinanțe.ro](http://www.mfinanțe.ro).

Within the European Social Fund's Romanian Sectoral Operational Program Human Resources Development (POSDRU) 2007-2013, Priority Axis 6, Major field of intervention 6.1. "Development of the social economy" have been approved 278 projects within the 6 launched calls for proposals (Table no. 1).

*Table no. 1 Calls of proposals within POSDRU Major field of intervention 6.1. "Development of the social economy"*

Period	Call for proposal	Call type
2007-2010	No. 14	Strategic project proposals
	No. 69	Strategic project proposals
	No. 84	Strategic project proposals
	No. 53	Grant project proposals
2014	No. 168	-
	No. 173	-

*Source:* own synthesis based on POSDRU Major field of intervention 6.1. "Development of the social economy" calls for project

A particular case is that of the call for grant project proposals number 112, launched in 2011, in which 1,806 projects were submitted and which was cancelled by a Government Memorandum approved on August 14, 2012 following the registration of appeals on the public procurement procedure for project evaluation services.

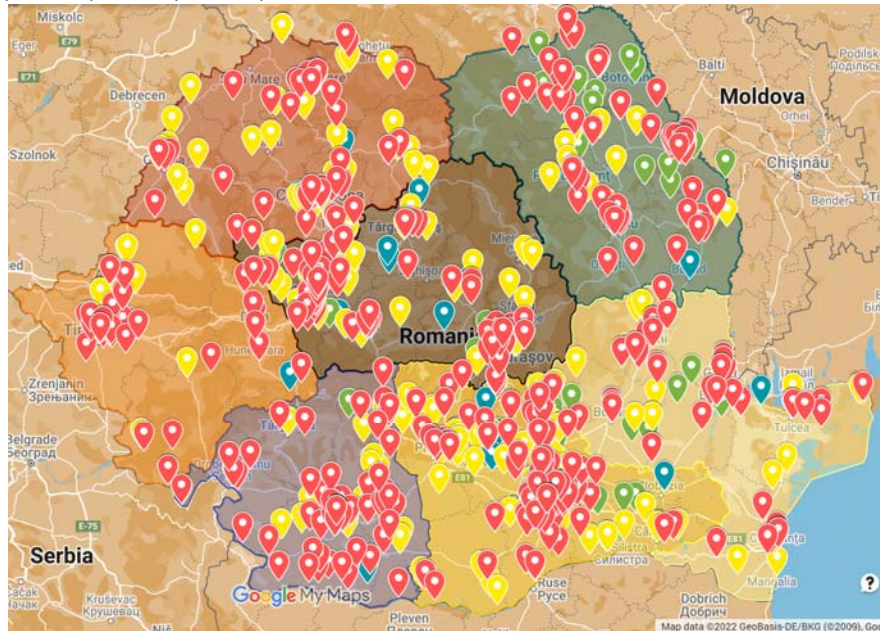
To identify the results of POCU funding projects, Major area of intervention 6.1. "Development of the social economy", we followed a laborious research process that consisted in identifying each project and the social enterprises set up within the project.

For these social enterprises, using the project websites, press releases and information provided by the Ministry of Public Finance, we collected the following data for the period 2014-2021: name, location of the registered office, unique registration code, year of establishment, the legislative form chosen for its establishment, the last registration with ANAF of the balance sheet, Revenue / Turnover at latest record, CAEN, Staff at latest registration.

### 4. Findings

Data regarding the address of the funded and registered organizations developed within the 6 rounds of financing of the Major field of intervention 6.1. "Development of the social economy" was used to create a visual map of their geographical location (Figure no. 1). The map was enriched with the representation of development regions, in order to initiate a geographical distribution of the social enterprises.

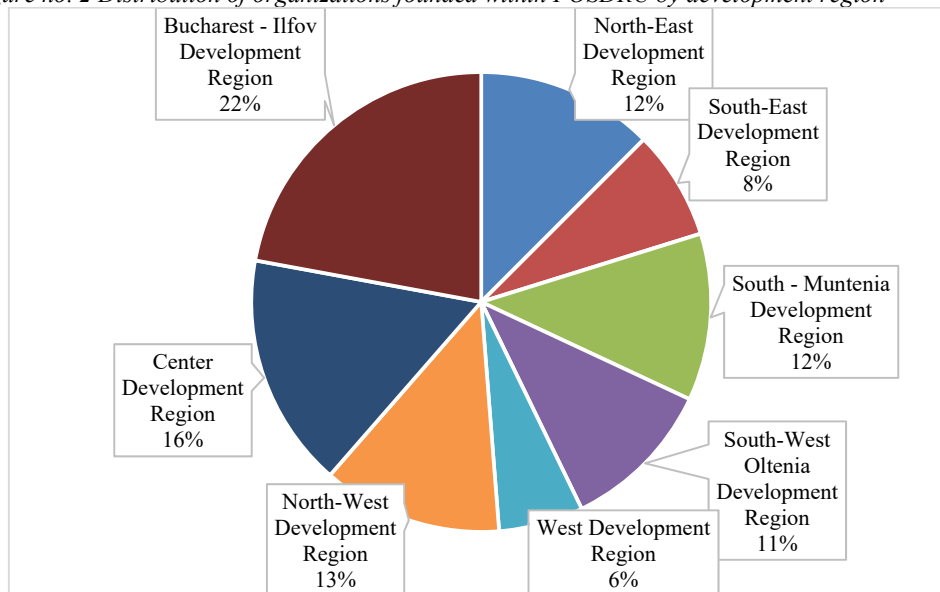
Figure no. 1 Representation of social enterprises founded within projects implemented as a result of CPP14, CPP53, CPP69, CPP84, CPP168 and CPP173



Source: author's representation in Google My Maps

Analysing the geographical distribution of social enterprises founded within projects implemented as a result of CPP14, CPP53, CPP69, CPP84, CPP168 and CPP173, we have identified the regions with the lowest number of funded social enterprises: West Development Region with 6% of the funded social enterprises, South-Est Development Region with 8% of the funded social enterprises and South-West Oltenia Development Region with 11% of the funded social enterprises. Bucharest - Ilfov Development Region had the highest percentage of the funded social enterprises (22%), followed by Center Development Region with 16% and North-West Development Region with 13%.

Figure no. 2 Distribution of organizations founded within POSDRU by development region



Source: author's representation

The database of social enterprises developed through the 6 POSDRU calls for project proposals, contains 1208 organizations (Table no. 2). Of these, 70.70% were active on December 31, 2021, ie they submitted a balance sheet or declaration of non-performance of activities. Only 20.86% of the total of 1208 organizations reported income only from non-profit activities, which would mean that these lost their social enterprise status. It is important to mention that the social enterprises included in this database are set up in the period 2009-2015, which means that they have overcome the minimum sustainability period of 2 years provided in the SOP HRD financing contract, which means that they have confronted already the free market conditions.

*Table no. 2 Status of the organizations founded within the projects implemented as a result of CPP14, CPP53, CPP69, CPP84, CPP168 and CPP173 on 31 December 2021*

<b>Romanian Development Regions</b>	<b>Founded organizations</b>	<b>Active organizations</b>	<b>% of active organizations</b>	<b>Active organizations with only non-profit activity</b>	<b>% of active organizations with only non-profit activity</b>
North-East Development Region	<b>151</b>	113	74.83 %	31	20.53 %
South-East Development Region	<b>93</b>	76	81.72 %	20	21.51 %
South - Muntenia Development Region	<b>142</b>	94	66.20 %	28	19.72 %
South-West Oltenia Development Region	<b>131</b>	78	59.54 %	39	29.77 %
West Development Region	<b>72</b>	47	65.28 %	15	20.83 %
North-West Development Region	<b>153</b>	112	73.20 %	28	18.30 %
Center Development Region	<b>199</b>	167	83.92 %	47	23.62 %
Bucharest - Ilfov Development Region	<b>267</b>	167	62.55 %	44	16.48 %
<b>Total</b>	<b>1208</b>	<b>854</b>	<b>70.70 %</b>	<b>252</b>	<b>20.86 %</b>

*Source: own synthesis*

Regarding the distribution of organizations founded within the projects implemented as a result of POSDRU major area of intervention 6.1. “Development of the social economy”, at the level of development regions, we can see that most organizations are located in Bucharest - Ilfov Development Region and Center Development Region, which are also the highest GDP per capita in the EU27.

## **5. Conclusions**

The Sectoral Operational Program Human Resources Development 2007-2013 had a major role in introducing the concept of social enterprise in the Romanian society and in offering the premises of offering knowledge regarding social entrepreneurs. Thus, in the period 2007 - 2010, the process of pioneering the development of a sector of social enterprises in Romania was initiated.

Our paper wished to analyse data provided by the Romanian authorities managing grants for the development of social enterprises and the Romanian Ministry of Public Finances, in order to identify correlations between the distribution of the number of social enterprises developed within the major

area of intervention 6.1. "Development of the social economy" of the Sectoral Operational Program Human Resources Development 2007-2013 and the Romanian Development Regions' need for support.

Within the objectives of major area of intervention 6.1. "Development of the social economy" within the Sectoral Operational Program Human Resources Development 2007-2013, the reduction of economic and social disparities in the regions of Romania did not occupy any position in the implementation program. This aspect can be found even in the conclusion we drew, namely the fact that we noticed the lack of a strategy regarding the distribution of European funds according to their need at a regional level. Within the North-East, South-East, South – Muntenia and South-West Oltenia Development Regions which are the regions with the lowest GDP / capita in Romania, 42% of the analysed enterprises were established.

We believe that the potential of social enterprises, stated in the literature to help increase the economic and social status of the communities they serve, can be exploited by channelling non-reimbursable funds to the least developed regions, thus supporting their economic and social growth. regions.

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# Evaluating the Results Regarding the Implementation of the Development Policies of The European Union

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## Abstract

*Evaluation is a significant tool used for understanding what works and what does not, but more important why, and under what circumstances. In the context of the significant changes that now arise in European economies, but also the increasingly complex and dynamic environment, evaluation is necessary more than ever to help us learn from previous experiences. This paper uses methods of empirical analysis to assess the results of the implementation of the development policies of the European Union. The results obtained may be of interest to both researchers and decision makers. These results show the increased absorption rate for both programming periods but highlight significant differences between groups of countries.*

**Key words:** evaluation, European Union, development policies

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

## 1. Introduction

The results obtained by EU states and regions following the absorption of structural funds and the use of financing instruments are analyzed mainly by the EU institutions, but also by specialists in order to measure their impact on economic growth and development, and reduce the gaps between founding states of the EU and the new entrants, between the regions at different stages of economic and social development, as well as the changes required in the formulation of objectives from one programming period to another. According to the OECD (2009), evaluation involves a systematic and objective assessment of an ongoing or completed project, program or policy, its design, implementation and results, the purpose of which is to determine the relevance and achievement of objectives, efficiency, and in terms of development, effectiveness, impact and sustainability.

Viewed as a process, evaluation, in all its forms, allows the analysis of the benefits of an intervention financed by various financial instruments by reporting on impact, efficiency, effectiveness, relevance taking into account the needs of beneficiaries by comparison with the planned results. Measuring the physical progress of a program depends on establishing and developing some performance indicators, classified as follows: output indicators, result indicators, and impact indicators.

At EU level, five criteria have been outlined so that the evaluation is in line with the aims pursued in this process, called the "Development Assistance Committee (DAC) criteria", formulated by the OECD (1991). These criteria are relevance, efficiency, effectiveness, impact and sustainability. Evaluation is an important part of the implementation process by which results are measured, but future directions are also outlined and objectives are formulated based on the deviations found.

Pavel (2013) states that the evaluation of the impact of European strategies is done by evaluating the related policies that are implemented through funding programs, in order to obtain a more accurate picture of the process and can be: qualitative, quantitative, formative, ascriptive, internal, ex - ante, ex - post, intermediate, of impact, of implementation, objective based, goal free evaluation, comparative, meta-evaluation (evaluation of the evaluation). The methods used are

numerous, such as: modelling, cost-benefit analysis, regressive analysis, econometrics, input-output analysis, case study, survey, interview.

According to the EU Department of Regional Policy (2010), the choice of the European policy evaluation method is an important step after the decision on the evaluation topic and objectives is taken. The choice of the appropriate evaluation method is important, but each method has its limitations, requiring a combination of evaluation methods and / or models to determine the impact of the different tools used.

There are many methods and models for assessing the impact of European policies on economic development, many of which are used by both the European institutions to quantify the effects of measures taken and the investment of funds used, and by independent researchers and institutions. In order to be applied, it is necessary to combine the quantitative criteria expressed by indicators, the qualitative ones expressed by descriptors and the intermediate ones expressed by scores. In the evaluation activity it is necessary to define the indicators and the data used, the values of the indicators being obtained following the systematization of the data by centralizing, grouping and applying various calculation methodologies on the collected data.

In this paper we aimed to realize an evaluation of the results regarding the implementation of the development policies of the European Union through various specific instruments, with emphasis on the comparisons made between the periods of programming but also between member countries.

## **2. Theoretical background**

According to the EU Evaluation Guide (2013), from the point of view of European policy evaluation, an indicator can be defined as the value given by measuring an objective, a mobilized resource, an effect obtained, a context variable, success that produces quantified information in order to help actors involved in public intervention to communicate, negotiate or make decisions.

The literature in the field shows that there are multiple evaluation methods that can be used. However, some of these are more often used either because of their ease or because of the clearer results offered. Thus, Joint Researches Centre (2016) shows that investments produce direct effects that can be quantified, but also indirect and induced effects that can be approximated using modelling methods. One such method is the Computable general equilibrium (CGE) method, developed by the European Commission's Joint Research Centre (JRC). One of the models developed in this method is the RHOMOLO model, used to analyse the impact of European regional policies since 2010. This is a recursive dynamic spatial computable general equilibrium model covering a wide range of tools, from investment support to transport, human capital or in research and development. It is constantly being revised and improved to expand the coverage area, the last one dating back to 2016.

Evaluating the options for Cohesion Policy from 2014-2020, Brandsma et al. (2014) perform a simulation of the impact results by 2023. In the field of investments in human capital, the authors estimated that it will be a positive result especially in Central and Eastern Europe. Increased investment in research and development will lead to regional GDP growth of 1.2% in the Czech, Hungarian, Polish and Portuguese regions in 2013-2023, with the least developed regions experiencing an estimated average growth of 1.2%. Improving transport infrastructure will lead to interconnection in the Single Market, increased exports, reduced transport costs, all of which will lead to an increase in regional GDP, especially in the less developed regions, and implicitly in the regions adjacent to them. In conclusion, the authors estimate that Cohesion Policy will positively influence GDP growth by more than 2% in Poland, Latvia, Croatia and Estonia, between 1.5-2% in Hungary, Lithuania, Slovakia and Bulgaria, between 1-1, 5% in the Czech Republic, Romania and Portugal and less than 1% in Malta, Slovenia, Cyprus, Spain and Italy; the estimate shows that GDP will not fall in any state. However, we must keep in mind that the study carried out by these authors did not anticipated the period of economic turmoil caused by the COVID-19 pandemic. In this context, the forecasts and estimates made have been seriously affected and have undergone significant changes



### 3. Research methodology

The research methodology used in this paper considers, in particular, the analysis of data provided by various international bodies, with regard to the results of the implementation of the development policies of the European Union. For the analysis we also use the graphical representation, which facilitates the realization of comparisons from one year to another, but also between the member countries of the European Union.

The sample of countries considered for analysis consists of the 27 member countries of a European Union, and the period of analysis considered is 2007-2020. The choice of the analysis period was made in such a way as to include the two programming periods 2007-2013 and 2014-2020 for the Regional Development Policy.

### 4. Findings

In the programming periods 2007-2013 and 2014-2020, the Regional Development Policy is financed from the EU budget on the basis of the objectives set for each period, through the various types of financial instruments, the most widely used being the Structural and Investment Funds. One way of evaluating is to compare the amounts allocated with the amounts absorbed, for each objective, for each programming period.

*Table no. 1 Amounts allocated and absorbed at EU level by Cohesion Policy objectives (2007-2013 and 2014-2020)*

Objectives	Total amounts (Mld.Eur)	
	allocated	absorbed
2007-2013		
1. Convergence	377,62	374,52 (95%)
2. Regional competitiveness and employment	54,47	54,19 (97%)
3. European territorial cooperation	7,77	7,74(96%)
TOTAL 2007-2013	439,45	436,45 (99%)
2014-2020		
1. Strengthen research, technological development and innovation	60,70	35,45 (58%)
2. Improving access to and quality of information and communication technologies	17,98	8,46 (53%)
3. Increasing the competitiveness of SMEs	121,03	61,78 (58%)
4. Supporting the transition to a low-carbon economy	46,00	23,94 (52%)
5. Promoting climate change adaptation and risk prevention and management	49,64	30,21 (61%)
6. Conserving and protecting the environment and promoting resource efficiency	84,25	46,64 (55%)
7. Promoting sustainable transport and improving network infrastructure	63,05	41,27 (65%)
8. Promoting the sustainability and quality of jobs and supporting worker mobility	30,49	31,90 (64%)
9. Promoting social inclusion, combating poverty and all forms of discrimination	61,58	34,38 (56%)
10. Investing in education, training and lifelong learning	39,06	25,04 (64%)
11. Improving the efficiency of public administration	5,59	2,79 (50%)
Outermost regions and sparsely populated areas	0,85	0,22 (26%)
Multiple thematic objectives	83,77	70,34
Technical support	21,49	15,15
REACT - EU	39,45	2,25
TOTAL 2014-2020	730,14	411,24 (57%)

*Source:* own processing after (European Commission, 2016) (European Commission, 2022a) (European Commission, 2022b) Note The amounts absorbed for the period 2014-2020 are according to the mid-term evaluation, reported on January 14, 2022

Data for the 2007-2013 programming period (Table no. 1) show that, at EU level, the absorption rate through the Structural and Investment Funds was 99%, but the importance is given by the results of the investments made. In the final evaluation report, the European Commission (2017) published the following results: a total of 98,7 million people benefited at EU level (36% inactive people, 33% employed, 30% unemployed), of which 51,2 million were women (52% of the total beneficiaries); 9,4 million people got a job, of which 0,3% were self-employed, 8,7 million people got new skills; 276.000 beneficiaries used European funding. From a macroeconomic point of view, EU-level GDP growth and productivity were up to 0,25% (1,5% growth in Central and Eastern Europe and 0,5% in the EU-15). Also relevant are the issues that have hampered the use of financial instruments. According to the European Court of Auditors (2018), the late adoption of the legislative framework, also valid for the implementation period 2014-2020, has led to the late adoption of operational programs, leading to overlapping programming periods. European Commission technical assistance came late, only 13 months before the end of the eligibility period, with the beneficiary Member States making significant progress on the projects. The final absorption rate at the end of 2017 was 97,2%, with 4,4 billion euros not spent. Some measures focused on absorption and compliance with the rules, less on results. It is difficult to quantify the impact of each measure as there was no obligation for states to report data to the Commission, which is corrected for the 2014-2020 programming period. For the Convergence Objective, the total amount allocated was 377,62 billion euros through five Structural Funds. To this target has been added 0,96 billion euros for developed areas that have exceeded the eligibility threshold, called "non-convergent regions", through the EFF. The Objective of Regional Competitiveness and Employment included allocations through the ESF (European Social Fund) and the ERDF (European Regional Development Fund), and the Objective of European Territorial Cooperation - through the ERDF.

The European Commission (2022a) publishes data for the 2014-2020 programming period, the total amount allocated is 730,14 billion euros, of which 535,06 billion euros are from the EU budget, the rest being national contributions. The highest total amount is allocated to the objective of Increasing the competitiveness of SMEs, of 121,03 billion euros, in the next place in terms of the total amount of the allocation being the objective Conservation and protection of the environment and promotion of resource efficiency, with an allocated value of 84,25 billion euros. 21,49 billion euros are earmarked for the efficient use of allocated funds for Technical Assistance. In 2021, under the Cohesion Policy, an additional theme was added - Promoting crisis remediation and resilience - related to the new REACT - EU funding, adopted in response to the coronavirus pandemic for which 39.45 billion euros has been allocated. At the beginning of 2022, for all objectives, the absorption exceeds 50%, the total amount absorbed being 411,24 billion euros, representing 57% of the total allocated value. Relevant are the concrete results obtained by financing the various types of activities, recorded by the end of 2021, by objectives (Table no. 2) (European Commission, 2022a).

*Table no. 2 The impact of the use of structural funds at EU level on objectives - completed projects (2014-2020)*

<b>Objectives</b>	<b>Results (% of Proposed Value)</b>
1. Strengthen research, technological development and innovation	ERDF – 56.583 beneficiary companies (43,62%); 5.304 new research beneficiaries (18,6%)
2. Improving access to and quality of information and communication technologies	EAFRD (European Agricultural Fund for Rural Development) - agriculture –1.192.680 innovative projects, 2.989 interactive projects (21,3%)
3. Increasing the competitiveness of SMEs	ERDF – 2,9 million households - access to broadband connection (29%); improving access to health services – 1,6 million people (100%)
4. Supporting the transition to a low-carbon economy	EAFRD -2,3% rural citizens (17,42%)
5. Promoting climate change adaptation and risk prevention and management	ERDF - new SMEs 64.967 (45,12%), new jobs 95.325 (31%); start-ups 19.400
6. Conserving and protecting the environment and promoting resource efficiency	EMFF (European Fisheries and Maritime Fund) - 9.698 modernized farms (38,33%); 105.788 new young farmers supported (59,52%)

7. Promoting sustainable transport and improving network infrastructure	All funds – 1.002 new jobs (19,21%)
8. Promoting the sustainability and quality of jobs and supporting worker mobility	EMFF – 1,3% of actions to reduce carbon emissions (2,1%)
9. Promoting social inclusion, combating poverty and all forms of discrimination	ERDF- 3,66 million people protected from floods; 6,14 million people protected from forest fires
10. Investing in education, training and lifelong learning	EMFF – 8,53% farms supported in the field of risk management
11. Improving the efficiency of public administration	ERDF recycling 1,8 million tons of waste (34%), 7,3 million people access to water and sewer (58%)

*Source:* (European Commission, 2019b) (European Commission, 2022a)

The data showing the progress and the impact registered is due to the specific evaluation methodology that was imposed by law at the beginning of the 2014-2020 programming period, as opposed to the previous implementation period in which the evaluation was not carried out uniformly at EU level, was not applied on objectives and the data collected were not used effectively. The final evaluation of the results will be possible after 2023, according to the European Commission (2019b) the funds can be implemented within a period of three years after the adoption of the budget, therefore the deadline is set for the year 2023 (N + 3 rule) (European Commission, 2019b).

The European Commission (2016) states that the programs implemented during 2007-2013 took place in the context of various challenges. These included, on the one hand, the deep global economic and financial crisis and, on the other hand, the need to build the economy, infrastructure and administrative capacity of 13 Member States that have joined since 2004, for the most part being the first programming period completed. The ex-post evaluation of the ERDF and the CF (Cohesion Fund) 2007-2013 provides evidence that Cohesion Policy has responded effectively to these challenges and delivered a wide range of positive results. Based on monitoring data, it is estimated that approximately 1 million jobs have been created. In addition, macroeconomic models estimate that Cohesion Policy for the period 2007-2013 will generate an additional 1 trillion euros in GDP by 2023. The added value of EU Cohesion Policy is certain through the following results: through trade effects, Cohesion Policy has a net positive impact on the GDP of each EU region at the end of the financial year, even on major taxpayers, with a long-term expansion until 2023. In the context of the economic crisis and pressures on the public investment budgets of less developed countries, Cohesion Policy has allowed SMEs to withstand and even expand during the crisis and to invest in transport and waste and water management. used to meet major policy objectives. The results of the 2007-2013 ex-post evaluation confirm many of the improvements made to the 2014-2020 regulations, as many of the many aspects have become visible to practitioners and are found in the evaluations. The 2007 ex-post evaluation 2007-2013 brings greater analytical depth to these issues and examines several thematic areas that have not been examined in depth before. It also provides a reference framework for assessing in the coming years how issues are addressed in an efficient and proportionate manner, as well as the elements that will need to be maintained or strengthened after 2020.

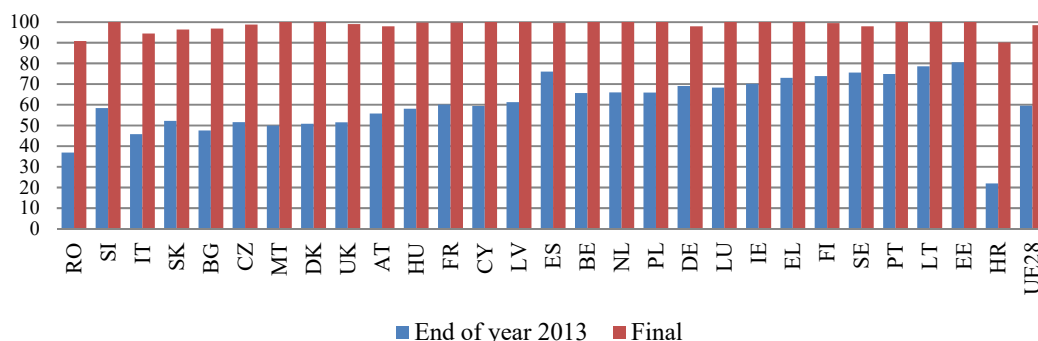
Ex-ante evaluation of the impact of Cohesion Policy for the implementation period 2014-2020 based on RHOMOLO modelling is carried out in the study Evaluation of policy options for Cohesion Policy 2014-2020. Investments in infrastructure, human capital development and climate innovation are considered separately, but also in combination to get an overview of the overall effect. Corroborating the data for the period 2013-2020 published by Eurostat (2022) at the beginning of the year with the data resulting from the simulation by the RHOMOLO model, it can be concluded that for the period 2013-2020, the data obtained from the simulation are completely contradicted: the increase for the first group of states is between 7% and 25%, for the second group - between 13% and 23%, for the third group - between 5% and 26%, and for the last group - between 4% and 40%, with the exception of Italy, whose GDP fell by 4%. The same trend as in Italy was followed by Greece, with GDP falling by 5 percent in 2013-2020.

The evaluation of the impact of the use of structural funds at EU level for the period 2007-2013 by the European Commission was carried out in 2016, highlighting the main achievements at EU level, but also for each country, taking into account two of the three funds of the Policy Cohesion -

ERDF and CF, ESF having a separate evaluation. The results of the evaluation were published in the Commission document entitled Ex post evaluation of the ERDF and Cohesion Fund 2007-13.

In terms of implementation, funding has been allocated to 440 operational programs (322 for ERDF - CF and 118 for ESF) starting in January 2007 and ending in December 2015, with the last payments being made in 2017. The implementation rate by absorbing ERDF and CF funding varied from country to country (see Figure no. 1). The year 2013 was the middle of the period set for payments through the Structural Funds of Cohesion Policy, so the analysis taking into account two stages of absorption, the mid-term stage and the final stage is useful to observe the capacity of states to submit projects and recover delays. It should also be noted that a number of countries (Italy, Denmark, Austria, France, Belgium, the Netherlands, Germany, Luxembourg, Ireland, Finland, Sweden and the United Kingdom) did not benefited from the CF for the 2007-2013 programming period.

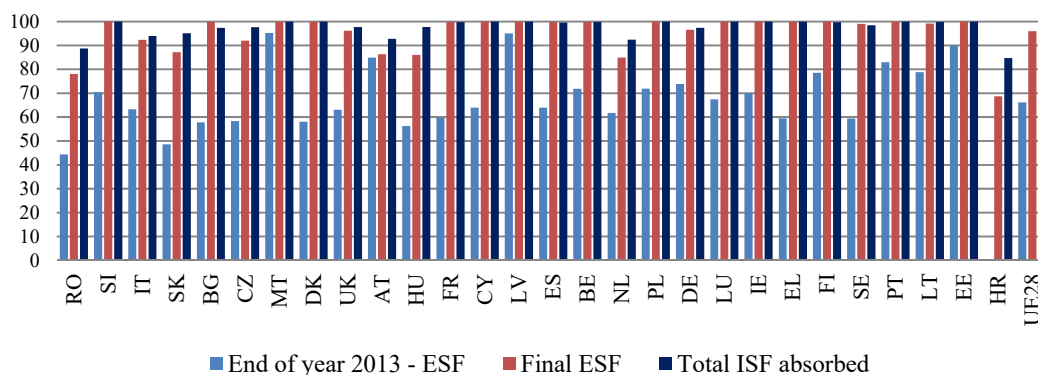
Figure no. 1. Amounts absorbed (%) of total ERDF and CF funds allocated for EU-28 (2007-2013)



Source: own processing after (European Commission, 2022b)

The period up to the end of 2013 shows the absorption rate of the total ERDF and CF allocated, noting that there are differences between the implementation rates both in the middle of the period and in the reduction of the gaps along the way. The analysis of the absorption rate in the middle of the period shows that the highest value is for Estonia, of 80,53%. Also, 15 states have a rate above the EU28 average of 59,5%, the rest of the states being below the European average, on the last places being Romania, with 37% and Croatia with 22%. The maximum values, of 100%, of the final absorption rate for ERDF and CF correspond to a number of 14 states, above the EU28 average, of 98.51%, are situated 6 more states. The highest recovered value of the period belongs to Croatia, of 68%, followed by Romania, of 54% and Malta, of 50% (final absorption of 100%). On the last places in terms of the total absorption rate for ERDF and CF are Romania (90.87%) and Croatia (90.1%).

Figure no. 2. Amounts absorbed (%) of total ESF funds and total (%) ISF absorbed (2007-2013) for EU-28

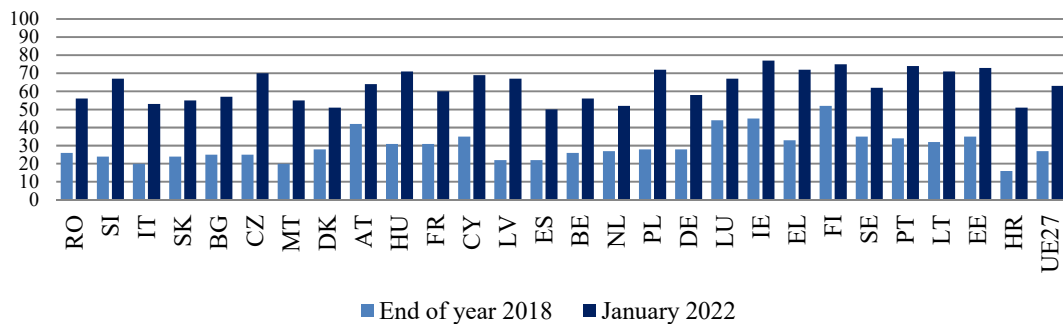


Source: own processing after (European Commission, 2022b)

At the middle of the implementation period, a number of 13 countries have the ESF absorption rate above the EU-28 average (66.15%), of which Latvia and Malta have values above 90%, 95% and respectively 95.19%. The rest of the countries are below the value of the EU average, the lowest value being that of Romania, of 44.32%, also below 50% is the absorption rate of Slovakia, of 48.55%. A special situation is for Croatia, which joined the EU on 1 July 2013, receiving funding from the CF and the ERDF in the form of pre-accession funds from 2008 and the ESF from 2014, so that at the end of 2013, the amount absorbed through ESF is 0. The average absorption at EU-28 level was 96%, above this average being a number of 20 states, of which 11 states with a value of 100%, below average being 8 states, the last two being Romania (78.08%) and Croatia (68.67%). During the period, Croatia (68.67%) recovered the most, followed by Bulgaria (42.11). The lowest absorption rate for the second half of the period was Austria followed by Malta, Latvia, Estonia and Portugal, the total absorption rate of the three states being 100%. Malta and Latvia have applied for maximum ceilings since the beginning of the period, with at the end of 2013 applications for 95% of the allocated amounts. The 2007-2013 programming period is characterized by a high absorption rate at EU level through the Structural and Investment Funds allocated to Cohesion Policy, of 97.86%. A number of 17 states had values of absorption above the average rate, of which 11 states with a rate of 100%, on the last places below the European average being Romania and Croatia, the penultimate one with an advance of 4%.

For the period 2014-2020, the interim data published in January 2022 provide an image of the capacity to implement the objectives of the Cohesion Policy through ISF (Internal Security Fund) by analysing the values of the amounts absorbed at the end of 2018 (mid-programming period) and 2022 (Figure no. 3).

Figure no. 3. Amounts absorbed (%) of total allocate fund through ISF in2018 and 2022, UE-27

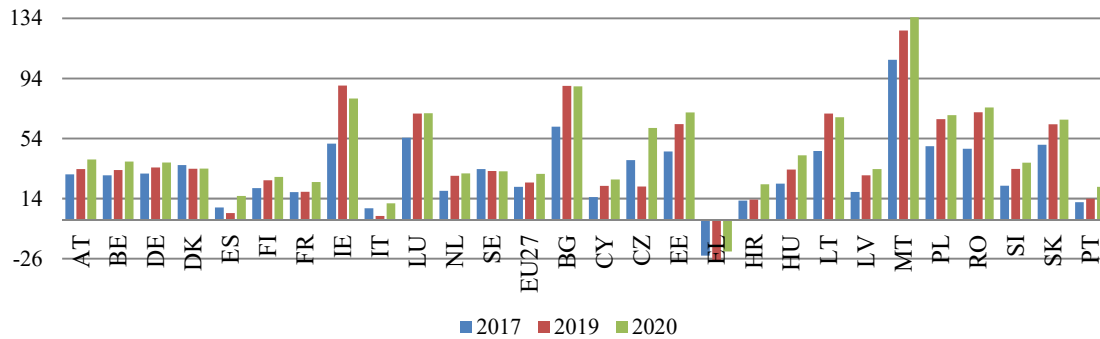


Source: own processing after (European Commission, 2022b)

At the end of 2018, the average value of absorption through the ISF for the EU-27 is 27% (mid-programming period), rising to 63% in early 2022. The highest absorption rates, above the EU-27 average, are for Finland (52%), Ireland (45%), Luxembourg (44%), Austria (42%), another 8 countries have an average above 30%, another 3 countries below 30%, but still above the EU-27 average. The lowest absorption rates in 2018 were for Croatia (16%), Malta and Italy, (20% each), Romania having 26% and Poland 28%. In 2022, the absorption rate at EU-27 level increased to 63% as values increased for all countries. A total of 15 countries exceed the EU average, with the highest values for Ireland (77%), Finland (75%), Portugal (74%) and the lowest in Spain (50%), Croatia and Denmark (51%), Romania having a total absorption of 56%, and Poland of 72%. The highest value recovered during the period is Latvia, 55%, the lowest - Austria, 22%.

Analyses of the impact of the use of structural funds on the growth and development of the economy can be made in the light of changes in the values of GDP and GDP per capita. Data on the evolution of GDP in EU countries for the period of implementation of Cohesion Policy, 2007-2013 (2017 being the last year in which payments were made for the programming period), as well as for the period 2014-2020 (year taken into account being 2020) can be also a method of analysis on economic and social development (Figure no. 4).

Figure no. 4. Change (%) in EU-27 GDP in 2017, 2019 and 2020 compared to 2007 (2007 = 0%)

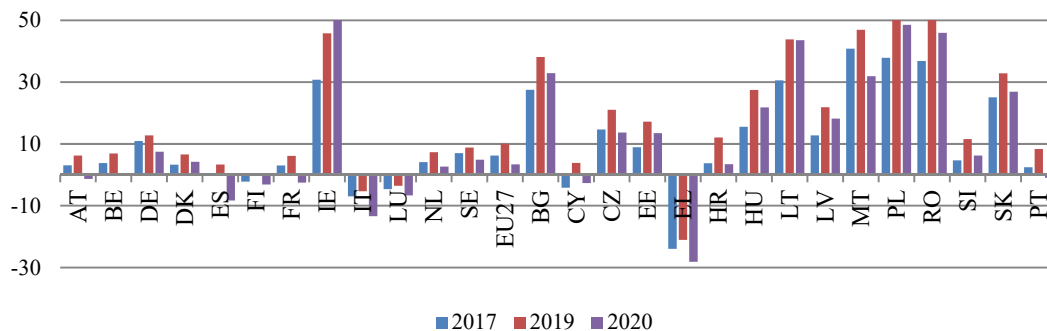


Source: own calculation from data extracted from (Eurostat, 2021)

It is observed that the evolution of the GDP of the EU-27 Member States in relation to the value for 2007 is different, positive, increasing at different rates, with lower values in 2020 compared to 2019 for all states except Greece. Negative values are recorded for Greece reporting the values of 2017, 2019 and 2020 to the value of 2007. The highest increase, of 106.39% in 2017 and of 134.77% in 2019 is that of Malta. The smallest increasing being of Italy's 7.54% in 2017 compared to 2007 and 10.91% in 2019. In 2020, most EU countries, except Ireland (+8.53%), Bulgaria (+1.62%), Lithuania (+1.55%) and Sweden (+0.24%), recorded lower GDP values compared to 2019, the largest decrease being the Czech Republic. Compared to the average value of EU-27 GDP growth (we considered for the whole period analyzed 27 states to be able to compare the data at the level of 2020), in 2017 a number of 17 states exceed this value, in 2019 and 2020 being 19 states. In 2020, EU-27 GDP is lower with 5.79% compared to 2019. The low GDP growth for some countries and the decline for others in 2020 show that the economic growth trend may be affected when unforeseen situations arise at European or global level. The impact of the crisis caused by the COVID-19 pandemic is negative to a greater or lesser extent, demonstrating that, at EU level, economic growth cannot be sustained under any fluctuating under the influence of unpredictable factors.

The evolution of the GDP per capita values compared to the GDP per capita value from 2007 as reference year, for 2017, 2019 and 2020, can determine conclusions regarding the economic development of each state, GDP per being an indicator to measure the development, and the comparison from the point of view of the value of this indicator between states reveals the convergence at European level (Figure no. 5).

Figure no. 5 Change (%) of GDP per capita of EU-27 countries in 2017, 2019 and 2020 compared to 2007 (2007 = 0%)



Source: own processing after (Eurostat, 2022)

During the analyzed period, having as reference the values of GDP per capita of each state at the level of 2007, there are both increases and decreases of the indicator, in different proportions. Greece has registered significant decrease in the three reference years. Three other states, Italy,

Luxembourg and Finland, have a GDP per capita decrease of between 7% and 0.16% in the three years, with the exception of 2020, when Italy's decrease is 13%. In 2017 and 2020 Cyprus had a registered a reduction in GDP per capita, the value for 2019 being positive, increasing compared to the reference year 2007, of about 4%. Values below the level of 2007 are for Spain, France, Austria and Portugal. The rest of the states have higher GDP per capita values compared to 2007, the highest increases being in Malta (40.85%) in 2017, Poland (52.28%) in 2018 and Ireland (52.72%) in 2020. The lowest positive values are for Spain (0.21% and 3.36%) in 2017 and 2019, and Belgium (0.36%) in 2020. Significant increases of more than 20% in 2017 were in Poland, Romania, Ireland, Lithuania, Bulgaria and Slovakia (between 37.89% and 25.8%), in 2019 - Romania, Malta, Ireland, Lithuania, Bulgaria, Slovakia, Hungary, Latvia and the Czech Republic (between 50.74% and 21.05%), and in 2020 - Poland, Romania, Lithuania, Bulgaria, Malta, Slovakia and Hungary (between 48.5% and 21.81%). By 2017, the countries with significant growth were eligible with all regions for the Convergence objective, with the exception of Ireland which had two regions eligible for the Competitiveness and Employment objective. For the 2014-2020 programming period, countries with GDP per capita growth above 20% compared to 2007 are on the list of countries with regions eligible for CF, ERDF and ESF, with the exception of Ireland whose regions are regions of transition. According to the European Commission, phase-in assistance was provided until 2013 to regions whose GDP was below 75% of the EU-15 average in the period 2000-2006, but above this threshold after 2007 (European Commission, 2022c).

It is clear that there is economic growth in all EU countries, one of the drivers of growth is the funds allocated to economic development, but one of the main directions of Cohesion Policy is to reduce the gaps between European regions by promoting economic convergence, based on less developed regions. For the analysis of the narrowing of the gap between Member States, we considered it useful to measure the GDP per capita variation in 2007, 2017, 2019 and 2020 taking into account the GDP per capita values of Luxembourg, which are the highest for the period analyzed ( 2007 – 88120 euros, 2017 – 84020 euros, 2019 – 85030 euros, 2020 - 82250 euros). In 2007, the gap between Luxembourg and the second country in the EU ranking, Denmark, is 47.56%. The most accentuated gap is between Luxembourg and Bulgaria (of 94.55%), in front of Bulgaria being Romania, with a value of 93.13%. From the 26 countries measured, the last half of the ranking includes the states that joined the EU in 2004 (in descending order of values - Slovenia, Malta, Czech Republic, Estonia, Slovakia, Hungary, Latvia, Lithuania and Poland), followed by Croatia, which joined in 2013 (standing between Slovakia and Hungary) and Portugal, which joined in 1986 (between Slovenia and Malta). At the level of 2017, the place of Denmark is occupied by Ireland, the difference compared to Luxembourg being 35.81%. On the last two places of the ranking are located, as in 2007, Bulgaria (difference of 92.72%) and Romania (difference of 90.15%), being able to observe a reduction of the gap, but of small value. In the last half of the ranking are about the same countries, with Malta rising in the first half of the ranking, with Greece entering 5.17% compared to 2007. All EU-27 countries are reducing their difference from Luxembourg, except Greece. The largest decrease is in Ireland, of 17.39%. For 2019 and 2020, the situation is the same in terms of ranking as in 2017, in terms of calculated values being increases for all states, which means that the gap with the state with the highest GDP per capita continues to reduce, but the rate of reduction is very slow.

## 5. Conclusions

The main purpose of the European Structural and Investment Funds is to encourage sustainable socio-economic convergence, resilience and territorial cohesion. The second Strategic Report at the end of 2019 (European Commission, 2019) reveals that 72% of available ESI resources were committed. Projects already funded have a growing impact in key policy areas, such as: more than 1,6 million businesses - including farms - are supported; 300.000 new jobs are created by supported companies; 26 million people have received training, education or job search assistance; 8,3 million households will have access to better broadband; over 3.900 km of railway lines are built or rebuilt; 60 million people benefit from ongoing projects in the health sector, the results of which are constantly growing as various projects are carried out.

The process of measuring the implementation of development policies at EU level has an important role to play in determining economic growth, reducing intra- and inter-Community gaps, setting future directions for action, and comparing the level of economic and social development between the European Union and other countries of the world. Evaluation involves the use of indicators by specific methods, depending on the theme and objectives pursued, by institutional bodies or independent researchers.

The Structural and Investment Funds are allocated from the EU budget in the light of different allocation criteria, based on objectives set at Union level for a programming period, based on national programs, to which are added national contributions. In order to shape an overview at EU level, it is necessary to develop a specific, unitary evaluation methodology. An important component of the evaluation process is the choice of indicators used so that the results correspond to the theme and provide a real picture of the effects produced, the aim being to identify the key components on which future interventions are needed.

For EU countries, the analysis of GDP and GDP per capita shows that the trend of economic growth is positive since 1990, with periods of fluctuating growth, periods of global economic crisis affecting the pace of growth and highlighting the fact that, from an economic point of view, European construction is influenced by the global state of the economy or unforeseen situations, as evidenced by the decline in GDP per capita of most European countries in 2020 compared to 2019, amid the economic crisis caused by the COVID pandemic - 19. Determining the factors that led to the growing trend during the pandemic for Ireland and Lithuania may be the basis for formulating specific policies to achieve enhanced economic growth in other European countries as well, with the loss of development gains requiring immediate action.

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## Conceptual Research on the Organization of Local Public Administration in Romania and Republic of Moldova

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### Abstract

*Local public administration plays a very important role for society. In theory, the contribution of local government activity, should help to create the welfare state through implemented social policies. In the scientific approach, we intend to explore in a comparative way the organization of local entities in Romania and Republic of Moldova. Along the same lines, we will analyse the legal provisions relating to the mayor as an executive authority. The importance of research is highlighted in the need to compare the legislation of Romania and Moldova, one as an European Union member state and another one as a state which want to join the big European family. After all, we will present a proposal to adapt certain articles of the law on local public entities in the Republic of Moldova, calling attention to the need to revise the legal framework in the spirit of European principles.*

**Key words:** local administration, mayor, local council, public entities.

**J.E.L. classification:** K23, K31, R11.

### 1. Introduction

The local public administration is a structure designed to meet the inhabitants needs and interests. In order to be aware of its fundamental purpose, we begin the scientific approach by becoming aware of the essence of the notion of administration and the regulatory approach of the state, because administration cannot exist without a state organization. Otto Mayer believes that "the administration includes all the activity of the State which is neither law nor justice" (Mayer, 1934). Another theorist of the law believes that the administration is the most complicated activity of the State; it's omnipresent in society, in people's lives, and for these reasons there is a constant concern of decision-makers to make public administration a force in the interests of people" (Corbeanu, 1999).

When analysing the concept of administration in the literature, but also in the fundamental laws of two states, the laws of the local public administration of Romania and the Republic of Moldova, we identified a multitude of forms given by the theorists of the law. The usual forms used by researchers are concepts such as public authorities, legislative bodies, State bodies, legislative authorities, etc. (Farmer, 2020). Thus, the public administration is a type of administration exercised, on the basis of the executive bodies of the State, and differs, for example, from the private administration (in certain particular social groups, seeking the realization of particular interests, enterprises, etc.), which is also a kind of administration (Cobăneanu, 2007).

## 2. Literature Review

In order to identify the prerogatives of administration that are omnipresent in achieving the primary objective of governing, we must be aware of the link between administration and the organs of public authorities. Thus, the public authority constitutes an agency of the State or territorial section, acting in the regime of public authority, in order to capture a legitimate public concern (Law 554/2004). The analysis of the concept of public authority is more comprehensive from a quantitative point of view. The administration and public administration are concepts that must be analysed individually because we know that the administration includes a broader field of action.

Due to the territorial but also numerical dimension of the population, the State consists of several public authorities that achieve the primary objective, that is the leadership of the State in good faith, for the good development of social life, but also of the main prerogative - the good development of things under the law. Therefore, we distinguish the powers that perform the functions: legislative, executive and judicial.

Ioan Nicola defines the public authority or body of the State as the basic structural element and the separate organizational form of constitution and manifestation of public power composed of one or more persons and with the legal capacity to participate in its own name in the execution of tasks, specifically to the public power (Nicola, 2007). We therefore realise that the public authority is not a mere authority of prestige and strongly invested in the implementation of the proposed prerogatives. An authority is directly or indirectly by the State court, the political court, but also by the moral court: citizens. Similarly, we deduce from this notion that the public authority is at the disposal of the nation, a court created for all, which operates exclusively in the interests of the citizens.

We emphasize the main characteristic of the administration, that is, its organizational side, which implies the proper development of social relations following the executive of the State, we appreciate the existence in the administration of some formal functions, that is the role of leadership, coordination, orientation, control and practical application of the provisions of the law (Tabără, 2012).

The question How does the local administrative system affect social security? , requires not only a theoretical analysis, but also the operational nature of this process, which means identifying measurable ways to characterize the creation of the well-being of state citizens. Social welfare is the type of well-being that all members of a community must have a minimum of economic assets, which is considered to be decent and normal. The State as a whole, as well as the public administration at the municipal, county and city levels, as organizational forms of life and activities of its members, have a purpose which consists in ensuring the necessary conditions for coexistence, social, economic, cultural and other, on a continuous and permanent way (Manda, 1999).

To fulfil the primary obligation to ensure the general good for local communities, the local public administration has a set of rules, the most important being the quality of public services offered, since the public service is the means by which the administration operates (Muraru, 1995). That is why we are aware that the quality of public service influences the community, but also guarantees the well-being of citizens and the proper functioning of things in the community.

Thus, the administration of the State is carried out by the public authorities of the State, in order to satisfy public needs, and the multitude of services available to the nation are established only in the interest of the citizen and in order to ensure the proper administration of the State's affairs (Ongaro et al. 2018).

## 3. Research methodology

Several research methods are applied to achieve the proposed objectives. The documentation method is one of the most important for analysing basic concepts relating to management, local public administration and public services. We used this method to consult specific working documents, laws, articles, publications and databases. The scientific approach to research is based on the study of specialized literature and on the existing legal framework which refers to the mayor as executive authority of Republic of Moldova and Romania.

In this paper, we will introduce a proposal for a *de lege ferenda* with amendment of some articles of the Law of Local Public Administration of Moldova.

## 4. Findings

### 4.1. The Mayor as an Executive Body of Level I

The institution of the mayor was regulated for the first time in communal law, in 1864, during the dynasty of Alexandru Ioan Cuza. Since then, it has undergone natural change and reform according to the principles of democracy, but also the needs of administrative and territorial localities (Placek et. al., 2020).

Today, the establishment of the mayor is seen as the first level executive body of the local public administration. At the same time, it plays the role of state representative in relation to both individuals and legal entities, both in the country and abroad. The mayor is elected by universal suffrage, freely expressed by the citizens of the administrative-territorial unit in an equal, secret and direct manner. An authority must derive from the legitimacy of the State, as a modern form of organization of society (Munteanu, 2010). It is an authority of the State that exercises the function of public authority, in fact he is considered the head of the local public administration, and he is responsible for his actions. The scarf in the colours of the national flag is the mark of the Romanian mayor. The Mayor is obliged to take him to all kinds of solemn meetings: receptions, public ceremonies but also during the organization of a marriage. In doctrinal analysis, we have realized that the Moldovan legislator does not talk of a distinctive mark of the mayor.

In conformity with the laws of local public administration in both Romania and the Republic of Moldova, the mayor has a series of attributions by which the power of first local authority is realized.

The mayor would play an important role in the hierarchy of the management of local authorities being an executive body of the public administration. To make a quantitative analysis of the mayor's authority from the perspective of the local leadership, we must mention that this authority exercises and coordinates the executive power at the level of administrative-territorial unit. Their competence as community leader, city or village, is to solve the problems of the community. Ioan Santai defines the concept of mayor as a one-person, eligible, representative and autonomous local public administrative authority responsible for deciding matters of interest to the local community as an executing body, acting as a State agent in that city (Santai, 2011).

In addition to obtaining administrative-legal capacity, the mayor status as head of local public administration is obtained only after obtaining the necessary votes, but also his investment in the position that confirms the legality of the Central Electoral Commission, the mayor acquires the capacity to exercise but also to use all types of resources within the administrative-territorial authority to resolve local problems. The mayor is a person who carries out his duties in a manner that is in accordance with the principles of local self-government. It consists of "the right of the administrative-territorial units to satisfy their interests without interference by the central authorities, which implies that the autonomy of administrative decentralization is a right, and the decentralization a system that implies autonomy" (Manda, 2007).

In the Republic of Moldova, the law on local public administration defines the notion of mayor as an "representative authority of the population of the administrative-territorial and executive unit of the local council" (Law 436/2006). Being essentially invested to solve *erga omnes* all local problems, he is also the representative of the State as we have reiterated above, here we can conclude that he falls within the legal framework, but being subject to both dimensions: the State and the community from which he was elected.

The election of the mayor can take place in two rounds. Validation of the mayor's mandate is carried out by the judge of the territorial area where the administrative-territorial unit is based. In Romania, the result of the validation or nullity of the mayor's election will be notified to the prefect and shall be submitted to the Constituent Assembly of the local council or, as the case may be, at an extraordinary meeting convened by a judge appointed by the President (Santai, 2011). In the Republic of Moldova, the same procedure for the validation of the mandate by a judge, after which the outcome of the elections and the winner are made public by the press and then communicated to the provincial office of the State Chancellery. If the elections are declared invalid, a new vote will be held in accordance with the provisions of the electoral code.

The mayor is obliged to take an oath before the local councillors at a council meeting, it is the procedure to invest in the mayor's presidency. If the Mayor refuses to do so, he will be considered dismissed by law.

The mandate of the mayor begins, in accordance with the law, after its validation and until the confirmation of the mandate of a new mayor. We mention that, as in the case of local councillors, the mayor's mandate can be extended in emergency situations through an organic law in situations strictly underlined by the law: war or disaster.

In the theoretical sense, but also in the practice of local elections, we realize that its main objective is to promote and invest in people who have the capacity and spirit of organization and who work with other State institutions only for benefit of the citizens, resolving the community issues in which he has been invested.

It is essential to remember that the interests of the territorial unit and citizens must prevail, not political interests or more personal interests.

#### **4.2. Proposal of *de lege ferenda* amendments to articles of the law of the local public administration of the Republic of Moldova**

After the analysis of the Moldavian regulations on local public administration, and to promote the principle of eligibility, but also the accuracy of the administrative process in the local public administration, and referring to the need for a strict organization of the activity of civil servants, we realized the need to reformulate certain articles of the respective law.

The regulations on local public administration should support the efforts of integration and adaptation to the European Union's principles. Consequently we consider it indispensable to amend the following articles of the Moldavian Law on Local Public Administration:

**a). Act No. 436 of 28 December 2006 on local public administration shall be amended as follows:**

In Article 19(3), the phrase *vote of the majority of the members present* will be replaced by the phrase *the vote of the majority of elected councillors* thus the full text of paragraph 3 will be "*In the exercise of its powers, the local council shall take decisions by a majority of the elected councillors unless the law or regulations of the council require a greater number of votes. In the event of a tie, no decision shall be taken and the debate will resume at the next meeting*".

The corresponding amendment is imposed on the possibility of the permissive interpretation of article 19 of the aforementioned law, so that paragraph 2 of the same article mentions the meeting of the local council meeting is deliberative if the majority of elected councillors are present (Law 436/2006). These two paragraphs of the Act allow for a wide interpretation of the decisions of the local council with a limited number of councillors.

In this case, if we have a local council of 9 members, the majority elected is 5 members (which constitute the legal basis of the meeting to be deliberative) and decisions can be made by the present majority, which in this case is 3 members. Thus, the regulatory provisions analysed in this context show that the local council could take decisions with 3 out of 9 members, even if the same article mentions that the presence of councillors at council meetings is mandatory. This would favour decision-making that could easily be questioned, leading to denigration of the image of local authorities among members of the community. Or this is an important criterion for the credibility of the rule of law.

**b). Act No. 436 of 28 December 2006 on local public administration shall be amended as follows:**

Art. 19 paragraph 7 will be completed with the phrase *or by civil society in the territorial area where the local council operates* thus paragraph 7 will read as follows: "*Draft decisions are proposed by the councillors and/or the mayor, or by civil society in the territorial area where the local council operates*".

This change will enable civil society to participate actively in local governance, which is a prerequisite for governance and for the benefit of citizens. In its old form, the legislative text would not prohibit the participation of civil society, but it would create an impediment to community participation through self-government. Thus, in order to facilitate the activity of local council meetings, the citizens will be given the open possibility to propose draft decisions that will be

analysed in the council meetings by the participants, which implies the initiative and the desire to involve the members of the community but also their responsibility, in the context of participation in the legislative process through the local self-government. Or, in most cases, the citizen complains and criticizes the activity of elected local officials who undermine the image of the rule of law, but also has a third attitude, even if the acts of the local council are compulsory.

**c). Act No. 436 of 28 December 2006 on local public administration shall be amended as follows:**

Article 26(3) will replace the phrase *Local council, at the proposal of the mayor* with the phrase *Mayor* it is therefore proposed to amend the article to read as follows: *The mayor decides to establish the position of deputy mayor and determines the number of Deputy Mayors who will assist him in the exercise of his duties.*

Based on the principle that the mayor is elected by the citizens, and has to fulfil some promises offered in the electoral campaign, and attributions conferred by law, we believe that his working apparatus, but above all the deputy mayors must be competent persons elected by the mayor without the participation of the local council. Here we reiterate that most of the time the local council elects vice mayors on a political basis, not in terms of activity and capacity. We believe that this legislative change opportune both for the proper organisation of the mayor's affairs, for the satisfaction of citizens and for the granting of their right of choice. We can realize that, being set up by the mayor, the deputy mayor automatically becomes the voice and desire of citizens of the territorial unit.

We believe that the amendments proposed in the regulations on local public administration in the Republic of Moldova are necessary and timely to achieve the principles of the law governing local authorities.

## 5. Conclusion

As a result of the analysis of the regulations governing the activity of local public administration, it can be concluded that it has become confusing and controversial, as it is filled with a large number of regulations concerning the formal attributions, obligations and responsibilities of elected local and public officials who are part of the staff of public authorities. These regulations are found in organic or ordinary laws, government or parliamentary decisions thus making it difficult to strictly comply with them. The above causes confusion in the implementation and promotion of the reform of local public administration, which leads to the degradation of the living standard of the community due to the lack of proper construction of the system. It therefore requires a qualitative analysis of existing rules, a systematisation of the regulatory framework in the field.

The powers of the mayor, the local councillor, at the level of the normative regulations are excessively many, although they have in the first phase they have a symbolic and declarative character, no real mechanism has been formed that leads to their exercise in good faith. With regard to the legal responsibility of elected local officials, both the sanctions and the enforcement procedure are very vague, fragmented and sometimes incomplete, making it difficult or even impossible to hold accountable. It can be summarized from the above that: certain elements of the legal status of local elected officials in general and especially the content of the mandate, their duties, needs and responsibilities are regulated by multiple legislative acts that overlap or contradict (because of the hierarchy of legislative acts) whose provisions are repeated or incomplete, this situation causes difficulties and confusion for those responsible for their application.

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## State Aid Granted by the European Union for the Recovery of the HORECA Sector

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### Abstract

*In this paper, I will analyze the state aid granted in the member countries for the recovery of accommodation and food services, severely affected by the pandemic, coming to the conclusion that in Romania the measures were applied later than in other countries.*

*Thus, through the "HoReCa Scheme", the beneficiary companies in Romania have received state aid recently, after almost 2 years of deep crisis. In the meantime, more than a third of companies have gone bankrupt.*

*Starting from the presentation of state aid in European legislation and the need for it to support economies, I will then draw attention to the major impact of the pandemic on the HORECA sector at European level.*

**Key words:** state aid, subsidies, competition policy, horeca, pandemic

**J.E.L. classification:** D6, H25, L10, L52

### 1. Introduction

State aid is a form of state intervention used to promote a certain economic activity, resulting in more favourable treatment of certain economic sectors, regions or activities. By its nature, State aid distorts competition because:

- it does not have a positive effect on the economic environment and in particular on the beneficiaries either through incentives or coercion;
- it has an inhibiting effect on non-subsidised economic agents, as their contribution to economic and social progress can no longer be proportionately rewarded;
- supports loss-making activities and firms, which disadvantages consumers;
- generates or accelerates inequalities between economic agents on non-competitive or administrative grounds;
- it redistributes income and property, as public aid is derived from income taken from other economic agents;
- infringes the principle of economic competition, because the activities of the agents are no longer carried out on equal terms.

The pandemic has intensified the need for State aid in many areas of the economy. Among these, the HORECA sector was one of the most affected by the pandemic, which led to its prioritisation. The way aid was granted in member countries, including our country, is described in one of the sub-chapters. We will note the delay in the measures taken in our country compared to other countries.

### 2. Literature review

The subject touched upon in this paper has been little analysed in the literature, so we can bring to attention two studies, namely Latham & Watking, "Public finance support (STATE AID) granted to the hospitality sector", 2020 and Vestager, Margrethe, "Romania COVID-19: Framework scheme for State aid in the form of subsidised loans and guarantees on loans", 2020.



In first study, we can see the state aid situation for the Horeca sector in European Union member countries in May 2020 - 2 months after the outbreak of the pandemic. Of the 27 member countries, 12 have immediately applied measures in the Horeca sector, Romania not being among them.

In the second half of 2020, the European Commission approved the granting of state aid in the form of subsidised loans and guarantees on loans in Romania, for several sectors, including the HORECA sector.

### **3. Research methodology**

We use the analysis as a research method, regarding the studies carried out so far on the implications of the measures adopted by the state in the field of state aid. We also call for a comparative analysis, between the countries that received this aids.

The main objective of our qualitative research is to understand the growing role of state aid in the new conditions caused by the pandemic. This method helps us in explaining the analyzed phenomenon. Is an observation-based research method that we used to understand a phenomenon in depth without using numerical data for it.

### **4. Findings**

#### **4.1. State aid - part of European competition policy**

Why is there a European state aid policy? The starting point is that free and open markets force firms to compete on their own merits and become more efficient, productive and innovative. Fair competition means not only better positioning firms to compete globally, but also providing higher quality goods and services at a lower price for the benefit of consumers, and that is the most important thing.

State aid control is essential for maintaining a level playing field, which is a prerequisite for free and fair competition in the Single Market. State aid discipline exists to ensure that national governments do not engage in outdated policies - of using aid to protect their own companies from competition without doing anything to prepare them for competitiveness. National, regional and local governments must be made to think twice before engaging in bidding wars designed to protect and support national 'champions'. Such anachronistic policies can only lead to less global competition in the European market, to companies that are ill-prepared for such competition and to higher prices for citizens - taxpayers and consumers alike.

State aid in the European Union covers only those measures which involve a transfer of state resources, including in the notion of state - national, regional authorities, banks or public foundations. The ECJ ruled that this concept of state aid "includes not only positive benefits, such as subsidies, but also interventions which, in various forms, have tamed the charges which are normally included in the budget of an undertaking". Case C-39/94, (1996), ECR I-3547, in SFEI v La Poste

The State becomes suspect when it does not behave like a normal investor in the market. According to this, a subsidy, granted by the public authorities, which creates an economic advantage from which the undertaking would not have benefited under normal market conditions, is considered to infringe the competition rules. Such economic advantages can be: buying state property at below market price, selling private property to the state at above market price, obtaining privileged access to infrastructure without paying tax, etc.

To be prohibited, state aid must be selective and affect competition and trade between Member States. Where the State confers an advantage, even a small one, on a particular undertaking operating in a sector characterised by intense competition, there is a distortion of competition or a risk of such distortion (Case C-5/2001 Belgium v Commission).

Even aid to support foreign direct investment may affect trade between Member States. It is possible that competitors of the aided undertaking may try to increase their market share in those third countries without receiving any aid. This is a position that the Commission confirmed when it

issued a negative final decision in the first notified case of aid granted to foreign direct investment in favour of a large undertaking (Case C-5/2001, Belgium v Commission).

The subsidy can be used as an instrument of industrial policy and for the purpose of developing activities characterised by new technologies in order to establish a national champion capable of defending domestic markets and winning export markets. The industrial policies currently pursued by the European Union are less interventionist and competition policy is seen as complementary to them (European Commission, 1991).

Of course, some aid is justified for social or regional policy reasons, while other aid is necessary to guide companies through the restructuring and adaptation processes that are needed at an acceptable social cost to survive in the single market. Perhaps the biggest mistake in the competition culture that has developed in the European Union is the continuing tendency of Member States to provide financial support to local firms. Such support undermines public confidence in a 'level playing field', essential for European integration.

EU law does not prohibit all state aid. However, it subjects such policy instruments to the requirements of the Community legal order. National industrial policy is not prohibited, but it must not be applied in a way that discriminates on the basis of nationality or raises unlawful barriers to trade. In order to ensure that state aid is properly scrutinised in the light of the requirements of Community law, there is a special mechanism whereby the Commission must be notified of the granting of such aid in order to establish its compatibility with Treaty rules. These mechanisms provide the basis for a high level of cooperation between Community institutions and national authorities.

With the signing of the Treaty of Rome (1957), state aid policy became an integral part of competition policy. The legal basis consists of Articles 87-89 EC Treaty and Articles 4, 56, 95, ECSC Treaty (Art. 107 TFEU).

In the context of the modernisation process of state aid at European level, the Romanian authorities have started the process of adjusting the national legislation governing, from a procedural point of view, the preparation, granting, monitoring and control of state and/or de minimis aid granted in Romania. In this respect, a first step has been the modification of national procedures in the field of state aid. Thus, as of 1 January 2015, Emergency Ordinance no. 77 of 3 December 2014 on national procedures in the field of state aid and for the amendment and completion of Competition Law no. 21/1996, amended and supplemented by Law no. 20/2015, which provides the general national framework to meet EU requirements for granting state aid, came into force (Mihaela Marinescu and Lucian Stroe, 2020).

#### **4.2. European Union Tourism Recovery Strategy**

The situation of the hospitality sector during the pandemic period can be briefly presented using two graphs, which show, at EU level, the decrease in turnover in this sector compared to other sectors of the economy, as well as the decrease in the number of tourists in the first year after the outbreak of the pandemic.

Accommodation and food services have been hit particularly hard by the crisis, with double-digit declining rates of change in all quarters since Q1 2020 except Q3 2020. Turnover in these services is currently just over half of Q1 2020.

According to Eurostat 2022, the tourism sector covers a wide range of economic activities that provide goods and services required by visitors to support, directly or indirectly, their tourism activity: transport services facilitating the movement of people, travel agents and tour operators; accommodation services; restaurant and catering services; cultural, sporting and recreational facilities; and local tourism goods and services.

Figure no. 1  
EU development of services turnover, Q1 2020 - Q2 2021

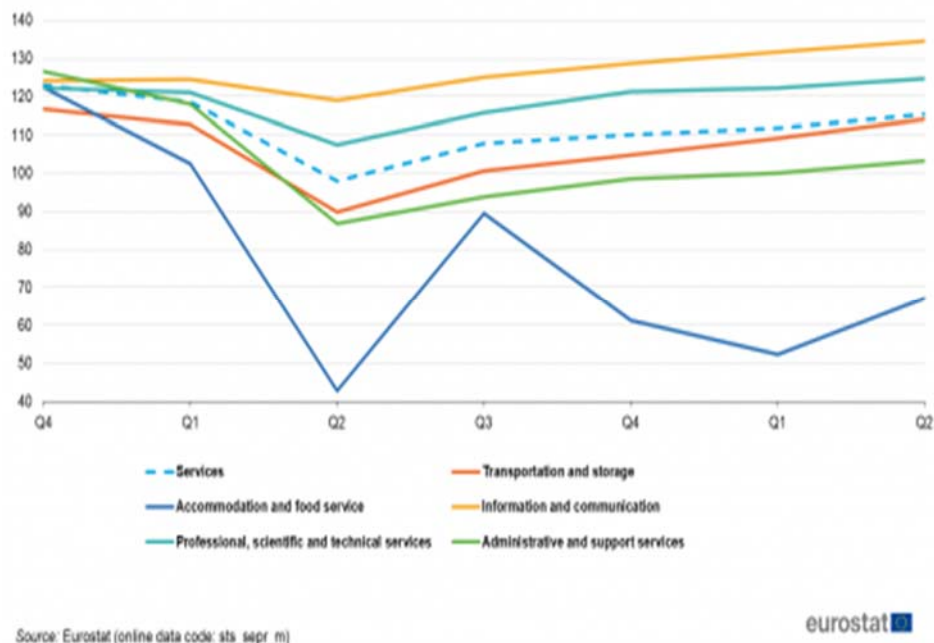
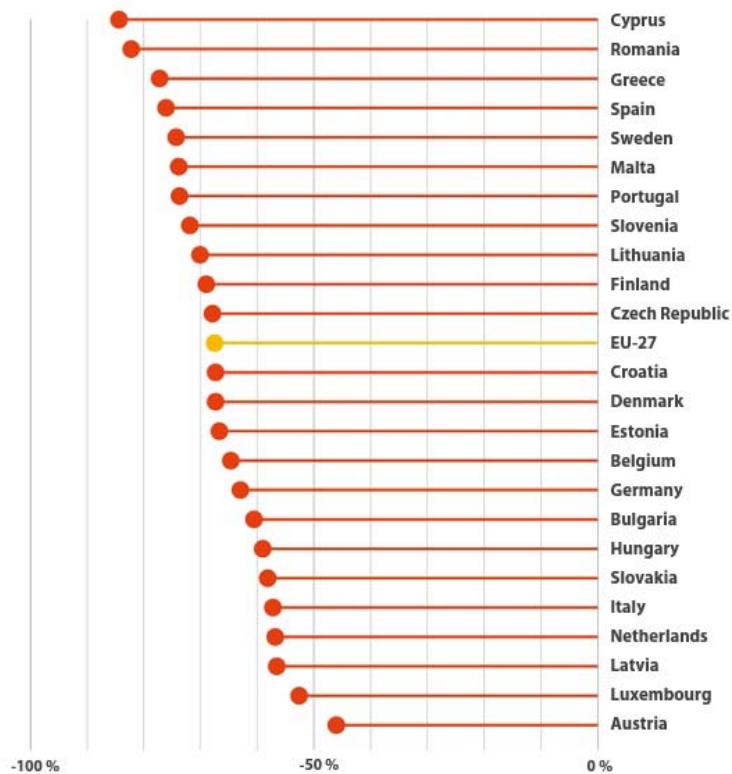


Figure no. 2 Number of foreign tourists in the EU, evolution observed for the period January-September 2019 compared to the same period of 2020



We see in the graph above that our country was among the most affected on the decrease in the number of tourists in the period January-September 2020 compared to 2019. The decrease was more than 80%, which shows us that the Horeca sector in our country has been hit hard by the pandemic.

The tourism industry, in the pandemic period and beyond, has benefited from support in European countries that have taken measures in this direction. Recovery strategies were implemented effectively and immediately in countries such as: Austria, France, Portugal and Spain. Countries such as Romania, Slovenia and Slovakia implemented the strategies with considerable delay, allocating the lowest amounts in the EU to aid schemes. (Latham and Watking, 2020)

For example, Austria has implemented an aid scheme for companies that experienced drastic decreases in turnover during the pandemic period compared to 2019. By applying this scheme, these companies can cover up to 90% of their fixed costs.

France has set up a solidarity fund to support small businesses. This solidarity fund consists of a limited amount of money, exempt from taxes and contributions.

The French government has adopted more than 9 measures to support companies active in the hotel, catering, café, tourism, events, sports and cultural and related sectors, which have experienced a significant downturn in their business activity.

In the UK, hospitality businesses are entitled to a one-off cash grant of up to £25,000 from the local council in the area where they operate. In August 2020, the Eat out to Help out scheme was also implemented, which aimed to help businesses in the HoReCa industry re-open after the pandemic lock-in, with the UK government offering a 50% discount on the cost of food and/or non-alcoholic drinks consumed at participating businesses across the country.

In Portugal, aid in the form of EUR 3 billion was granted through four guarantee schemes, including aid to businesses operating in the tourism sector, restaurants and similar businesses.

In Slovakia, companies operating in all sectors directly affected by the COVID-19 outbreak, under measures adopted by the Slovak authorities, were able to benefit from a €200 million scheme. Among the beneficiaries of this measure are restaurants and hotels. The measure was open to all sectors except the financial sector and will cover part of the rental costs of the period during which the tenant was forced to close or exclude the public from the establishment. The rental agreements had to have come into force before 12 March 2020. The aid provided consists of a grant equal to the rent reduction negotiated by the tenants with the landlord, but is limited to a maximum of 50% of the original rent.

#### **4.3. Tourism Recovery Strategy in Romania - HoReCa Scheme**

The HoReCa scheme was launched in 2021 to compensate businesses in the tourism, catering and event organisation sector whose activity was affected in the context of the COVID 19 pandemic, through aid in the form of grants amounting to 20% of the difference between the turnover obtained from eligible activity for 2019 and 2020, but not more than the equivalent in RON of the sum of €800,000/single business.

We remind you that by 31.12.2021 payments have been made for all contracted beneficiaries, at a first prorated rate of 46.87%, totaling the budget allocated for last year in the amount of 999,926,000 lei. On 20 January 2022, the Ministry of Entrepreneurship and Tourism transferred funds amounting to 1,133,477,030 lei for the payment of the second pro rata, 53.13%, related to the HoReCa state aid scheme. (Ministerul Antreprenoriatului și Turismului, 2022)

#### **5. Conclusions**

From the analysis undertaken in this paper, we have observed that state aid has been granted to the Horeca sector by each country but has been implemented differently. The countries that adopted the most measures and the fastest were France, Spain and Portugal, while in Romania, the Romanian Government adopted the HoReCa scheme late, almost 2 years after the outbreak of the pandemic and the crisis that severely hit this sector.

State aid is a very important support for the economic recovery of beneficiary companies, but it is necessary that this aid is granted as quickly as possible in order to be effective. In the first year of the pandemic alone, 1/3 of Romanian firms in the HORECA sector went bankrupt. If state aid had been granted from the first year, these firms would have been saved.

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- \* \* \* Case C-39/94, (1996), ECR I-3547, SFEI versus La Poste
- \* \* \* Case C-5/2001, Belgia versus Comisie
- \* \* \* Case C-5/2001, Belgia versus Comisie

## The Influencing Factors of Smes Participation in Public Procurement

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### Abstract

*The paper proposes an analysis of the success factors of SMEs in the award of contracts based on public procurement. Research results have shown that SMEs to win contracts through public tenders increases significantly if more attention is paid to tender personnel training and to the digitalisation of key tendering activities. The originality and novelty of the paper lies in the study of the two factors that influence SMEs participation in public procurement procedures. The research findings highlight the fact that the success of a business is directly proportional to the full involvement of the team in the activity, to the company's tendering activity revamping, respectively, through digitalisation. The relevance of the paper lies in the new approach to the tendering process in the public procurement process, with a focus on personnel training and activity digitalisation, in a context where SMEs conclude most public procurement contracts at European level.*

**Key words:** public procurement, SME, training, digitalisation

**J.E.L. classification:** D44, H57

### 1. Introduction

The small and medium-sized enterprises (SMEs) face a number of obstacles when attending public procedures, caused on the one hand by insufficient financial resources, the difference in technical equipment between SMEs and large companies, and on the other hand due to the lack of tender trained personnel (Beck and Demirgüç-Kunt, 2006). The performance ensurance of economic operators can be achieved by implementing viable business strategies that take into account the potential of the various departments within the company (Sârbu et al., 2020).

The tendering process is a complex activity, carried out by a multidisciplinary team, also trained in public procurement. The lack of trained personnel leads to tenderers being eliminated from the competition. In its 2019 report, the National Agency for Public Procurement (NAPP) showed that the bids rejection rate was 19% due to non-compliance with the qualification criteria required by contracting authorities. This percentage would have been considerably reduced if economic operators had prepared their bids with specialised personnel, well trained in public procurement (NAPP, 2019). The literature reviews give ample space to the procurement process, without paying special attention to the qualification of the employees in charge of tender preparation. The paper includes a study of the influence that personnel training has on the chances of winning a contract in the public procurement market, and also of the need for company process digitalisation.

The paper contains a literature review on SMEs involvement in public procurement, personnel training and digitalisation of company activities.

Another section covers the research methodology, presenting the study methods that are applied. The research paper continues with sections on results and discussion, where the role of personnel training and process digitalisation in awarding public sector contracts is determined.

The study concludes with the presentation of the findings, which highlight the relevance and originality of the work, the factors that may influence SMEs participation in public procurement, as well as future research topics.

## **2. Literature review**

In recent years, researchers have paid increasing attention to the barriers that SMEs face in concluding public contracts (Flynn and Davis, 2017), to the manners of removing these barriers, and also to the growing opportunities of these enterprises (Hoekman and Tas, 2019). An important source of bibliographic data in this regard is the Web of Science (WOS) bibliometric platform, which most profoundly manages the volume of cited works (Pranckutė, 2021). The issues of personnel training and process digitalisation are also found in papers published in the Clarivate Analytics and Research Gate databases.

The Directive No. 2014/24 on public procurement contains the rules that economic operators must follow when drawing up their tenders. Romania has transposed these rules into Law No. 98/2016 (with implementing rules, approved by GD No. 395/2019). Their compliance depends on the level of trained personnel involved in the tender, and the timely submission of the tender is influenced by the level of company process digitalisation.

The "National Strategy for Public Procurement" (approved by GD no. 901/2015) established, as a specific objective, the professionalisation of civil servants or contracting authority's staff responsible for public procurement (The Romanian Government, 2015). However, the normative act does not concern the economic operators' personnel. Offei, Kissi and Nani (2019) showed that the lack of trained personnel creates a barrier in the process of concluding contracts. Therefore, personnel training is, a key element in tenders awarding (Sarawa and Mas'ud, 2019). Last but not least, it is important to mention that it is digitalisation that creates the prerequisites for the economic growth of SMEs and of society in general (Borowiecki et al., 2021).

## **3. Research methodology**

The research was based on data centralised by EUROSTAT on the number of active SMEs, as well as on data extracted from the Electronic Public Procurement System (EPPS). The information on public procurement contracts concluded by SMEs, the procedures they attended, as well as the bids rejection rate was taken from the annual reports published by NAPP (on its website) for the period 2019-2021.

From the Web of Science (WOS), Clarivate Analytics and Research Gate databases, accessed through institutional accounts, papers dealing with the issue of professionalisation of employees and digitisation of processes were used for documentation purposes. The paper has taken into account information from communications published by the European Commission, European and national legislation. The collected information was processed with the help of tables and presented graphically in order to determine the involvement of SMEs in public procurement, as well as the need for training of procurement specialists and process digitalisation.

## **4. Findings**

### **4.1 The SMEs attendance to public procurement**

At EU level, SMEs accounted for more than 99% of all active non-financial businesses in 2020, about 21 million companies respectively (European Commission, 2021).

In 2019, enterprises with fewer than 250 employees accounted for more than 99.8% of all economic operators, and more than 99.68% in Romania, according to EUROSTAT data.

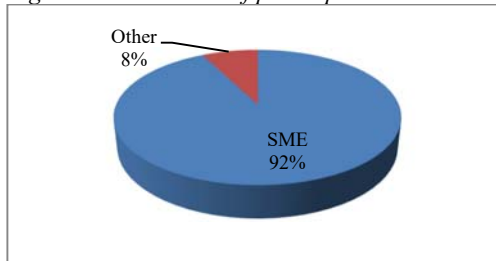
Table no. 1 Economic operators with fewer than 250 employees

Year	No enterprises EU 27		% enterprises < 250 employees	No enterprises RO		% enterprises < 250 employees
	Total EU27	< 250 employees		Total RO	< 250 employees	
2010	N/A	N/A	N/A	447,091	445,594	<b>99.67</b>
2011	20,401,829	20,363,871	<b>99.81</b>	408,951	407,410	<b>99.62</b>
2012	20,643,167	20,605,486	<b>99.82</b>	425,731	424,149	<b>99.63</b>
2013	20,791,808	20,754,106	<b>99.82</b>	436,153	434,615	<b>99.65</b>
2014	21,535,291	21,497,187	<b>99.82</b>	455,852	454,247	<b>99.65</b>
2015	21,559,394	21,520,300	<b>99.82</b>	458,122	456,480	<b>99.64</b>
2016	22,309,822	22,269,533	<b>99.82</b>	465,607	463,951	<b>99.64</b>
2017	22,234,234	22,192,743	<b>99.81</b>	485,215	483,552	<b>99.66</b>
2018	22,710,033	22,670,033	<b>99.82</b>	501,974	500,312	<b>99.67</b>
2019	N/A	N/A	N/A	516,703	515,051	<b>99.68</b>

Source: Authors, by using Eurostat (2022)

SMEs are also to be found in public procurement, with a significant share in the national economy. In 2020, these enterprises concluded 22,221 contracts with state institutions, out of a total of 24,035, 92.45% respectively (the remaining 1,814 were awarded to other categories of economic operators).

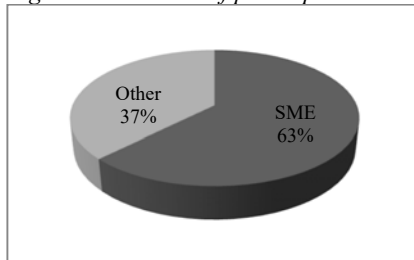
Figure no. 1. Number of public procurement contracts



Source: Authors, by using NAPP (2021)

In terms of value, contracts awarded to SMEs in 2020 amounted to RON 30,873 million out of a total of RON 49,391 million (that is, 62.51%).

Figure no. 2. Value of public procurement contracts



Source: Authors, by using NAPP (2020)

Although SMEs concluded the most contracts (92%), the total contracted value does not follow the same proportion (it being 62.51%). This gap is due, on one hand, to the complexity of public procurement procedures.



In order to increase the SMEs participation in such contracts, the Law No. 98/2016 governing public procurement introduced a number of facilitations: the award of contracts by lots; relaxed qualification criteria (the simplified procedures do not require proof of a certain turnover achievement); the possibility to participate as subcontractors in open tenders; the right to use third party supporters to demonstrate compliance with the qualification requirements (for SMEs, similar experience and turnover represent obstacles to participation in complex procedures).

Another underlying cause of the gap between the number of contracts and the value of contracts derives from the SMEs organisation, namely from insufficient training of the personnel involved in tendering and lack of digitisation of the tendering process. Tendering is a process that requires technical (from the contract's field), legal, economic and procurement knowledge. In the absence of well-trained personnel, of a multidisciplinary team that knows how to react to public authorities' requests, SMEs lose the chance to win contract award procedures. In 2019, the bids rejection rate was 19% of all those submitted (NAPP, 2019).

The digitalisation of the activities that make up the tendering process is a factor that reduces the time needed for tender documents drawing, but also the risk of their erroneous preparation. It also improves collaboration between team members and ensures process traceability.

#### **4.2 The tender personnel training**

The small companies, "amateurs" in tendering, believe that their experience gained through concluding contracts with private partners, would be sufficient to win public sector procedures, ignoring the "seriousness" that must be shown to tender preparation. An important element that will tip the balance of the contract award towards a particular operator is both the rigour with which it has drawn up its tender and the way in which it meets the purchaser's requirements. An award procedure is won "on paper" by the operator who bids as requested, who knows how to present himself best, how to sell his goods in the best way through advertising, as it happens in everyday life, with the difference that he has to meet the written rigours of the public buyer - the State.

The process of contracting with the state (from tender to contract execution) is characterised by diverse, multidisciplinary activities. Many SMEs do not have qualified personnel for public procurement that is trained in tender preparation or in the use of electronic tendering platforms (such as EPPS, in Romania). In addition, economic operators lack experience in the management of government contracts. Employee professionalism plays a crucial role in determining the compliance with public procurement rules (Sarawa and Mas'ud, 2019).

The bids rejection rate, mentioned above, proves the fact that insufficient attention is paid to the qualification of the bidding team. SMEs focus more on the financial objectives (such as, equity growth, financial stability etc.), without paying proper attention to the non-financial objectives, such as performance and employee qualifications by area of interest (Ciobotea and Badea, 2021).

In the tendering process, the person responsible for the execution of the contract (the technical staff) is usually also responsible for preparing the tender documents. However, this person does not have a thorough knowledge of the Public Procurement Law, such as: how to fulfil the qualification criteria (e.g. eligibility criteria or technical and professional capacity), how to fill in the European Single Procurement Document (according to Regulation (EU) 2016/7); which documents must be included in the tender; how to submit the tender guarantee; which costs must be included in the financial proposal; how to relate the costs to the activities described in the technical proposal etc. Furthermore, the technical officer does not have sufficient legal knowledge to analyse the contract clauses. One person cannot "master" all the areas required for the tender, and a team is not just one person.

The tender represents an extensive process, involving the work of a multidisciplinary team, composed of at least: the company's management (who decides on the tender), the technical staff (who will carry out the contract activities), the procurement specialist, the financial officer, the legal advisor. The preparation of the tender documents is a communication process that requires the consultation of all those involved, the presentation of the strategy to approach the tender, the implications and the way of fulfilling the future contract (Florea and Florea, 2010).

The drawing of a competitive tender requires a clear determination of each team member's responsibilities:

- The technical officer: draws up the technical proposal, provides the procurement specialist with the information and documents relating to the fulfilment of the qualification criteria (company certifications and also of the experts to be involved, experience of the company in carrying out the contract, the company's facilities, etc.);
- the financial officer determines, together with the technical staff, the costs of the contract;
- the legal advisor deals with the contractual clauses;
- the procurement specialist prepares the qualification documents, supports the other team members in preparing the tender, uploads the tender to EPPS (together with proof of tender guarantee payment) etc.

The collaboration between team members continues also after the submission of the offer in EPPS, as follows:

- The procurement specialist analyses the clarification requests received from the contracting authority, notifies the company manager of the need to submit a response, within the deadline set by the purchaser, requests specialist support, checks whether the responses do /do not substantially change the offer, uploads the response to EPPS;

- The specialised personnel formulate the response to clarification requests.

Depending on the content of the question/solicitation, all the team members who are in a position to provide clarifying information should take part in formulating a response, as with the preparation of the offer. For example, clarification of the timetable can be provided by the technical manager. However, if additional work is required, the financial officer must show the possible impact on the contract costs, namely on the financial proposal, and the possible addition of labour, which means new salary costs.

A question about the low bid price requires an answer from the technical staff who knows the contract activities, their costs, and the opinion of the financial officer who determined how the price was established.

In addition, the questions concerning additional guarantees granted to a product/work must be answered by:

- The technical officer in order to establish the time of granting, the technical implications of such a guarantee – product replacement/repair, work repairs etc;

- The legal adviser who analyses the contractual clauses relating to the granting of this additional guarantee;

- The financial officer who determines the associated costs;

- The procurement specialist who analyses whether the response substantially changes the technical and financial proposal.

The execution of the contract also requires setting up a management team trained in public procurement too, consisting of at least:

- The contract manager (technical staff) must be familiar with the requirements of the specifications and of the technical proposals;

- The legal advisor intervenes in situations where the contract terms are infringed;

- The financial officer follows up the expenditure foreseen in the financial proposal for the provision of the activities in the technical proposal etc.

The personnel training should also address the development of bidding skills through the EPPS platform. The failure to sign the tender electronically, to upload all documents to EPPS, to enter the price in the system, are all grounds for tender rejection due to unfamiliarity with the operation of this system. A single operating error (such as the failure to upload the technical proposal) can cancel days of work by the team and all the financial and technical effort generated by the tender.

Ogol and Moronge (2017) showed that both personnel training and personnel behaviour are important factors that can increase company performance. The personnel professionalism will be improved by developing personal skills in applying procurement regulations, by familiarising with the procurement process in the workplace, by interacting with experienced staff and last but not least by procurement training (Sandada and Kambarami, 2016).

The improvement of the offer quality, namely the reduction of the rejection rate, can be achieved by qualifying all staff involved in public procurement, from the manager, to the product supplier.

The need for specialising these people is urgent at European level, given the objectives set by the National Recovery and Resilience Plan that cannot be achieved in time without public procurement procedures and, therefore, without competitive tenders.

It is worth bearing in mind that the state institutions cannot carry out their mission for which they were established without buying what is necessary for their work, and the procurement process requires specialists from both the buyer and the seller. The growing demand for specialists in the public procurement field means that they need to be trained right from university. The state has an important role to play in training these people by introducing, at least at university level, specialisations in public procurement. The educational institutions must have a perspective on the labour market in this field, at national and European level, so as to develop the curricular coverage area (Stanciu et al., 2018).

### **4.3 The digitalisation of the tender process**

The significant technical gaps between SMEs and large enterprises also result from the lack of companies' activities digitalisation (The European Parliament, 2020). The use of smart technologies helps the companies to enter the digital economy and thus to become more competitive.

The public procurement process can be considered a critical one for a company (Jahani et al., 2021), especially for SMEs, due to the growth opportunities. At the same time, the public procurement process is a complex one, characterised by the interaction between the entity's departments that have different specializations: management, technical, legal, financial, tendering and public procurement etc. The efficient conduct of the tender process is related to the fluent communication between all the structures of the entity. The large amount of information and documents circulating between them makes it difficult to communicate and carry out activities, often hindering their progress (Chassiakos and Sakellaropoulos, 2008). The documents and information needed for tendering are generated through computers and stored as files that can be made available to those involved through electronic platforms (Prebanić and Vukomanović, 2021).

Since the beginning of the pandemic, the public procurement area has demonstrated that many tasks can be carried out exclusively by electronic manner. The documents standardisation, their distribution, endorsement/approval are activities that can be done through electronic platforms, through document management software. The use of such a platform will reduce working time, the risk of errors, bureaucracy, the quantity of consumables (paper, copier and printer toner, fewer printers/copiers, binders, boxes for physical archiving, etc.), but also the storage space, with the necessary facilities (properly ventilated space, shelving, adequate lighting) and the costs associated with this space (electricity consumption, salary costs for the person in charge with the paper archive integrity, costs of maintaining the space, sometimes even renting it, etc.).

The implementing of an electronic procurement management program is not an easy step, as each change is often viewed with reluctance by the company's employees. And, if the proposal for change, for improving the work, comes from outside the company, the management is circumspect about the proposed solution, especially if it requires additional costs. The company's digitalisation process is rather difficult, both because of mentalities, reluctance to embrace the new, and because of the costs of integrating a tender programme, of purchasing IT equipment (computers, servers, etc.), as well as the costs of training service staff.

The contractors need to look beyond costs towards the digitalisation benefits of the tender preparing process, such as:

- reducing tender preparing time;
- reducing the risk of incorrectly prepared documents;
- knowing, at any time, the status of the documents and the persons responsible for their preparation;
- reduction of approval/endorsement times;
- electronic signature of documents;
- reducing costs for various categories of consumables, printing and distribution;
- easier collaboration between those involved in the tender;
- dynamic coordination of all partners in the tender.

The digitalisation process contributes to the company's activities improvement, but the biggest benefit is precisely the award of the contract. In addition, the existence of an electronic procurement program will empower its users to work from any location, the physical presence in the office not being required (Dobrotă, 2021).

In order to achieve the proposed objectives and to reach the industrial potential, companies must digitalise their activities; look for personnel with digital skills (Nedelcu et al., 2018). Any delay in the implementation of an IT program to manage the tender process (and others), will create losses to SMEs that have already suffered in pandemics precisely because of the lack of effective communication between employees, the impossibility of remote collaboration, the delay of some activities, or will even lead to the failure of a tender due to the dependence on a physical signature, or a paper document.

On the other hand, the circular economy and sustainability requirements, demand a change in traditional practices (Agarwal et al., 2021), with digitalisation being one of the sustainable development objectives.

## 5. Conclusions

The SMEs will improve their participation in public procurement if they also pay attention to the training of the whole team involved in the tender (from the manager to the supplier) and to the digitalisation of the tendering process, as these factors are part of the company's tendering strategy. In order to increase performance, the economic operators must take these two factors into account in their business strategy.

The training of the tendering team and the company's activities digitalisation must represent priorities for the company's management, but also for the state.

As the objectives of the NRRP represent a major opportunity for SMEs development, these enterprises must increase their speed of response to public procurement requests by investing in personnel training and company digitalisation.

Future research can determine the level of training required for an employee to specialise in tendering or public procurement by establishing such criteria as: the minimum number of training hours and work in the field; the contract-related sections in which the training should be carried out (legal, economic, IT etc.); the appropriateness of introducing the subject "Public and Private Procurement" into the higher education curriculum.

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# The Impact of the Coronavirus Pandemic on the Commission of White-Collar Crimes by Ordinary Citizens

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## Abstract

*The white-collar frauds have seen an increase in recent years, while the emerging of new digital technologies contributed to an increase of the financial frauds, especially during the global financial crisis of 2008 and in time of coronavirus (Covid-19) pandemic. This article reviews the white-collar scams that gained momentum during the coronavirus pandemic and examines why ordinary people turned into ‘white-collar criminals’ during this period. The main finding is that the pandemic crisis led to an economic crisis, while people was more focused on committed financial frauds in order to guarantee the economic welfare of their families or the business’ survival.*

**Key words:** scams, financial fraud, white-collar criminality, Ponzi schemes

**J.E.L. classification:** D91, E26, K42

## 1. Introduction

A time of economic uncertainty due to the global pandemic creates opportunities for ‘white-collar’ criminals to increase their practices. In the United States, the largest economic frauds were committed during the financial crisis (Iacurci, 2020, p. 1).

The Covid-19 pandemic has beset societies around the world with very complex public health, social and economic crises. In time of such economic instability, the number of frauds increases. Even before the corona pandemic, financial fraud was a business that rolled in \$5 trillion a year. The situation that arose, along with the helplessness and economic uncertainty, prompted many law-abiding citizens to commit tax, financial and cyber offenses. The dwindling living standards, shortage of basic products, and collapse of many small businesses due to the lockdown prompted such citizens to commit, willingly and unwillingly, scams that would allow them to survive and to increase their income through illegal ways (Doron & Peretz, 2021). ‘Corona Coins’ scam is an example of a specific effective fraud that has arisen recently, based on the mania of crypto currency investors. Due to the corona pandemic, cryptocurrencies will be rarer and more expensive as more people are affected by the pandemic.

The paper aims to review the white-collar frauds that increased during the coronavirus pandemic and to examine factors and motives of why ordinary people turned into ‘white-collar criminals’ during this period. This paper is structured as follows. The second section presents the theoretical background regarding white-collar crime, while the third one provides the research methodology. The next section shows an analysis of the economic frauds before the pandemic and of what happened during the Covid-19 crisis. Finally, the conclusions are presented.

## **2. Theoretical background**

'White-collar delinquency' was first defined by Edwin Sutherland (1949), who described a white-collar offender as a respected figure with high-status in his community, who commits an offense relating to his occupation. This definition of Sutherland has two main critics. On the one hand, Sutherland was a sociologist and criminologist, but not a legal expert. Hence, his definition may be influenced by social rules and the social surroundings. He examined the effects of the social surroundings, while jurists are more interested in the aspects defined by the law. On the other hand, Sutherland refers primarily to the social status of the suspect, while white-collar offenses are not defined solely by the social status of the offender. Even today, there is no consensus on the definition of 'white-collar' crimes in terms of criminal law.

A more in-depth analysis as to the definition of white-collar crime is found at Kenneth Mann (1992), who addressed distinguishing characteristics of white-collar crimes. He determined that not only the upper stratum, but also members of the middle class commits white-collar frauds. After examining the nature of the characteristics, Mann defined the term 'white-collar crime' as the exploitation of special resources (job, assets and political influences) to generate illegal profits through camouflage and deceptive methods, and the prevention of discovery of the act by exercising control over resources of information. The legal definitions of criminal prohibitions create a marked ambiguity between what is considered a felony act and one that merely creates civil liability.

Mann's definition highlights two important points regarding assessment of the magnitude of the white-collar crime and the application of sanctions against it. Firstly, the phenomenon is broader than we tend to think. It is difficult to reveal information about the commission of such offenses, with only the tip of the iceberg appearing on the surface. This finding suggests that the economic damage resulting from white-collar offenses is enormous and severely impairs society's ability to advance its goals. Secondly, the definition emphasizes the need for effective means of inquiry. The more complex the camouflage methods that are employed within organizations or companies that possess highly sophisticated means, the greater the expertise that is required on the part of investigators to disclose them (Mann, 1992).

## **3. Research methodology**

The methodology used to conduct this paper includes a black letter research method. This method implies an analysis of primary and secondary data by using reports and newspapers on several types of white-collar crimes. The research method provides an analysis of several typologies and cases regarding white-collar crimes in order to provide a double perspective about these fraudulent schemes. On the one hand, the method used helps to frame the theoretical background of the research and the manner in which these fraudulent acts happen in practice. On the other hand, various relevant case studies and examples from different countries were presented to prove several typologies and trends of white-collar crimes during the crises.

## **4. Findings**

### **4.1. The situation before the Covid-19 pandemic**

Significant changes in crime were found relative to the trends that preceded the outbreak of the Covid-19 pandemic during the lockdown period, starting with March 2020. Crime in the pre-Covid-19 period in Israel was about 20% higher than during the pandemic, with 9,503 cases opened in 2019 compared to 7,576 opened in the Covid-19 period (Summerfield, 2022).

In the field of white-collar fraud, there has actually been a significant reversal of the trend. Before the Covid-19 period, these offenses were much less common. Offenses of phishing, fictitious emails and fictitious loans gained significant momentum due to the many lockdowns that were imposed on the public (Summerfield, 2022).

Most of the white-collar frauds were committed during the financial crisis of 2008 all around the world. In South Africa, the Reserve Bank reported that thousands of persons lost out to illegal investment schemes or deposit-taking arrangements every year. More than 200 schemes were



investigated between 2007 and 2011, while victims included pensioners and recipients of government benefits (Summerfield, 2022). China has become a pillow for such huge financial frauds that the authorities have defined the phenomenon as a real threat to social order. Two common versions in China of Ponzi scams: one in which investors are recruited through the promise of a quick profit without risk provided they recruit additional investors and the other in which young people are taken captive and forced to recruit investors. This version is causing a stir on social media in China due to several suicides that have occurred within its framework. The Chinese authorities have taken steps to eradicate this phenomenon. One of the reasons for the blossoming of the frauds is loose regulation on financial entities operating in the network, alongside greed and a desire to get rich that have become a major driving force among Chinese society.

In the United States, the largest frauds occur during the financial crisis. For example, Rothstein & Rosenfeldt was a law firm founded by Scott Rothstein and Stuart Rosenfeldt, but the first used it to fraud people by selling discounted stakes in fraudulent settlements and lawsuits. Between 2005 and 2009, Rothstein convinced investors that the scheme was real by fake settlement papers, bank statements, personal guarantees and false court order. Rothstein used the money from the scheme (\$1.2 billion) to finance his company, buy equipment, pay employees and rent for offices, but also to gain political influence, buy properties, cars and live a generous lifestyle. When the scheme started to fail, he was sentenced to 50 years in prison, while his former law partner denies any involvement in the scheme (Bloomberg, 2011).

Another example is Gabriel and Marco Bitran, who founded GMB Capital Management in 2005 in order to manage hedge funds. They promised to investors huge returns ranging from 16% to 23%, with no decrease over the years, by using a complex trading model developed by Gabriel Bitran based on his research at Massachusetts Institute of Technology. In the fall of 2008, several of the hedge funds had disastrous losses, resulting in investors losing 50-75% of their principal in many instances. Both paid \$4.8 million fine and were denied a license to engage in future investments (SEC, 2012).

In Israel, a similar example is Eran Mizrahi who deceived people by presenting false documents and financial statements, promising high returns for their funds. In the period 2007-2012, he used its company to attract funds amounting to 57 million shekels, while the investors' money was used in personal purposes. In 2012, the authorities caught him and he received 12 years in prison (Levi, 2016).

As it can be seen from these examples, white-collar offenses include economic offenses such as tax evasion, money laundering, VAT offenses, Ponzi scams and more. Punishment in Israel for these offenses has changed greatly over the years. In the past, offenders received moderate punishment, and cases would usually be terminated with fines and service work being imposed on the perpetrators. Today, that has changed so that more severe punishment is dispensed, including long prison sentences. In 2004, a man with no criminal record was convicted for tax evasion of about nearly 5 million shekels and was sentenced to service work alone. In contrast, in a relatively similar case, from 2016 a man with no criminal record was convicted for tax evasion of about nearly 10 million shekels and was sentenced by the court to ten years in prison. Well-known are the cases that recently ended in long prison sentences for prominent figures in the Israeli economy (Abohav, 2020).

During the covid-19 pandemic, however, punishment for white-collar crimes backslid to the same as in 2004. Judges demonstrated 'understanding' towards ordinary people who were caught committing such offenses. The difficult economic situation had landed on the court's doorstep.

#### **4.2. The situation during the Covid-19 pandemic**

The assumption of this article is that law-abiding citizens would not have committed these offenses had they not been in financial distress. Prolonged periods of lockdown led to a change in consumption patterns, and tremendously increased the use of cyber networks during the pandemic. This situation gave rise to cyber-attacks and ransom demands as had happened to many companies, especially the ransomware attack on the servers of the Israeli insurance company Shirbit. Another trend is the hacking of companies' databases or from organizations, alongside with acquisition of items without payments, information theft and phishing (Doron & Peretz, 2021).

In times of crisis, alongside the positive effects of social responsibility and many relief actions intended for victims and society, there is evidence of fraud, which is enhanced by advanced technologies in the fields of communication, finance and the dissemination of information. Another type of fraud that was common during the coronavirus pandemic is phishing, which represents the theft of identities and credit card information. Some people had set up websites posing as legitimate websites or claiming to provide assistance. Two months into the lockdown in the United Kingdom became evident for those seeking to take advantage of the anxiety and uncertainty that the pandemic had created. Therefore, new frauds appeared. For example, industry insiders, especially those in the financial services sector had become acquainted with Covid-related e-commerce scams, which clearly included fake or non-existent hand sanitizer or personal protective equipment. In Israel, there was an increase of about 30% in the number of cyber-attacks during 2020 (Kristal, 2020).

The spike in white-collar crime caused by the pandemic is reflected in enforcement activities instigated by regulatory bodies. For instance, as of late March 2021, the United States Department of Justice has publicly charged 474 defendants with criminal offenses related to Covid-19 fraud schemes. Many of these cases involved efforts to obtain over \$ 569 million from the U.S. government and individuals by fraud (Summerfield, 2022).

However, Covid-19 significantly influenced the government's ability to investigate and prosecute white-collar crime. In-person investigations and interviews were curtailed. Agents struggled to develop cooperating witnesses, which typically requires face-to-face meetings to build trust. Though video conferencing technology bridged some of the gaps in communication, it was less likely to be used in highly sensitive plea negotiations, which slowed authorities' ability to move cases forward (Summerfield, 2022).

The fraudulent outline is carried out through several patterns, such as miracle drugs, home tests and fake vaccines, as well as loans from private entities and, third, contacting victims through different methods.

#### **4.2.1. Miracle drugs, home tests and fake vaccines**

One way the crooks of the coronavirus era are taking action is by marketing a variety of counterfeit products on e-commerce sites. At the various sites you can find, for example, fake medicines that guarantee full protection against the virus, homemade Covid-19 tests at unrealistically low prices and mini potions that are supposed to cause a speedy recovery from the serious disease. In order to prevent these situations, before making any purchase online, it is necessary to pay attention to two main warning signs (Misan, 2020):

- The payment method: a legitimate and reliable site will allow the payment through PayPal. On the other hand, a website established with the aim of defrauding and nothing more, will allow the payment only by bank transfer.
- Miracle medicines: it is necessary to understand whether the products offered for purchase on the site are real and legitimate products. If the transaction involves a new drug that no one has yet heard of, then this is a fraud and nothing more.

These warning signs need to be checked really well and preferably several times before swiping the credit card.

#### **4.2.2. Loans from private entities**

A significant increase in the scope of fraudulent private sector loans since the beginning of the Covid-19 crisis was recorded. The criminal behavior of offenders in this sector is unparalleled: victims receive a phone call from a friendly and polite representative, who promises them wonders and miracles. One may be promised, for example, a large loan with unusually favorable terms, a loan that will be disbursed to the bank account within a few hours, or a loan does not require signing a contract or having to prove repayment capacity. All these practices are intended to make the proposal particularly attractive and to impair one's judgment. Next, the victim will be asked to transfer a "negligible" amount of money to the accompanying party, on the pretext of him having to pay handling fees prior to opening a loan account and beginning the loan process. Once such payment is transferred, the company's representative will no longer be accessible and no loan money will be

transferred to the victim's account. Countless offenders in Israel spend day and night locating people who need quick access to money and who are willing to risk a few thousand shekels to get a loan as quickly as possible (Misan, 2020).

Nevertheless, it is crucial for anyone who has suspicions to verify the company's legitimacy, to demand a contract and to refrain from paying any handling fees or other payments until there is a certainty that it is a legitimate and recognized company.

Another method currently employed by offenders is to offer extremely low or extremely high prices. Both inflated prices and irrational bargain prices should raise a red flag indicating fraud. In order to encourage victims to transfer payment, the perpetrator may pressure them by telling them, for example, that the attractive opportunity will expire within the next few minutes. In the vast majority of cases, these are tactics designed to apply pressure for the victim to act hastily and without judgment (Misan, 2020).

#### **4.2.3. Other fraudulent methods**

One fraudulent method is to contact victims by using email addresses and websites that pose as websites of well-known pharmaceutical companies and medical equipment manufacturers. This kind of fraud is exploiting a market that has a limited supply of masks and medical equipment in the face of huge demand. The victim is asked to transfer payment to a bank account, usually in Germany, the Netherlands, Spain or Portugal, in exchange for the transfer of medical protective equipment. There is also the phenomenon of sending emails on behalf of the so-called World Health Organization, which contain a link to websites that supposedly provide medical advice to the public, recommendations for defensive methods, and other updates such as a global expansion map. By clicking on the link and opening the site, the victim is required to provide identification details, including an email address and password, enabling the offender to implant malware on the cellphone and to steal personal information (Kristal, 2020).

Another method is to contact the elderly population by phone. The caller impersonates a doctor and tells the elderly victim that his or her relative has been hospitalized after having contracted Covid-19 and that there is urgent need to transfer payment so that they can receive life-saving care. Payment is made either through a money transfer or by arriving at the victim's home and collecting it in person. A fraud of the same type had been realized in Israel in the past nicknamed 'The Lithuanian Sting'.

Another outline is impersonating representative of a medical institution and contacting the victim, under the pretense that he may have been exposed to the virus and that the call is intended to trace the chain of infection. As part of the supposed verification process, the victim is asked to disclose the personal information, including bank account details (Kristal, 2020).

A 2019 study in Norway found that over a period of one year, people commit property crimes by 60% more after losing their jobs, including theft from a private person as well as burglary and destruction of property. These figures relate to Norway, where the employment rate and per capita income are relatively high, and the crime rate is low (Benjamin, 2020).

Therefore, the hypothesis is that in various countries, including in the United States, where job losses can have a serious impact on the economic situation, there is an expectation for an increase in the level of crime. This fact is mainly due to the need to supplement income, but also out of the need for unemployed people to protect against mental distress (Rege et al., 2019).

The Association of Certified Fraud Examiners (ACFE) is the world's largest organization engaged in training and training professionals to deal with the prevention of fraud and embezzlement and the fight against corruption and fraud in organizations. In December 2020, ACFE has published a report following a survey on the impact of the covid-19 pandemic in the fight against embezzlement and fraud. The main findings of the report are that 79% of respondents had already experienced or anticipated an increase in the overall level of fraud, while 38% of them noting that this increase was significant. The outlook for 2021 was that 90% of respondents have expected a further increase in the overall level of fraud over the next 12 months, while 44% of them said that the change would likely be significant. Cyber fraud (such as hacking, ransomware and malware) is the highest risk, with 85% of respondents already seeing an increase in fraud, and 88% expecting another increase

over the next years. Other significant fraud risks observed for 2021 are identity theft and payment fraud, such as credit card fraud and fraudulent mobile payments (Assaf, 2021).

## 5. Conclusions

The main finding of this paper is that the number of frauds and the one of fraudsters increase in time of each economic uncertainty. The Covid-19 pandemic has led to an economic and social crisis, which has brought ordinary people to commit economic crimes. These offenses are not necessarily committed with the intention of getting rich, notwithstanding that they may be among the more serious economic offenses. Rather, the aim of these economic frauds is to prevent the economic collapse of the fraudsters' families or businesses. Remains questionable if the harsh punishment that the justice system seeks to apply is justified in these situations for ordinary persons. After all, law enforcement systems did not anticipate such a situation.

The justice system will have to be flexible and carefully examine cases in which the Covid-19 crisis constitutes mitigating circumstance relating to the offenses committed. It will have to lessen the severity of punishment again, considering that for an ordinary person, severe punishment that includes imprisonment is comparable to a death sentence. In addition, the justice system must think to the plight of the persons that may be entangled in these offenses and take into account that the government does not provide the necessary economic response to aid the population.

The price increases, the rise in interest rates and the spike in the cost of living are expected to stimulate the frauds that arose during the pandemic. The risk of fraud occurring in all sectors requires all businesses to ensure that they have procedures in place to mitigate these fraud possibilities, so that they remain fully protected.

Regarding the population own protection, each person must be well informed and to think twice before disclosing credit card information, entering the ID number on a website, transferring even a small amount of money, or signing a contract with any party. Before any decision, especially when having doubts, each person must consult at least one person that truly trust.

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## Analysis of Romania's Trade Balance with Agri-Food Products

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### Abstract

*The paper represents an analysis of the evolution of Romania's trade balance at the level of the national economy, as well as that of agri-food products, from 2000 to 2021. The degree of coverage of import by export was also determined, an indicator that reflects the economy's ability to export an adequate volume of goods and services to cover import needs during a year. It is calculated in percentage terms as a ratio between the value of exports and imports. At the level of the national economy, the degree of coverage of imports by exports fluctuated between 2000 and 2021. In 2021, it registered a slight decrease compared to 2000, by 3.3%. By category of agri-food products, there are significant increases in the degree of coverage in the case of cereals and decreases in the case of vegetables, as a result of the increase in imports.*

**Key words:** competitiveness, trade balance, agri-food sector

**J.E.L. classification:** F14, Q13, Q17

### 1. Introduction

The most advantageous countries in terms of ensuring food security are those that have an agricultural potential capable of supplying large quantities of agricultural raw materials and food in excess of their national needs. According to Bazgă and Chelmu, 2013, among these countries is Romania, which has a generous agricultural potential, being, in this aspect, in 5th place among the EU countries, able to cover the food needs of about 80 million people. Romania has a high agricultural potential with the agricultural area used in 2020 of 13.59 million ha, of which 65.60% (8.92 million ha) is arable land, according to Eurostat data.

It can be appreciated that such countries can have, and most of them do have, food independence. This comparative advantage that Romania has is insufficiently exploited, because, according to the estimates of experts and some national and international institutions in the field, approx. 70% of the aggregate demand for food, existing on the profile markets in our country, is covered by the import of such products. Under these conditions, the current state of dependence and food security in Romania is unacceptable in the medium and long term.

### 2. Findings

The importance of agriculture is given by the role of this sector in ensuring food security, but also by its share in the gross added value. From the analysis of this indicator, in the period 2000 – 2019, an oscillating level of the weight of the added value from agriculture in the gross added value obtained at the level of the national economy is found. Thus, the share of added value obtained in

agriculture in 2000 represented 11.4%, in 2001, it reached the maximum level of the analyzed period (14.6%), and in 2019 it reached only 4.4%.

Table 1. Gross added value (million lei, comparable prices)

Year	Gross added value (million lei, comparable prices)					Share %			
	Agriculture	Industry	Construction	Services	Total	Agriculture	Industry	Construction	Services
2000	5778	14649	2993	27357	50777	11,4	28,8	5,9	53,9
2001	11251	21935	4657	39392	77235	14,6	28,4	6,0	51,0
2002	14552	33163	7329	56842	111886	13,0	29,6	6,6	50,8
2003	18189	43345	9958	69177	140669	12,9	30,8	7,1	49,2
2004	27133	53033	13224	96006	189396	14,3	28,0	7,0	50,7
2005	25760	63978	17367	121203	228308	11,3	28,0	7,6	53,1
2006	25161	77890	24719	148230	276001	9,1	28,2	9,0	53,7
2007	19690	85381	35178	186418	326666	6,0	26,1	10,8	57,1
2008	28925	120130	53520	212859	415434	7,0	28,9	12,9	51,2
2009	33293	135186	55143	239117	462739	7,2	29,2	11,9	51,7
2010	27853	139344	45841	244680	457718	6,1	30,4	10,0	53,5
2011	32822	169952	29870	245534	478179	6,9	35,5	6,2	51,3
2012	25975	152521	36171	287208	501874	5,2	30,4	7,2	57,2
2013	36979	155471	45895	304213	542557	6,8	28,7	8,5	56,1
2014	35902	168316	46166	329753	580137	6,2	29,0	8,0	56,8
2015	28068	177043	44686	356996	606792	4,6	29,2	7,4	58,8
2016	31080	180261	46996	397684	656021	4,7	27,5	7,2	60,6
2017	35599	199186	42541	458380	735705	4,8	27,1	5,8	62,3
2018	40476	212339	39480	514870	807166	5,0	26,3	4,9	63,8
2019	39163	212940	55778	586977	894858	4,4	23,8	6,2	65,6
<b>Dynamics compared with 2000</b>	678%	1454%	1864%	2146%	1762%				

Source: Data processing by authors according to INS data, accessed June 2021

Decreases in the share of gross added value are also found in the case of industry, from 28.8% in 2000 to 23.8% in 2019. In the case of construction, there is an oscillation in the share of gross added value, with significant increases in the period 2007 - 2010, especially in 2008, when it reaches 12.8%, representing the highest value in the entire analyzed period. In the case of services, there is a significant increase, from 53.9% in 2000 to 65.6% in 2019.

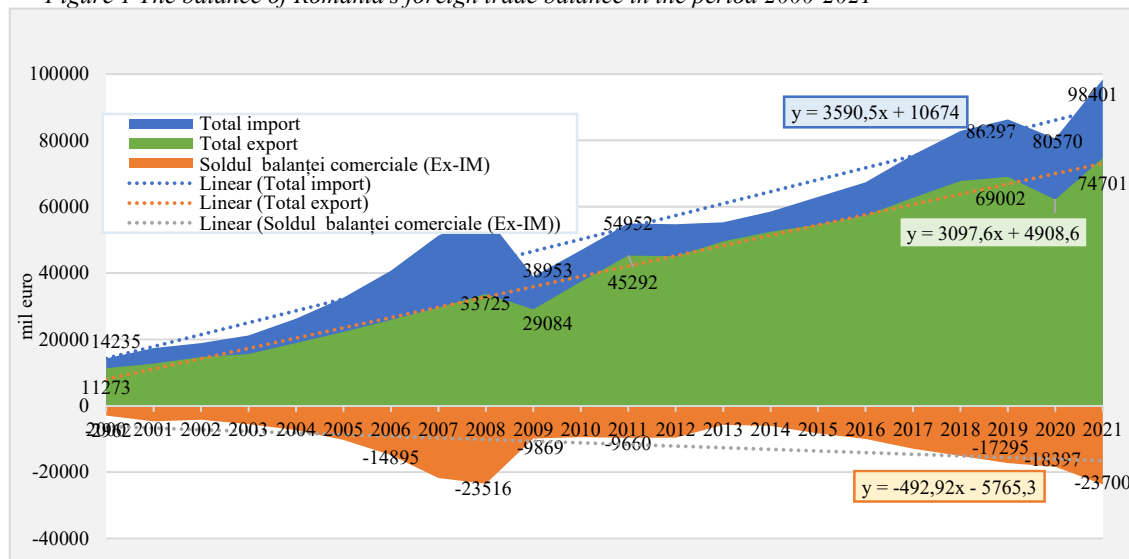
Table 2. Import, export and foreign balance trend in the period 2000-2021

Import trend in the period 2000-2021	
Total import of Romania	$Y_{ti} = 3590,5t_i + 10674$
Romania's import with EU member states	$Y_{ti} = 2879,4t_i + 4328,9$
Romania's import of food products	$Y_{ti} = 410,72t_i - 112,09$
Romania's import of food products with EU member states	$Y_{ti} = 383,49t_i - 805,99$
Export Trend in the period 2000-2021	
Total export of Romania	$Y_{ti} = 3097,6t_i + 4908,6$
Romania's export with EU member states	$Y_{ti} = 2368,6t_i + 2186,4$
Romania's export of food products	$Y_{ti} = 427,13t_i - 1264$
Romania's export of food products with EU member states	$Y_{ti} = 266,03t_i - 714,71$
The trend of the balance of the external balance in the period 2000-2021	
Total balance of Romania's foreign trade balance	$Y_{ti} = -492,92t_i - 5765,3$
The balance of Romania's external trade balance with the EU member states	$Y_{ti} = -510,85t_i - 2142,5$
The balance of Romania's foreign trade balance with food products	$Y_{ti} = 16,405t_i - 1151,9$
The balance of Romania's foreign trade balance with food products with EU member states	$Y_{ti} = -117,45t_i + 91,272$

Source: Data processing by authors according to INS data, accessed June 2021

In table no. 2 the trend of the chronological equations for the interval 2000-2021 and the balance of Romania's external trade balance as a whole and with the EU member states is determined, which reflects the difference between the value of exports and that of imports of goods, services and food products of a country.

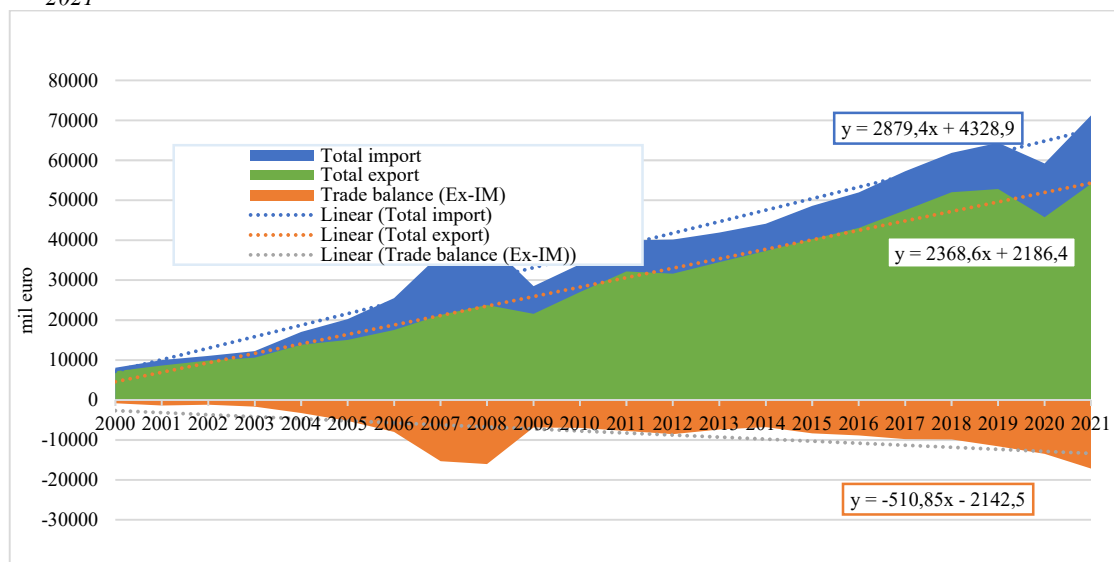
Figure 1 The balance of Romania's foreign trade balance in the period 2000-2021



Source: Data processing by authors according to INS data, accessed June 2021

From the analysis of Romania's foreign trade from 2000 to 2021, it is found that the value of Romania's imports increases annually by 3.59 billion Euros, while the value of Romania's exports increases annually by 3.09 billion Euros, and the external trade balance deficit deepens annually with 492.92 million Euros.

Figure 2 The balance of Romania's external trade balance with the EU member states in the period 2000-2021

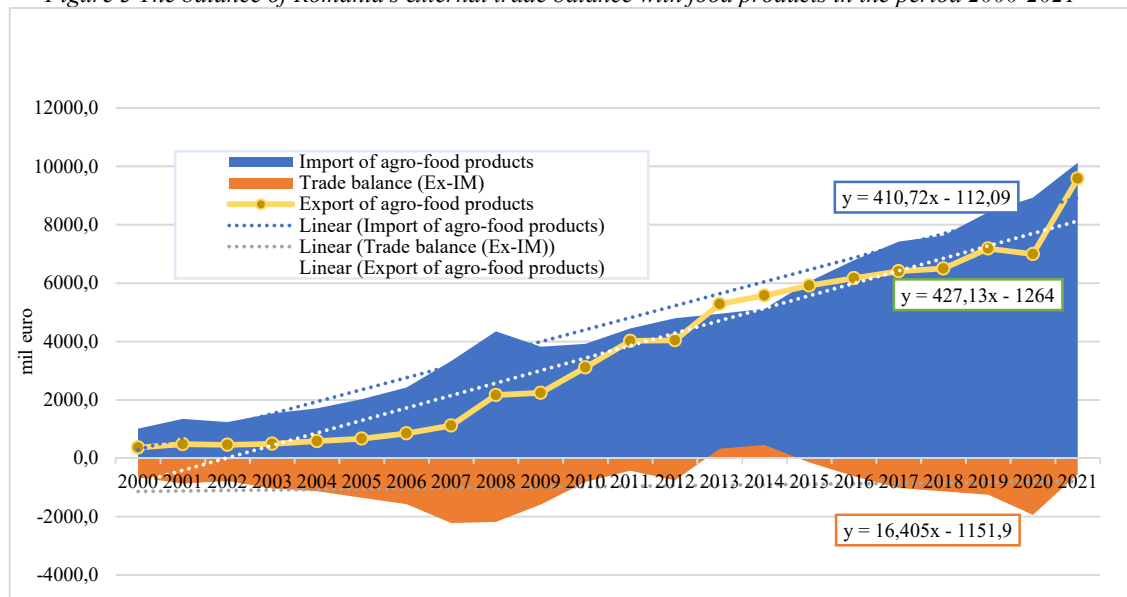


Source: Data processing by authors according to INS data, accessed June 2021



From the analysis of Romania's trade with the member states of the European Union, in the period 2000 - 2021, it is found that the value of imports from the EU increases annually by 2.8 billion Euros, the value of Romania's exports to the EU member states increases annually by 2.36 billion Euros and the external trade balance deficit deepens annually by 510 million Euros.

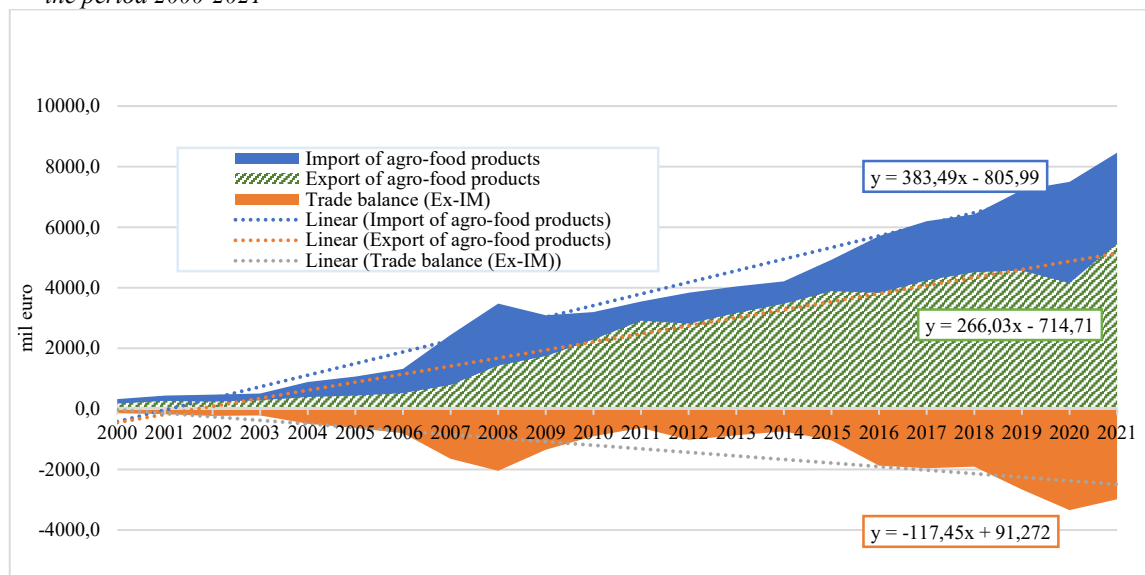
Figure 3 The balance of Romania's external trade balance with food products in the period 2000-2021



Source: Data processing by authors according to INS data, accessed June 2021

From the analysis of Romania's foreign trade in agri-food products, from the period 2000 - 2021, it is found that the value of Romania's agri-food imports increases annually by 410.72 million Euros, the value of Romania's agri-food exports increases annually by 427.13 million Euros, and the trade balance with agro-food products is positive and increases annually by 16.40 million Euros (insignificant).

Figure 3. The balance of Romania's external trade balance with EU member states with food products in the period 2000-2021



Source: Data processing by authors according to INS data, accessed June 2021

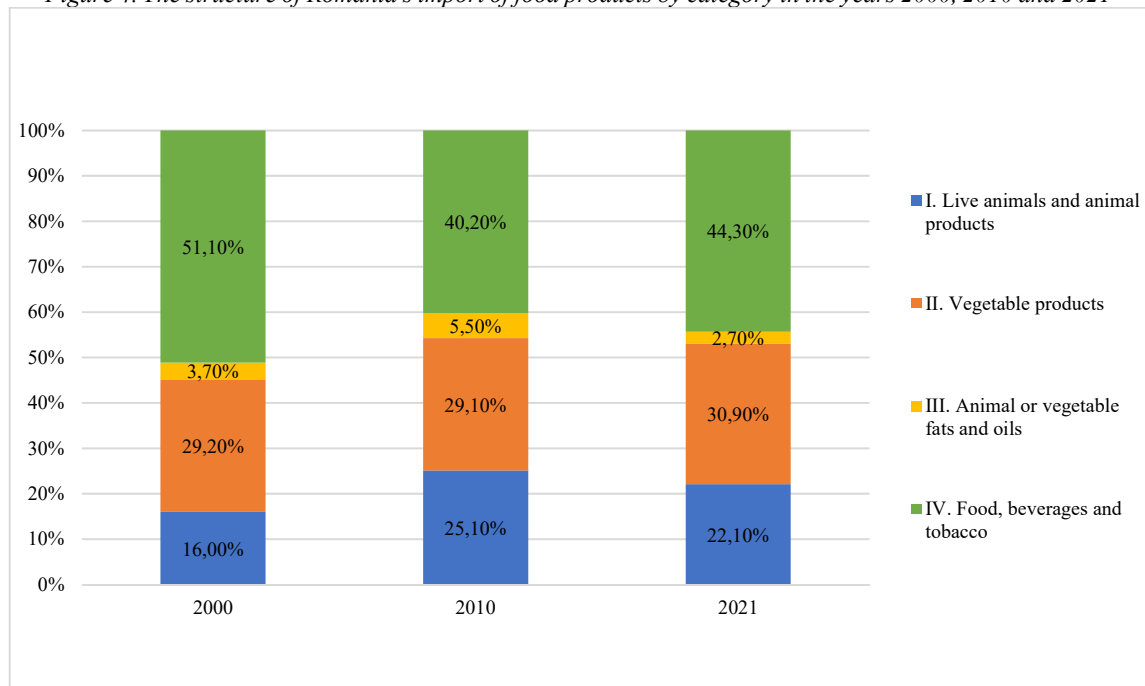
From the analysis of Romania's trade in agri-food products with the EU member states, in the period 2000 - 2021, it is found that the value of Romania's agri-food product imports with the EU member states increases annually by 383.49 million Euros, the value of Romania's agri-food product exports by EU member states, increases annually by 266.03 million Euros, and the trade balance deficit with agro-food products is negative and deepens annually by 117.45 million Euros.

Table 5. The share of Romanian imports by product type in 2000, 2010 and 2021(%)

Import	Total states of the world			With EU member states		
	2000	2010	2021	2000	2010	2021
<b>Food products of which:</b>	<b>7,13%</b>	<b>8,36%</b>	<b>10,29%</b>	<b>4,00%</b>	<b>9,41%</b>	<b>11,87%</b>
I. Live animals and animal products	16,0%	25,1%	22,1%	24,1%	28,8%	25,5%
II. Vegetable products	29,2%	29,1%	30,9%	21,4%	28,5%	29,2%
Of which:						
07. Vegetables, plants, roots and tubers	7,5%	13,1%	16,9%	10,1%	10,1%	15,0%
10. Cereals	21,1%	21,7%	20,4%	12,9%	26,0%	24,7%
III. Animal or vegetable fats and oils	3,7%	5,5%	2,7%	6,2%	5,7%	2,5%
IV. Food, beverages and tobacco	51,1%	40,2%	44,3%	48,2%	37,1%	42,8%
<b>Rest of the products</b>	<b>92,9%</b>	<b>91,6%</b>	<b>89,7%</b>	<b>96,0%</b>	<b>90,6%</b>	<b>88,1%</b>

Source: Data processing by authors according to INS data, accessed June 2021

Figure 4. The structure of Romania's import of food products by category in the years 2000, 2010 and 2021



Source: Data processing by authors according to INS data, accessed June 2021

From the analysis of the available data, it appears that the share of imports of agri-food products in the total imports made by Romania represented 7.13%, in the year 2000, respectively 10.29%, in the year 2021.

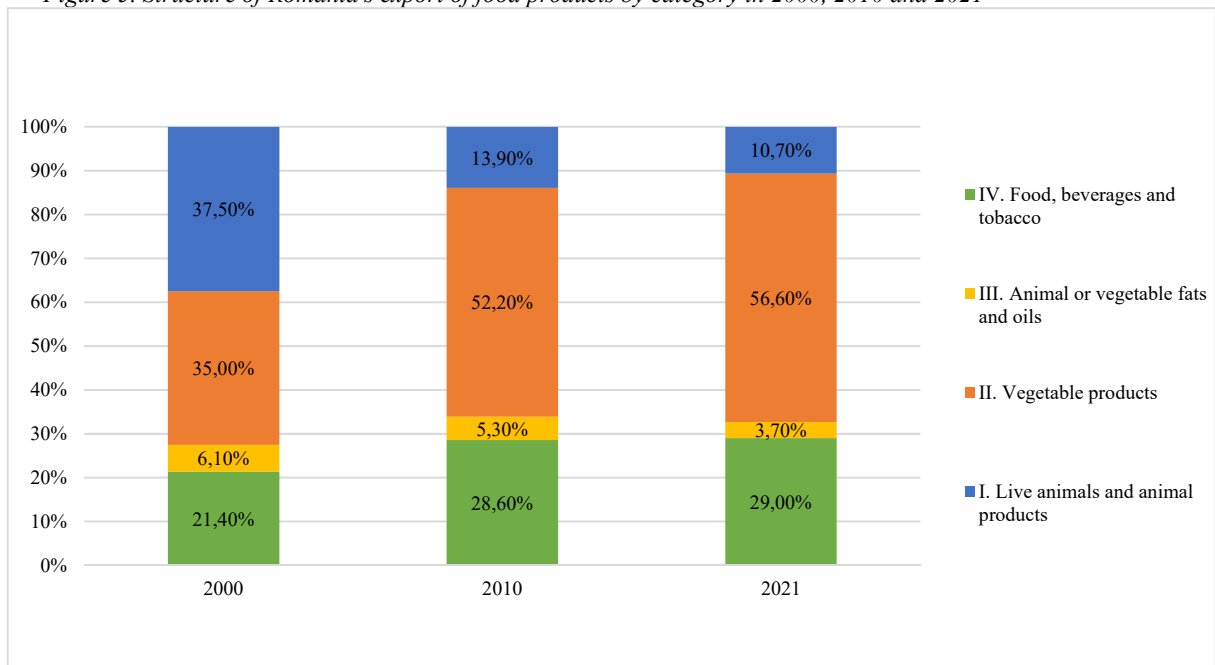
From the analysis of the structure of Romania's agri-food imports, a slight decrease is found only in the case of the category "Animal or vegetable fats and oils", the rest of the other 3 categories, respectively "Food products, beverages and tobacco", "Vegetable products" and "Animals vines and animal products", recorded increases (see the data presented in Figure no. 4).

Table no. 6. Share of Romania's exports by product type in 2000, 2010 and 2021 (%)

Category of products		Total states of the world			With EU member states		
		2000	2010	2021	2000	2010	2021
<b>Food products of which:</b>		<b>3,26%</b>	<b>8,33%</b>	<b>12,83%</b>	<b>2,44%</b>	<b>8,48%</b>	<b>10,12%</b>
I. Live animals and animal products		37,5%	13,9%	10,7%	43,6%	14,8%	10,4%
II. Vegetable products		35,0%	52,2%	56,6%	35,1%	43,9%	47,6%
Of which:	07. Legume, plante, radacini și tuberculi	15,4%	4,0%	2,0%	23,9%	6,2%	3,8%
	10. Cereale	28,2%	54,9%	66,8%	8,8%	43,2%	41,3%
III. Animal or vegetable fats and oils		6,1%	5,3%	3,7%	0,4%	7,0%	4,5%
IV. Food, beverages and tobacco		21,4%	28,6%	29,0%	21,0%	34,3%	37,5%
<b>Rest of products</b>		<b>96,7%</b>	<b>91,7%</b>	<b>87,2%</b>	<b>97,6%</b>	<b>91,5%</b>	<b>89,9%</b>

Source: Data processing by authors according to INS data, accessed June 2021

Figure 5. Structure of Romania's export of food products by category in 2000, 2010 and 2021



Source: Data processing by authors according to INS data, accessed June 2021

The share of agri-food exports in Romania's total exports represented 3.26% in 2000, retrospectively 12.83% in 2021. From the analysis of the structure of Romania's agri-food exports, the following can be found:

- the category "Food products, beverages and tobacco" increases in weight in total by 7.6%;
- the category "Animal or vegetable fats and oils" decreases in total weight by 2.4%;
- the "Vegetable products" category increases by 21.6% (raw cereals);
- the "Live animals and animal products" category decreases by 26.8%.

The share of Romania's total imports and food products with the EU member states in the period 2000-2021, presents two completely different periods and pictures, before and after Romania's entry into the EU, respectively the period 2000-2006 and 2007-2021. Before Romania's entry into the EU, the share of our country's imports with the EU was between 56% and 65%, in which the share of cereals varied greatly from year to year, as follows: 6.7% (in 2003) and 48.8% (in 2006).

After joining the EU, the shares of Romania's total imports and food products with the EU member states have increased significantly, thus over 93% of the total live animals and animal products are destined for the EU, a situation also recorded for the "Cereals" product group. In contrast to these, "Vegetable products", respectively "Animal or vegetable fats and oils" have weights between 79 and 82%.

Table no. 7. Calculation of the balance of Romania's foreign trade balance as a whole and with EU states in the period 2000-2021

Year	Total Romania with the countries of the world				Romania with the EU states			
	Total import (mil.euro)	Total export (mil.euro)	Trade balance (Ex-IM) (mil.euro)	The degree of coverage of imports by exports (%)	Total import (mil.euro)	Total export (mil.euro)	Trade balance (Ex-IM) (mil.euro)	The degree of coverage of imports by exports (%)
2000	14235	11273	-2962	79,2%	8046	7195	-851	89,4%
2001	17383	12722	-4661	73,2%	9975	8623	-1352	86,4%
2002	18881	14675	-4206	77,7%	11033	9864	-1169	89,4%
2003	21201	15614	-5588	73,6%	12223	10571	-1651	86,5%
2004	26281	18935	-7346	72,0%	17065	13807	-3258	80,9%
2005	32568	22255	-10313	68,3%	20251	15043	-5208	74,3%
2006	40746	25850	-14895	63,4%	25487	17500	-7987	68,7%
2007	51322	29549	-21773	57,6%	36587	21269	-15318	58,1%
2008	57240	33725	-23516	58,9%	39838	23765	-16074	59,7%
2009	38953	29084	-9869	74,7%	28472	21600	-6871	75,9%
2010	46869	37360	-9509	79,7%	33978	27013	-6964	79,5%
2011	54952	45292	-9660	82,4%	39953	32166	-7787	80,5%
2012	54703	45069	-9634	82,4%	40173	31601	-8571	78,7%
2013	55317	49562	-5755	89,6%	41916	34508	-7408	82,3%
2014	58522	52466	-6056	89,7%	44124	37315	-6809	84,6%
2015	62971	54610	-8361	86,7%	48598	40257	-8341	82,8%
2016	67364	57392	-9972	85,2%	51951	43080	-8870	82,9%
2017	75604	62644	-12960	82,9%	57281	47482	-9798	82,9%
2018	82840	67723	-15116	81,8%	61877	51983	-9894	84,0%
2019	86297	69002	-17295	80,0%	64403	52836	-11567	82,0%
2020	80570	62173	-18397	77,2%	59240	45779	-13461	77,3%
2021	98401	74701	-23700	75,9%	71265	54095	-17170	75,9%

Source: Data processing by authors according to INS data, accessed June 2021

From the analysis of the data presented in Table no. 7, it follows that, in the period 2000 - 2021, the balance of the trade balance of Romania at the level of the national economy registers negative values, the maximum being recorded in the year 2021 (with a deficit of 23,700 million euros), and the minimum in 2013 (with a deficit of 5,755 million euros).

Also, the balance of Romania's trade balance in relation to the member states, at the level of the national economy, registers negative values, the maximum being recorded in 2021 (with a deficit of 17,170 million euros), and the minimum before accession, in the year 2000 (with a deficit of 851 million euros), and after accession, in 2009 (with a deficit of 6,871 million euros).

Table no. 8. Calculation of the balance of the foreign trade balance with food products of Romania as a whole and with the EU states in the period 2000-2021

Year	Total Romania with the countries of the world				Romania with the EU states			
	Import of food products (mil.euro)	Export of food products (mil.euro)	Trade balance (Ex-IM) (mil.euro)	The degree of coverage of imports by exports (%)	Import of food products (mil.euro)	Export of food products (mil.euro)	Trade balance (Ex-IM) (mil.euro)	The degree of coverage of imports by exports (%)
2000	1015,1	367,6	-647,469	36,2%	322,1	175,4	-146,721	54,5%
2001	1350,8	484,0	-866,781	35,8%	434,8	262,5	-172,392	60,4%
2002	1245,7	460,6	-785,041	37,0%	470,5	236,3	-234,222	50,2%
2003	1535,3	497,9	-1037,402	32,4%	505,2	284,7	-220,46	56,4%
2004	1713,9	587,4	-1126,531	34,3%	884,5	390,8	-493,647	44,2%
2005	2021,9	673,3	-1348,657	33,3%	1067,9	437,7	-630,192	41,0%
2006	2424,8	854,0	-1570,82	35,2%	1323,1	518,0	-805,084	39,1%
2007	3338,9	1122,3	-2216,609	33,6%	2440,9	791,9	-1648,956	32,4%
2008	4347,0	2165,2	-2181,766	49,8%	3473,2	1430,0	-2043,291	41,2%
2009	3823,3	2242,4	-1580,849	58,7%	3092,0	1742,5	-1349,534	56,4%
2010	3919,9	3112,4	-807,485	79,4%	3197,1	2289,4	-907,712	71,6%
2011	4445,6	4020,7	-424,926	90,4%	3543,0	2911,4	-631,595	82,2%
2012	4795,1	4044,3	-750,811	84,3%	3839,6	2813,0	-1026,654	73,3%
2013	4952,0	5284,4	332,368	106,7%	4040,4	3167,7	-872,766	78,4%
2014	5121,2	5577,2	455,984	108,9%	4212,4	3467,9	-744,523	82,3%
2015	6055,2	5918,2	-137	97,7%	4925,8	3887,1	-1038,708	78,9%
2016	6789,1	6169,2	-619,829	90,9%	5705,5	3829,7	-1875,731	67,1%
2017	7423,1	6406,6	-1016,578	86,3%	6201,4	4242,1	-1959,322	68,4%
2018	7635,0	6501,5	-1133,57	85,2%	6423,4	4514,9	-1908,532	70,3%

2019	8431,1	7185,0	-1246,103	85,2%	7229,6	4565,0	-2664,578	63,1%
2020	8932,5	6994,1	-1938,445	78,3%	7498,1	4153,3	-3344,778	55,4%
2021	10130,1	9587,0	-543,044	94,6%	8459,8	5471,9	-2987,957	64,7%

Source: Data processing by authors according to INS data, accessed June 2021

Unlike Romania's trade balance at the level of the national economy, the trade balance with agri-food products recorded positive balances in 2013 (with a surplus of 332 million euros), respectively in 2014 (with a surplus of around 456 million euros). It should be noted that in 2015 a relatively good situation is also recorded, with a negative balance of only 137 million euros. Also, as it results from the analysis of the data presented in Table no. 8, as in the case of Romania's trade balance, in relation to the member states, at the level of the national economy, the trade balance with agri-food products registers deficits throughout the period 2000-2021. The maximum level being recorded in 2020 (with a deficit of about 3,335 million euros), and the minimum before accession, in 2000 (with a deficit of about 147 million euros), and after accession, in 2011 (with a deficit of 632 million euros).

Another relevant indicator in the analysis of the structure and efficiency of Romania's foreign trade concerns the degree of coverage of import by export. This indicator reflects the ability of our economy to export an adequate volume of goods and services to cover import needs during a year. It is calculated in percentage terms as a ratio between the value of exports and imports. Next, its level was determined both on the total economy and on categories of food products at the level of each EU member state.

Table no. 9. The degree of coverage of imports by exports per total and for food products, total foreign trade of Romania in the period 2000-2021 (%)

Year	Degree of coverage total foreign trade	I. Live animals and animal products	II. Vegetable products	Of which:		III. Animal or vegetable fats and oils	IV. Food, beverages and tobacco
				07. Vegetables, plants, roots and tubers	10. Cereals		
2000	79,2%	85,0%	43,5%	89,2%	57,9%	59,3%	15,1%
2001	73,2%	46,6%	53,7%	156,7%	58,3%	73,8%	17,4%
2002	77,7%	48,9%	63,3%	131,2%	253,2%	14,2%	19,7%
2003	73,6%	72,2%	28,7%	77,1%	5,7%	49,8%	17,8%
2004	72,0%	51,6%	38,1%	95,5%	19,6%	123,6%	15,8%
2005	68,3%	29,6%	63,2%	84,9%	204,2%	106,4%	16,1%
2006	63,4%	29,9%	75,7%	46,7%	337,7%	76,9%	16,2%
2007	57,6%	29,0%	42,5%	29,5%	55,8%	47,1%	28,1%
2008	58,9%	23,3%	95,2%	26,8%	206,9%	46,5%	34,9%
2009	74,7%	29,2%	112,2%	35,8%	252,5%	54,9%	45,6%
2010	79,7%	44,0%	142,4%	43,6%	359,7%	75,6%	56,4%
2011	82,4%	60,5%	158,4%	34,9%	328,9%	98,5%	57,5%
2012	82,4%	70,6%	139,1%	32,8%	358,0%	76,6%	55,1%
2013	89,6%	66,9%	205,1%	43,0%	605,6%	116,7%	60,4%
2014	89,7%	60,6%	202,9%	38,8%	670,1%	130,2%	69,9%
2015	86,7%	62,3%	150,9%	32,9%	371,1%	121,6%	71,3%
2016	85,2%	56,5%	147,6%	23,7%	354,2%	102,5%	60,9%
2017	82,9%	56,0%	146,2%	34,0%	423,4%	110,0%	55,5%
2018	81,8%	50,5%	155,0%	22,9%	669,8%	130,2%	53,1%
2019	80,0%	46,9%	154,1%	18,5%	650,3%	129,3%	57,3%
2020	77,2%	42,4%	114,7%	19,3%	308,5%	96,5%	68,3%
2021	75,9%	45,7%	173,2%	20,3%	566,2%	131,4%	61,9%

Source: Data processing by authors according to INS data, accessed June 2021

At the level of the national economy, the degree of coverage of imports by exports fluctuated between 2000 and 2021. In 2021, it registered a slight decrease compared to 2000, by 3.3%. By category of agri-food products, there are significant increases in the degree of coverage in the case of cereals and decreases in the case of vegetables, as a result of the increase in imports.

It is worth noting that, between 2000 and 2021, the value of food imports increased from 1.01 billion Euros to 10.13 billion Euros. The biggest increases can be seen since 2007, the year of Romania's accession to the European Union. In 2021, the value of imports of agri-food products from EU member states represents 83.5% of the total imports of agri-food products.

Also, the value of exports of agri-food products increased between 2000 and 2021, from 367 million Euros in 2000 to 9.5 billion Euros in 2021.

It is worth noting the deficit of the trade balance for agri-food products which, in 2020, reaches a record level of 1.93 billion euros, as a result of the effects of the prolonged drought of that year.

The dependence of agriculture on the climate factor is also demonstrated by the value of the deficit in 2021, considered a very good agricultural year, with the deficit falling to 543 million Euros.

Table no. 10. The degree of coverage of imports by exports in total and for food products, in Romania's foreign trade with the EU in the period 2000-2021 (%)

Year	Degree of coverage with EU states	At the EU level of which:					
		I. Live animals and animal products	II. Vegetable products	Of which:		III. Animal or vegetable fats and oils	IV. Food, beverages and tobacco
				07. Vegetables, plants, roots and tubers	10. Cereals		
2000	89,43%	98,35%	89,28%	212,38%	60,75%	3,12%	23,69%
2001	86,44%	67,15%	130,78%	674,49%	79,57%	15,26%	31,13%
2002	89,41%	52,02%	143,40%	457,03%	860,95%	0,61%	26,38%
2003	86,49%	112,38%	70,36%	247,05%	10,43%	15,03%	23,83%
2004	80,91%	55,49%	71,72%	173,21%	42,16%	94,76%	19,10%
2005	74,28%	35,14%	95,69%	173,12%	281,88%	74,17%	19,81%
2006	68,66%	30,99%	94,63%	78,01%	411,56%	83,70%	17,26%
2007	58,13%	25,34%	40,58%	57,39%	58,29%	73,53%	29,65%
2008	59,65%	20,92%	63,60%	41,29%	50,33%	56,04%	40,21%
2009	75,87%	26,31%	97,95%	47,90%	159,77%	58,55%	55,17%
2010	79,50%	36,87%	110,40%	67,66%	183,38%	87,95%	66,27%
2011	80,51%	52,10%	116,85%	45,84%	177,73%	112,11%	70,41%
2012	78,66%	54,36%	91,82%	41,43%	163,10%	91,38%	68,55%
2013	82,33%	50,14%	106,85%	50,48%	163,54%	132,77%	70,58%
2014	84,57%	45,90%	116,36%	46,55%	242,55%	103,59%	81,10%
2015	82,84%	47,06%	95,30%	39,45%	135,20%	109,42%	82,41%
2016	82,93%	38,02%	87,86%	24,06%	113,71%	87,71%	65,93%
2017	82,89%	37,50%	105,48%	28,69%	171,13%	92,40%	58,62%
2018	84,01%	36,96%	124,61%	30,49%	346,84%	124,92%	52,61%
2019	82,04%	30,86%	97,03%	23,06%	255,21%	126,14%	57,86%
2020	77,28%	24,25%	73,16%	24,48%	104,47%	84,87%	59,89%
2021	75,91%	26,28%	105,41%	26,36%	175,97%	118,67%	56,65%

Source: Data processing by authors according to INS data, accessed June 2021

With regard to trade with the EU member states, it can be seen that at the level of the national economy, the trade balance deficit deepens, and the degree of coverage of imports by exports decreases, this trend has been noticeable since the pre-accession period.

Although our country has favorable agro-pedological conditions for the development of animal husbandry and horticulture, it is found that for these two categories, the degree of coverage of consumption needs from own production decreases, reaching about 26% for both categories (in 2021).

The degree of coverage is high in the case of the "Cereals" category, the balance of the trade balance being a positive one. Romania's accession to the EU allowed farmers access to non-reimbursable European funds, thus contributing to the increase in production and, implicitly, export capacity for this category. For the future period, our country should focus on increasing the processing capacity of agricultural products (raw material), so as to reduce food imports from a value point of view.

### 3. Conclusions

In order to balance Romania's trade balance in agri-food products, it is necessary to take into account the increase in their competitiveness both on the domestic market and especially on the foreign market. The increase in competitiveness can be achieved through two pillars, namely by ensuring the quality of agri-food products and by offering them to the market at affordable prices for consumers.

From the analysis of Romania's trade balance for these products, it is found that its balance, with the exception of 2013 and 2014, is negative throughout the analysis period, which means that the value of imports exceeds the value of exports of agri-food products. Also, the dependence of Romania's agri-food sector on the climate factor is demonstrated even through the balance of the



trade balance. Thus, the agricultural years that faced extreme climatic phenomena, such as 2020, are the years in which the negative balance of the balance deepens.

In agricultural years considered good for agriculture, such as 2021, there is a significant increase in exports of agri-food products, which also causes a decrease in the negative balance of the trade balance with agri-food products. In order to increase the competitiveness of the agri-food sector, the European Union allocates non-reimbursable European funds for rural development. Romania has benefited from significant funds since the pre-accession period, through the SAPARD program (about 1.15 billion Euros). In the post-accession period, Romania benefited from funds through the National Rural Development Program for the periods 2007 – 2013 (around 8.022 billion Euros) and 2014 – 2020 (around 8.2 billion Euros). For the 2021-2027 programming period, the financial support for rural development decreases to around 6.75 billion Euros, but the support allocated to direct payments and market measures increases.

It should be mentioned that, in order to become competitive on the European market of agri-food products (and not only), to these sums allocated by the EU, it is necessary to add substantial amounts from the state budget of our country.

In conclusion, we can say that accessing non-reimbursable European funds and implementing projects aimed at increasing the competitiveness of the agri-food sector, as well as making investments in the agri-food sector from own revenues (budgetary and domestic private), will contribute to the quantitative and qualitative growth of agri-food products and, consequently, in balancing the trade balance for these products.

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## Comparative Analysis of the Degree of Food Security Assurance at Global Level

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### Abstract

*The fundamental objective and role of any state in the world is to ensure the ability to provide to people with security and safety, namely to protect and maintain the rights of its citizens and to provide them with an environment conducive to the satisfaction of all their needs. Among the dimensions of national and international (collective) security, food security and safety represent the most important dimension of the internal security of any individual state.*

*The right to eat is a fundamental right, equivalent to the right to life, respectively to health. Food security and safety are closely related to economic development and social progress, to natural resources and environmental security, to individual security and demographic evolution, to international and geopolitical relations.*

**Key words:** food security, food safety, agriculture

**J.E.L. classification:** F62, Q18

### 1. Introduction

According to Ion (2017), the main source for ensuring national food security is represented by domestic production, and the extent to which food security is achieved from own production shows the degree of food self-sufficiency. Globally, the food security situation is unstable as more than 861 million people suffer from undernourishment while 1.72 billion people suffer from overfeeding (according to Worldmeter). Among the causes and factors that influence food security can be mentioned:

- global warming, land degradation and desertification;
- reducing the use of own agricultural potential at the expense of excessive imports;
- the absence of a coherent national strategy for food security;
- the global economic crisis;
- the relatively low degree of national independence regarding food security;
- gaps in terms of development levels between regions and countries;
- high price volatility;
- lack of immediate actions;
- lack of coherent policies in the agri-food sector;
- lack of control and monitoring of traceability on the agri-food chain;
- lack of coordination and practical actions at the global level, etc.

Over time, a series of food crises have appeared in different areas of the world, both in underdeveloped and developed countries, and the main causes that have determined the occurrence of food crises are the following: poverty, lack of investment in agriculture, factors natural disasters, military conflicts and population migration, market instability, food waste (Ion, 2017). According to the



FAO, the global volume of food waste is estimated at 1.3 billion tonnes, directly affecting the food security of the population but also the environment through the carbon footprint, which is estimated at around 3.3 billion tonnes of CO2 equivalent of GHG released into the atmosphere per year.

## 2. Theoretical background

Already during the great crisis of the interwar period, the famous economist John Maynard Keynes stated and demonstrated the fact that the demand of the mass (population) is wrong - manifested intensively through an excessive consumption of goods and services, which led the market economy to increase the respective offers. In order to "educate the demand of the masses" and the orientation of the economy, the great professor suggested that the states should intervene in the internal/community market and use political-fiscal and monetary measures to guide the labor market and ensure socio-economic balance and an economy dynamics.


Statistics from developed and highly developed countries, from the last three decades, demonstrate the fact that, most of the time, among the masses, who do not have the culture of investments/savings, the structure of the demand, respectively of the "Consumption Basket" consists of 30% needs and 70% wants.


Although the states have been involved and are systematically involved in economic life by adopting different policies and legal measures of fiscal and social policy "orientation of the economic environment" respectively of the demand, the excessive consumption behavior of goods and services of the masses does not seem that it would have stopped, but on the contrary, it took on even greater valences that it affected and affects unprecedentedly, generating demo-socio-economic imbalances.

At the same time, since the 17th century, the great philosopher and economist Adam Smith, in his work "The Theory of Moral Sentiments" (1759) describes the social need of people to behave correctly, fairly in society and to overcome their selfishness, as beings with collective needs. This work, made more than 250 years ago, will never lose its exceptional value and topical character in exploiting the understanding of desire specific to human nature. The work presents a clear picture of human behavior in various situations, emphasizing reward and punishment, the meaning of duty, and the impact of several social and economic factors on the behavior of moral values.

## 3. Findings

According to the "Real-time World Statistics" data for the first 6 months of 2022, it presents the following information - 10.83% of the total global population are undernourished, 21.73% - overweight people, 10.21% - obese people, and the rate hunger mortality in this half of 2022 is 4 out of 10,000 deaths.

 World population	
<b>7.958.024.912</b>	Current world population
<b>70.379.058</b>	Births this year
<b>160.118</b>	Birthdays today
<b>29.546.814</b>	Deaths this year
<b>67.221</b>	Deaths today
<b>40.832.244</b>	Population growth this year


 Food statistics	
<b>861.897.725</b>	Malnourished people in the world now
<b>1.729.482.395</b>	Overweight people in the world
<b>812.494.911</b>	Obese people in the world now
<b>12.809</b>	People who died of hunger today
<b>\$ 260.927.752</b>	Money spent today on obesity-related diseases in the US
<b>\$ 79.177.826</b>	Money spent on diets in the US today


Source: World statistics in real time, <https://www.worldometers.info/ro/>, accessed July 3, 2022

The objective of the modern economy aimed at the "Increasing Efficiency" dimension, which is based on the principle of "minimum effort - maximum effect", often having disastrous effects on the environment.

The impact on the environment is related to the dynamics and behavior of the population from several points of view, respectively: what resources do people use, how extensive is industrial production, how much energy is needed for heating, cooling and transport, etc. But population growth is only one factor influencing climate change. Consumption habits are another factor, and they are not globally uniform. "There is a significant disconnect between the places where population growth is very fast and the places where the greatest consumption is taking place," says Corey Bradshaw, director of the Global Ecology Laboratory at Flinders University.

Only in this half year (2022), the share of global forest loss is 6.7%, the share of agricultural land lost due to soil erosion is 0.223%, carbon dioxide emissions this year are 2.29 tons /capita, and the toxic waste released by industry into the air, land and water this year is 0.618 kg/capita.

 Environment	
<b>2.612.682</b>	Forest losses this year (hectares)
<b>3.517.377</b>	Agricultural land lost this year due to soil erosion (hectares)
<b>18.292.649.008</b>	Carbon dioxide emissions this year (tonnes)
<b>6.028.657</b>	Desertification this year (hectares)
<b>4.919.574</b>	Toxic waste released by industry into air, land and water this year (tonnes)

 Water	
<b>2.262.406</b>	Water consumed this year (billion liters)
<b>423.032</b>	Deaths from waterborne diseases this year
<b>781.023.985</b>	People without access to drinking water

Source: World statistics in real time, <https://www.worldometers.info/ro/>, accessed July 3, 2022

A principle of the current economy in order to increase production, consists in increasing consumption by stimulating consumer demand. They will consume more and more, so that the economy is set in motion, on the idea that "a dynamic economy needs sufficient demand". At first sight it doesn't seem anything unnatural, but this principle led very quickly to a linear economic model without successive restarts, which is based on the "use-produce-consume-dispose" principle, a model which led vectorially to a consumer society and enormously affected the quality of the environment by misbehaving towards it. From the point of view of production quality, much of this model involved programming wear - designing a product to have a limited lifespan to encourage consumers to buy a new one more often, or the manufacturer to decrease quality in order to increase this flow. In order to combat this practice, the European Parliament requested a series of measures, the most important of which aims to ensure the guarantee for the entire estimated life of the product. The purpose of these measures is to protect the environment.

As mentioned by Pătărlăgeanu et. al (2020), recently more environmental incidents occur worldwide, generating costs that are very difficult to reduce in the short and medium term.

However, it will be quite difficult to impose and educate among the masses, but especially among the producers, the "circular economy" model that involves sharing, reusing, repairing, renovating and recycling existing materials and products as much as possible. Through this model, the life cycle of the products is extended.

Currently, world socio-economic policies are fundamentally reorienting and are not limited to a blind concept of "economic growth", but are concerned with a qualitative and interdependent growth with all social dimensions, which equally regards social balance and sustainability. In this sense, a number of 17 Sustainable Development Goals were developed and pursued for implementation at the level of all the states of the world. Objective 2 entitled "Zero hunger" focuses on the analysis and monitoring of 3 major dimensions:

- **Ecological agriculture and healthy eating, currently characterized by a single economic indicator "The value of fruit and vegetable production";**

- **Supporting national production in the agri-food sector, characterized by 8 economic indicators:**
  - Dynamics of land improvement arrangements - Irrigation.
  - Budgetary allocation of amounts for research-development activity in agriculture.
  - The volume of expenses from the business environment sector for research and development activity in agriculture, by funding sources.
  - Commercial intensity of meat and meat products.
  - The number of agricultural and food products (brands) recognized at European level.
  - Traditional certified products.
  - The value of investments intended to support the installation of young farmers.
  - The agricultural area used and cultivated ecologically.
  - The total number of operators certified in organic agriculture.
- **Preventing and combating soil pollution characterized by 2 environmental indicators:**
  - The share of the ecological agricultural area in the total agricultural area.
  - The surface of the lands arranged with improvement works, to combat soil erosion and desertification, by land use category.

#### 4. Global Food Security Index - Food security balances and imbalances

According to the definition of the World Food Summit in 1996, food security is defined as the state in which people have at all times physical, social and economic access to sufficient and nutritious food that meets their nutritional needs for a healthy and active life. According to the Report presented within the UN Development Program there are 8 dimensions of international security (community security) and national security:

Figure 1 Dimensions of international security (community security) and national security

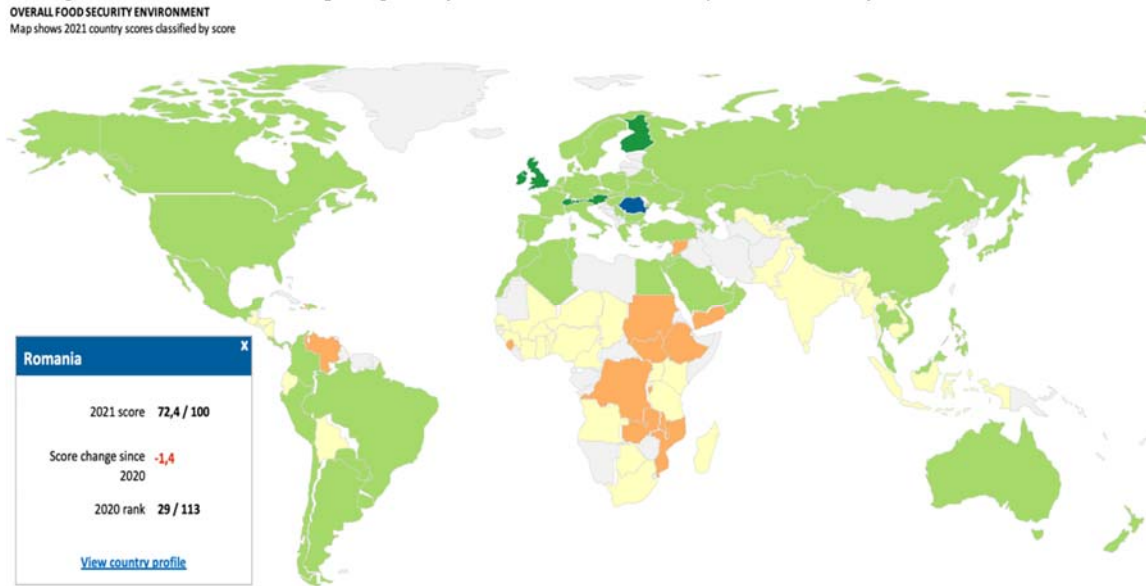


Source: data processing by authors according to the Report presented within the UN Development Program

The Global Food Security Index (ISAG) has been developed in international literature and practice. It is calculated at the level of 113 countries of the world and is a composite indicator that takes into account the basic problems that countries face in terms of food accessibility, availability, quality and safety, along with natural resources and resilience. The index is a dynamic quantitative and qualitative scoring model, constructed from 59 unique indicators, that measure factors driving food security in developing and developed countries. The overall goal of the ISAG study is to assess and identify which countries are most and least vulnerable to food insecurity through the categories of affordability, availability, quality and safety, and natural resources and resilience.

The index comprehensively examines food security in four internationally established dimensions.

Figure 2. Author extract Map diagram of the Global Food Security Index in 2021 for Romania



Source: <https://impact.economist.com/sustainability/project/food-security-index/Index>

To capture the heterogeneity of food security, the ISAG is grouped into 5 equal intervals. In the first interval - very good level (80-100%) there are only 5 states of the world, in the Good interval - 59 of the states (interval in which Romania is also found - located between Chile and Kuwait), in the category of Moderate we have 37 of states, and in the low one 12 states (the minimum level being registered in Burgundy).

Table 1. Grouping of the Global Food Security Index into 5 equal intervals

Level	Interval	Number of states
Very good	Over 80 %	<b>5 countries</b> (Irland - 84%; Austria – 81,3% Great Britan – 81%, Finland – 80,9%, Sweeden, 80,4%)
Good	79,9-60,0%	<b>59 countries</b> (Netherlands – 79,9% Romania -72,4%... Philippines – 60,0%)
Moderate	59,9-40,0%	<b>37 countries</b> (Bolivia – 59,9 %...Rwanda – 40,3%)
Low	39,9-20,0%	<b>12 countries</b> (Venezuela 39,4% ... Burgundia 34,7)
Very low	Under 19,9 %	<b>0 countries</b>

Source: Systematization of authors by: <https://impact.economist.com/sustainability/project/food-security-index/Index>

The level of the Global Food Security Index (ISAG) of Romania, in 2021, was 72.4% located in the 29th position in the 113 countries of the world and in the 26th position in Europe, with a decrease compared to the previous year 2020 of 1, 4 percentage points and with an increase of 6.2 percentage points in the last 10 years. Analyzing the level of the ISAG index on each dimension, the situation is as follows:

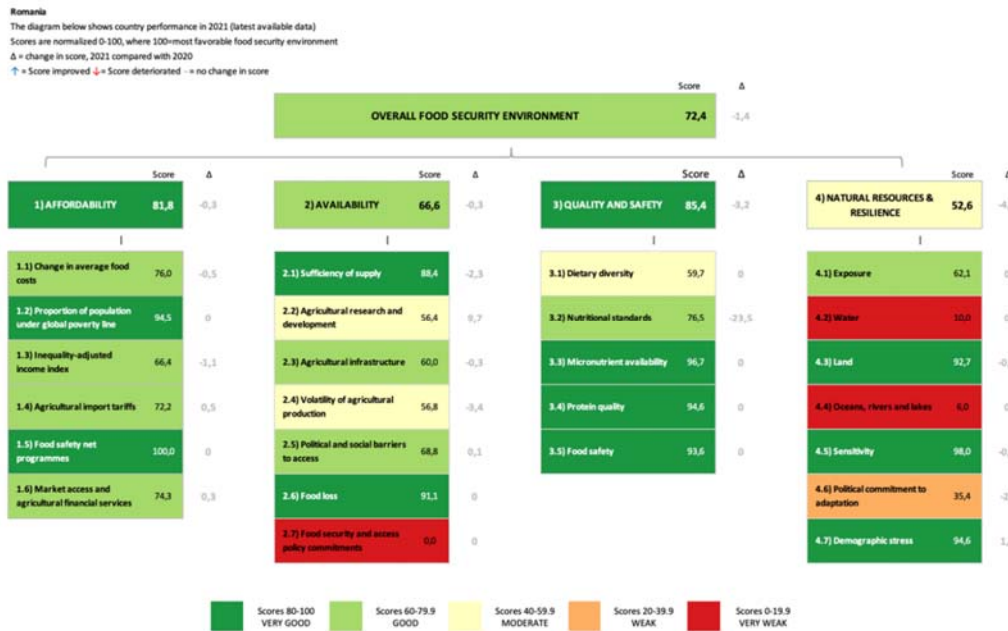
a) from the point of view of Accessibility (Affordability), which measures consumers' ability to buy food, their vulnerability to price shocks and the presence of programs and policies to support customers when shocks occur, Romania ranks 40th , in 2021, being 81.8%. It should be noted that Food safety net programs have an index of 100%, while Agricultural import tariffs have a level of only 72.2%.

b) Food Availability (which synthetically expresses the sufficiency of the national food supply, the risk of supply interruption, the national capacity to disseminate food and research efforts to expand agricultural production has an index of 66.6%, where the Sufficiency of supply = 88.4%, and Food security and access policy commitments = 0%;

c) The variety and nutritional quality of average diets, as well as food safety called Quality and Safety (Quality And Safety) is estimated at a level of 85.4%, in which Protein quality = 94.6%, and Dietary diversity = 59, 7%

d) Natural resources and resilience (natural resources & resilience), which assesses a country's exposure to the impact of climate change, its susceptibility to risks related to natural resources and how the country adapts to these risks, has a level of 52.6 %.

Figure 3 Author extract, Profile of Romania by dimensions and indicators of ISAG in 2021



Source: <https://impact.economist.com/sustainability/project/food-security-index/Index>

In order to better capture Romania's situation and gaps, we compare the dimensions and composite indicators of Romania's ISAG with Ukraine, Poland and Germany in 2021. Ukraine - as the country with the largest grain exporter in Europe, Poland - a benchmark in development and economic policies, Germany – as the main importer of food production and benchmark of economic power.

Table 2. Score and rank of Global Food Security Index dimensions of Romania, Ukraine, Germany and Poland

Dimension	Country/Score of dimension				Rank			
	Romania	Ukraine	Poland	Germany	Romania	Ukraine	Poland	Germany
<b>Global Food Security Index (100%)</b>	72,4	62,0	74,0	78,7	29	58	22	11
<b>Accessibility (32,4%)</b>	81,8	73,9	87,0	90,1	40	58	25	10
<b>Availability (32,4%)</b>	66,6	51,8	65,0	69,3	27	74	30	18
<b>Quality and safety (17,6%)</b>	85,4	71,9	80,5	87,8	24	55	40	18
<b>Natural resources and resilience (17,6%)</b>	52,6	49,3	65,0	66,0	41	56	14	11

Source: Author data systematization according to: <https://impact.economist.com/sustainability/project/food-security-index/Index>

In 2021, from the point of view of the Global Food Security Index, Ukraine is in the second half of the ranking (position 58), Germany in the first 11, Poland in position 22, and Romania 7 positions lower than Poland.



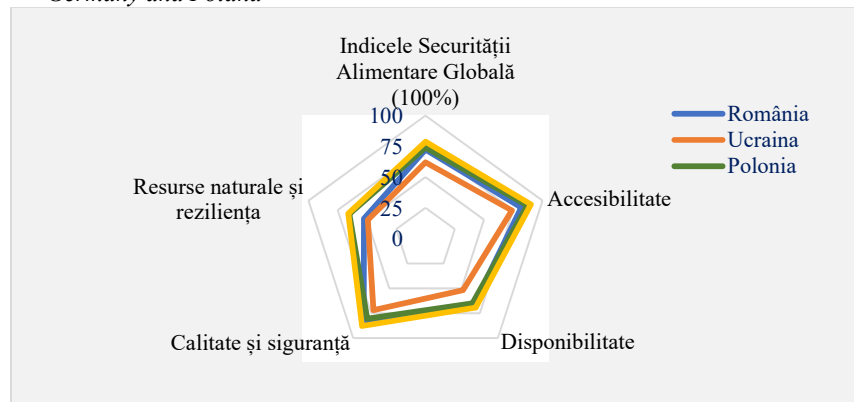
The ranking of the Accessibility of food products (expresses the ability of consumers to buy food, their vulnerability to price shocks and the presence of programs and policies to support customers when shocks occur), for Germany it is 10, for Poland it is 25, Romania by a wide gap the 40th place , and Ukraine the 58th position.

Food availability (this quantifies the sufficiency of the national food supply, the risk of supply disruption, the national capacity to disseminate food and research efforts to expand agricultural production), shows a more significant gap between countries, as follows: Germany petition 18, Romania surpasses Poland with 3 positions (27th place) and Ukraine is only in 74th place.

It is worth noting that the most appreciated dimension for Romania belongs to Food quality and safety (it measures the variety and nutritional quality of average diets, as well as food safety): the position of our country is in 24th place, relatively close to Germany - position 18 , Poland = 40, and Ukraine 55.

While Natural resources and resilience (evaluates a country's exposure to the impact of climate change; its susceptibility to risks related to natural resources; and how the country adapts to these risks), show very low values Romania 52.6% (41st place ), Ukraine – 49.3%, Poland - 65.0% and Germany 66%.

Figure 4 Comparative analysis of the dimensions of the Global Food Security Index of Romania, Ukraine, Germany and Poland



Source: data processing by authors

Figure 5 Comparison of the dimensions of the Global Food Security Index of Romania with Ukraine in 2021

Series	Romania				Ukraine				Average score (all countries)
	Score	Δ	Rank	Δ	Score	Δ	Rank	Δ	
<b>OVERALL FOOD SECURITY ENVIRONMENT</b>	72.4	-1.4	29	-2	62.0	3.2	58	9	66.9
1) AFFORDABILITY	81.8	-0.3	40	1	73.9	5.7	58	8	66.8
2) AVAILABILITY	66.6	-0.3	27	-2	51.8	6.2	74	16	56.7
3) QUALITY AND SAFETY	85.4	-3.2	24	-4	71.9	-3.5	55	-7	68.0
4) NATURAL RESOURCES & RESILIENCE	52.6	-4.1	41	-16	49.3	0.2	56	-2	50.8
<b>1) AFFORDABILITY</b>	81.8	-0.3	40	1	73.9	5.7	58	8	66.8
1.1) Change in average food costs	76.0	-0.5	69	5	86.5	26.5	38	57	70.4
1.2) Proportion of population under global poverty line	94.5	0	54	-2	99.8	0.2	9	9	73.9
1.3) Inequality-adjusted income index	66.4	-1.1	35	-2	67.5	0.6	33	2	54.5
1.4) Agricultural import tariffs	72.2	0.5	32	1	77.4	0.2	15	1	63.3
1.5) Food safety net programmes	100.0	0	1	0	50.0	0	74	-1	72.1
1.6) Market access and agricultural financial services	74.3	0.3	50	1	60.0	0.7	67	-1	63.8
<b>2) AVAILABILITY</b>	66.6	-0.3	27	-2	51.8	6.2	74	16	56.7
2.1) Sufficiency of supply	88.4	-2.3	10	-3	62.8	18.6	55	20	58.7
2.2) Agricultural research and development	56.4	9.7	19	18	36.8	12.6	65	34	42.1
2.3) Agricultural infrastructure	60.0	-0.3	34	-2	42.2	2.2	66	6	47.5
2.4) Volatility of agricultural production	56.8	-3.4	74	-5	72.8	-1	49	0	61.0
2.5) Political and social barriers to access	68.8	0.1	38	0	26.3	-0.3	104	1	58.7
2.6) Food loss	91.1	0	12	0	83.2	0	41	0	73.7
2.7) Food security and access policy commitments	0.0	0	77	-8	0.0	0	77	-8	43.8
<b>3) QUALITY AND SAFETY</b>	85.4	-3.2	24	-4	71.9	-3.5	55	-7	68.0
3.1) Dietary diversity	59.7	0	35	0	47.8	0	59	0	48.3
3.2) Nutritional standards	76.5	-23.5	27	-26	47.1	-26.4	93	-51	62.1
3.3) Micronutrient availability	96.7	-0.1	13	0	87.0	0	46	0	78.3
3.4) Protein quality	94.6	0	26	0	81.6	0	41	0	68.4
3.5) Food safety	93.6	0	22	2	84.3	0	67	-2	80.1
<b>4) NATURAL RESOURCES &amp; RESILIENCE</b>	52.6	-4.1	41	-16	49.3	0.2	56	-2	50.8
4.1) Exposure	62.1	0	78	0	52.8	0	99	0	65.0
4.2) Water	10.0	0	52	0	0.0	0	78	0	19.7
4.3) Land	92.7	-0.1	2	0	67.4	0	72	0	70.3
4.4) Oceans, rivers and lakes	6.0	0	99	0	19.7	0	66	0	27.4
4.5) Resilience	98.0	-0.2	11	-2	52.6	0.6	26	-1	69.6
4.6) Political commitment to adaptation	35.4	-20	64	-32	47.2	0	51	-2	45.3
4.7) Demographic stress	94.6	1.9	1	0	94.2	2.1	2	2	59.9

Source: Extract authors <https://impact.economist.com/sustainability/project/food-security-index/Index> - September 2021, accessed June 2022

## 5. Conclusions

Currently, several crises are simultaneously manifesting worldwide, respectively: the crisis caused by the COVID-19 pandemic, the crisis caused by the military conflict in Ukraine, the food crisis and the crisis caused by climate change. Under these conditions, the dimension of food security must be addressed both at the national and global level. All these crises are putting pressure on food chains around the world and, implicitly, on national and global food security. That is why ensuring food security represents a challenge for all states and a major objective that should be included in all the sustainable development strategies of the states of the world.

According to FAO (2016), food security is an indicator of human well-being and development. The governments of all the countries of the world must develop programs aimed at increasing the degree of food self-sufficiency, this being achieved from their own production, and, where the national agri-food sector cannot provide the necessary food from domestic production, then the food deficit is ensured from imports.

Given that Romania has a very high production potential, our country can and must become an important supplier of agri-food products both for the domestic market and for the European and world markets.

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- \* \* \* Sustainable Development Goals
- \* \* \* Report of UN Development Program
- \* \* \* Global Food Security Index 2021
- [https://www.eea.europa.eu/ro/publications/state\\_of\\_environment\\_report\\_2007\\_1/file](https://www.eea.europa.eu/ro/publications/state_of_environment_report_2007_1/file)
- <https://cdn4.libris.ro/userdocspdf/827/Teoria%20sentimentelor%20morale%20-%20Adam%20Smith.pdf>

## Evolution of Business Ethics

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### Abstract

*In the present article, a meta-analysis on the subject of business ethics is proposed. The issue has been a field of interest since the beginning of the early commerce forms, when the bartering was predominant, and was based on the principal of equal exchange. Many prominent philosophers and economists have taken an interest on the subject and have exposed theories regarding the concept of the business ethics, how has appeared and the evolution of it together with the development of the business environment.*

*As mentioned, the subject has suffered many transformations as time has passed and it became more important once the globalization trending of the countries has also evolved. Nowadays, due to the interconnection between all the people, the companies must take great precaution in this subject, as the customers have also evolved and are paying more and more attention to the ethical aspects of their preferred companies.*

**Key words:** globalization, business ethics, evolution, companies, customers

**J.E.L., classification:** L14

### 1. Introduction

The concept of business ethics has its origins in the earliest forms of bartering, when the principle of the equal exchange was in the middle of the whole business life. The topic has been addressed by philosophers like Aristotle, and the idea he formulated on justice and economists like Karl Marx, and his assault on capitalism. However, when we address the modern business ethics, we bring into light the problem of anti-big business protest movement that occurred in the United States at the beginning of the '70s. Due to the evolution of the people's life in general, this subject has also presented changes and saw many forms. It has become gradually an academic field on its own right, with empirical and philosophical branches.

The government has started to be also interested in the problem of business ethics, but because of the legislation approved, ethics has been introduced in the business field, which today we put the problem in the area of social responsibility ways of action and the code of conduct. This being said, in the present, business ethics has come to be on one side a very well-established academic field and on the other side, a topic that companies have come to the understanding that they are going to have to manage it and put its principles into practice internally.

Thus, being said, when we are talking about business ethics, we mostly refer to the moral principles and pillars that guide and harmonize the operations of a company or business. The issues that commonly fall under its incidence include the employer-employee relations, problems regarding discrimination, environmental issues, bribery, insider trading and the social responsibility of the said company. While there are many laws and regulations which have the purpose of setting the basic ethical standards within the business communities, it is mostly highly dependent on the leadership that the business has, and it falls in its jurisdiction to develop a code of ethics. The mentioned code has the task of regulating the internal affairs of the business and offer solution to different situations that may arise in a company.



## 2. Literature review

The subject of business ethics is widely seen in the literature of specialty. We start from the *Nicomachean Ethics* (V.5), writing done by Aristotle who referred mostly about the “exchange of equals for equals”; then in *Politics* (I,8-10), he elaborately approached the thematic of “the art of acquisition”, as a small part of the ethics within the household, trading and usury. If we go further in time, we stop in the modern era, in the time of John Locks (1690), who developed a strong defense for the private property, as a common right on the labor, that one put into the fact of securing the respective assets.

Another prominent representative of economics, which has taken upon his scrutiny the problem of business ethics, was Adam Smith, who composed the work *A Theory of Moral Sentiments*, before the more notable writing, *The Wealth of Nations*. The fact, which applied in the times of Adam Smith, was that he wrote about business ethics; however, the subject was lacking in the business he was witnessing at that time. David Hume, John Stuart Mill and many others like them, were also interested in the subject and have approached the topic of morality or ethics of the brand new system which was in the process of developing, the free-enterprise economic system.

The most vocal of all economists who wrote about or approached the subject of business ethics has been Karl Marx, who has developed the most trenchant assault upon what he considered now, capitalism. He thought of it as a moment in the history of business and humankind which was necessary, as he admitted that in this time productivity has developed the most of all times, however his problem was mainly with the fact that all benefits following the increase in productivity were taken only by a few, when there was plenty for all.

All this approached by different writers, thinkers and economists have added important works to the subject of ethics in business, considering that if they wouldn't have been, the subject wouldn't have been widely known, discussed and appreciated. Although, ordinary people probably do not have knowledge of the mentioned writings, and all that they know about the subject is taken for granted from one person to another. As example of such practice, we can take the subject of private property, as little to no thought or debate is offered to the press or media outlets in order to morally justify the private property.

As mentioned by some, Karl Marx's criticism of capitalism has never taken too much power in the Unites States economy, unlike what was the situation in a lot of European countries, as in the states there was never a democratic socialist political party in power there. However, even though it didn't get noticed in the political area, his criticism on exploitation, he condemning the fact that having commodities were put on a higher level than people and judging people only by what they have and not through what they are in reality, resonated very highly in the American culture, even though they may have denied it or they may not be entirely aware of it.

The ethics in business has another side, which has been analyzed and exposed. The mentioned side has its beginnings in the core of humanity, in Christianity. We can put the beginning of business ethics in the Judeo-Christian teachings, that dates back to the time of the Ten Commandments (Exodus, 20:1-17; Deuteronomy, 5:7-21), more so the ones which have as teachings *not to steal* and *not to bear false witness or lie*.

Not only has Christianity the mentioned teachings, we can also find similar teachings in the Islam, Buddhist, Hindu and Confucian. The Muslim businesspersons are actually quite renowned for their business morality and correctitude. When trading with people from different religious beliefs, one must nonetheless take into account this aspect, as for some cultures, if the aspect is not taken into account, it may appear as an insult to their address.

## 3. Research methodology

In the research methodology part, we are going to put the accent on analyzing the existing data and extracting from it the main results and conclusions. The importance of ethics in business can be highlighted from two perspectives: a positive one, according to which the utility of ethics is intrinsically (from where the notion: *good ethics, good business* comes); and the negative one, or Machiavellian, that proposes the fact that ethics is only useful just because not complying with ethical principles is more expensive.

In the positive perspective, practicing ethics brings advantages on the market, due to the fact that the involved customers are taking into account the ethical values when making choices and taking decisions. This idea is backed-up by many empirical and market researches. For example, a team of researchers from the Institute of Business Ethics, have studied the relationship ethics in business – business performance and have reached the conclusion that there is a positive link between the attention given to ethics and the financial performance in the companies which conduct themselves after ethical principles, in contrast to those who don't abide by ethical principles.

Moreover, the companies, which follow ethical codes, benefit from the trust of the stakeholders, from where it results a solid reputation, improving the relation with the investors, rising the goodwill, and a better understanding and preparation of crisis/change situations, etc.

Another important research done in the field was on a sample of 1000 adults from Great Britain by the company Fraser Consultancy, and emphasize the fact that approximately 34% of the consumers often bring into discussion the company's behavior, the percentage of those involved in this kind of discussion being extremely high, especially on the 24-34 years old segment (63%). The respondents were asked to give points to companies acknowledged through their ethical behavior, defined as the way in which the respective company treat their employees, suppliers, clients and the environment.

The above findings were from the positive perspective. However, as mentioned, we also have a negative side of the business ethics. Not necessarily from the topic's fault, but more due to the ill-intentioned executives who believe that they may sidestep some steps or that they are able to deceive their customers. There are many examples of how not abiding by the ethical principles can lead to losing market advantages. We can list some of the most well-known scandals, like Texaco in 1997, which was accused of discrimination by six employees, or Ford in 1999, affected by the explosion at their factory in Michigan, Amoco in 2002 accused for toxic spills, etc. The mentioned companies were indeed affected negatively by the mentioned situations, however they had the opportunity to regroup and start over, and the same cannot be told for other companies, like WorldCom and Enron from the US, MG Rover from the UK and Parmalat in Italy. Those companies were unable to restart after ethical scandals, which put a lock on their businesses.

Research done by the PR and communication company Weber Shandwick on a sample of 950 executive managers from 11 countries from North America, Europe and Asia on the subject of reputational risks, brings out the fact that the principles factors which "protects" the company's reputation are their relation with the local communities (47.5%) and corporate social responsibility (52%), during which threats come from the below moments:

*Table no.1 Main reputational risks*

Financial irregularities	72%
Unethical behavior	68%
Faulty management	64%
Trading classified information	62%
Not following environmental regulations	60%
Faulty products	60%
Deviation from the law	59%
Accidents	59%
Strikes	40%
NGOs protests	38%
Association with questionable partners	38%
Support for unpopular politics	38%
Public controversy over the salary level of the management	36%
Online attacks and rumors spread	25%
Departure of managing directors	17%

*Source:* Safeguarding Reputation Survey

As seen in the above table, the unethical behavior is mentioned by 68% of the respondents, a quite important percentage, considering the fact that the customers/consumers have a very important saying into the evolution of businesses. What is more surprising perhaps for some is the fact that the

unethical way of doing business is on the second place after the financial irregularities, which proves that the consumers are more and more involved and attentive to the ethical factor of the companies from where they acquire goods/services.

We have to specify the fact that there are differences in the corporate reputation appreciation: the biggest risks for the American businesses are the violation of environmental regulations; for the European businesses are the defective products, and for the Asian ones, work accidents.

According to studies, 90% of companies, which compose the top Fortune 500 World's Most Admired Companies, have well established ethical codes that dictates the way of solving different conflict interests, problems that arise when offering gifts, fraudulent practices, the private character of some information, etc. In other words, the presence of a company in an international top, such as Fortune is if not conditioned, or at least influenced by the ethical component.

The Ethical Brand Study, EBS, is a study done by GfK NOP on a sample of 5000 consumers, from five different countries: the US, the UK, France, Germany, Spain and which has been published after completion in the Financial Times. The respective study has established which brands are the most ethical ones, based on some characteristics that are accomplished.

*Table no.2 Characteristics of the ethical brand*

<b>The characteristic</b>	<b>Percentage of respondents</b>
Treats the employees respectfully	70%
It doesn't harm the environment	77%
Offers good working environments	75%
Pays the suppliers correctly	73%
Promotes the healthy life-style	69%
Practices a correct commerce form	69%
Doesn't work with companies that don't respect human rights	67%
Has an active policy for corporate social responsibility	63%
Has sustainable businesses	62%
Doesn't work with companies that produces guns	59%
Helps local community	58%
Doesn't work with companies that doesn't protect animals	54%
Sells healthy products	51%
Promotes a balanced image of one's body	49%
Makes charitable donations	39%

*Source:* Ethical Branding Report

Big tech companies have been situated on the front positions in the annual ranking of the Fortune magazine. In 2022, Apple, Amazon and Microsoft have been on the first, second and third position in this order, for a third year in a row. Apple is already a veteran of this ranking which he runs it from the first position for the 15<sup>th</sup> straight year. Companies that were on the front lines during the battle with the global pandemic, which has gone into its third year with no stopping, have gained new respect from ordinary people who relied on those enterprises to develop cures for the virus. Pfizer, which is a co-developer of one of the most competent vaccines against COVID-19, jumped all the way to no.4 in the ranking, this being its first appearance on the list in 16 years. Moreso, Danaher, no.37, who had COVID equipment for the drug developing and tests, were very crucial tools in the fight that has been going against this virus, and debuting in the top 50.

#### **4. Findings**

The findings of the research have brought out the fact that the entrepreneurial behavior denotes a series of actions that put the entrepreneur with situations in which their decision challenges the existing moral standards of the said businesspersons. Considering this fact, we can assess about ethics that it can be seen as the critical and normative reflection of morality itself.

Overall, the findings of the article present the fact that *ethics* questions the conventional rules of what is good and bad. Those rules and principles of it are used internally – consciously and subconsciously – by every individual and reflect the moral judgements of society. At its core, ethics serves as a tool for each individual to have a critical and independent thinking, resulting in the reflection and autonomous decisions regarding moral issues. Thus, being said, ethics can be seen as the theory of moral behavior.

Morality can be understood as the practical implementation of ethics, as it aids in the translation of the concept of ethics into something that is more tangible and approachable and which can be applied in society. By addressing, studying and expressing the terms of ethics and morality, it becomes clear the fact that they are closely related, even though their meaning is not very congruent. The literature often criticizes the lack of a proper definition for each term, which can result in the misunderstanding, or even drawing misleading conclusions.

The problem is that practice shows the fact that it can be difficult to draw a clear line between ethics and morality, as they are generally used synonymously. From the point of view of science, making this distinction between the two terms is very important, as it not only enables a comprehensive discussion within the topic of ethics, but it also permits a much more specific explanatory approach, including very different levels and perspectives.

In the business area, the literature maps out a number of other so called *ethical dilemmas* that evolve in the entrepreneurial context. For instance, many ambiguous questions regarding whether the expected outcome for society is in accordance with ethical principles and personal values which holds and are required by the entrepreneurial organization. Further, the executives' own personality and value set has on ethical principles and standards the organization implements at a certain stage may be subject to questions causing ethical dilemmas.

What can still be concluded is the fact that upon creation, a company is already imbedded with a certain set of values. The problem arises after it begins doing business, as the morality aspect and ethical principles cease to be as important as they were at the beginning. These specific values, in particular, the way of handling the relationship with the stakeholders, is related to the business idea, the product, its corporate form and other factors; but the values of the organization are highly precious and they are shaped by the personality of the founder, the entrepreneur himself.

Finally, yet importantly on our findings, was the fact that making ethical compromises can directly affecting the company's performance and its ultimate survival or failure as it is. One of the reasons for this is that ethical behavior is slightly based on the moral calculations, which can only be achieved through reasoning and reflecting on committed actions. The findings of this article are meant to contribute to the contemporary literature through better carving out the different contexts and intersections between the notion of ethics and the entrepreneurship on a more individual, organizational and societal level of analysis.

Another point to be noted on the findings area is that nowadays reputation is well recognized and treated as a distinctive and intangible resource in the way that companies are assessed today. Without a single doubt, the confluence and meeting between globalizations, news which are shared instantaneous and journalism done online, magnifies any wrongdoing done by the firm or any misstep.

What companies are to learn from this is also the fact that rebuilding reputation after an ethical scandal is not easy and should not be treated easily. The conclusion to which many corporate executive believe and adheres to is that it is much harder to come out from a reputation failure than it would be to construct it from scratch and maintain it. This whole rebuilding process after an ethical scandal is neither easy nor is it short-term. It involves a lot of hard working into constructing what it has been damaged.

## 5. Conclusions

What companies must remember and accept is the fact that firstly, the concept of ethics has been known of since a very long time and is of high importance even nowadays for the well-being of a company and its reputation. More and more companies are intentionally managing culture as a strategy for organizational ethics. However, there are still very little practical tools and approaches that can be used in order to deal with the complexity that is the issue of fostering cultures in which

ethical considerations would be a very common part of the business life and discussions and of the decision-making process.

Over the years, growing attention has been paid to the ethical, environmental and social dimensions of business. Much of the early literature and studies have focused on contributing to defining the concept of ethics, its beginnings and application to the business environment.

What is of importance to point out as one of the study’s conclusions is the fact that companies should pay importance to this field; as the world has evolved, as globalization has become more and more predominant and has interconnected the countries, businesses have flourished and are interested in conquering new and new markets. However, in the rush that they are, they should be very careful so that to not stray too far from the ethical principles and ideologies as the consequences are extremely high and expensive.

The present research has accomplished a very important objective. The one to show and argument the fact that the presence of ethics in our lives is happening since the early forms of bartering, but it has evolved and adapted to the new ways of doing business and business environment.

From this article, executives should collect the fact that they should be very careful when doing business and choosing on which path the company is most likely to go. The entrepreneurs have the most important of all objectives: to draft the best of strategies which involves applying ethical principles, in order to have a successful and fruitful business reputation. What executives must always remember and carry with them is the fact that from many examples, it costs more to have a damaged reputation than to build one. They have to also remember that a strong and undamaged reputation contributes to a high financial performance from the company and the results will always be the most advantageous for them.

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## Evaluating the Internationalization Process of Firms: Methods and Dimensions

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### Abstract

*The term internationalization has been mostly used to show the outward expansion movement of companies where they aim at capturing a bigger market share outside of their home country. The topic of internationalization has been intensely studied over the years, capturing the attention of both the academia and the business environment. The aim of this paper is to analyze the initial models of internationalization and gain a better understanding of the process and its course over time. After conducting the business literature review, there have been highlighted 6 dimensions of the internationalization process: speed, intensity, geographic location, operation method, cultural and organizational structure, and the aim of this paper is to discuss the main internationalization dimensions and the way the process has adapted to the current business environment.*

**Key words:** internationalization, methods, dimensions

**J.E.L. classification:** F23, L25

### 1. Introduction

The internationalization of firms is a well-known topic in the business literature as it is appealing for both the academia and the business environment. The process of internationalization is the method used by companies to expand their economic activity outside the home country in order to capture a larger market share. Through the process of internationalization, companies contribute to the growth of world economy and help develop the process of globalization where countries around the world become interconnected. Johanson and Vahlne (1977) define internationalization as the multi-level process where firms strive to strengthen their market involvement and gradually obtain commitments from foreign consumers; moreover, the authors consider that internationalization is largely a matter of establishing relations in foreign markets.

The technological advancements and the development of communications have led to a reduction of physical distance on a global scale, therefore a company must take into consideration other competitors in order to accomplish its economic goals. Dicken (2004) states that the process of globalization is a geographical process and for a good understanding, we must consider how time, space and location are impacted by contemporary changes in technology or economic and political practices. The process of internationalization has also suffered changes over the course of time due to technological advancements and this paper offers a different perspective on how the current business environment is impacting the way companies expand their business outside of the home country.

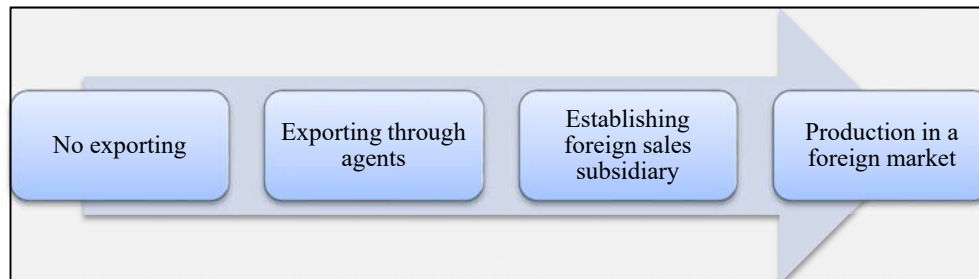
### 2. Literature review

Fernandez and Nieto (2005) claim that the process of internationalization is considered the most complex strategy that a company can implement and when it comes to taking the decision whether to internationalize or not, the first question that needs to be answered is why a company would want to proceed in expanding globally. Researchers in the field have tried to create a model applicable to

all companies as to why they would want to extend internationally, but the complexity of the internationalization process makes this hard to achieve because there are many determinants that influence the phenomenon. In 1993, Dunning built a model that includes 4 categories of reasons why firms internationalize: (1) the search for new markets, (2) the search for new resources, (3) efficiency improvement and (4) strategic reasons. These categories of reasons are still common in the current literature, where the search for new markets and resources applies to most of the companies.

In today’s society, the international business environment is becoming more complex, where small and medium-sized companies, as well as large multinational firms, implement different internationalization strategies to serve the global markets. The internationalization process has been studied through different theoretical frameworks and models, but prior to the 1970s, this was a less familiar topic. The Uppsala modeled, developed by Johanson and Vahlne, is one of the most cited and well-known models in the business literature. The authors claim that internationalization is a gradual process of company involvement, and the economic environment and the challenges faced by the company during the process determine the pace of internationalization. The Uppsala model explains that the process of internationalization generally begins in a nearby foreign market and over time, once knowledge and experience are gained, the firm will increase its involvement in global markets. The information needed for a company to succeed in an international market is gradually accumulated with its experience. The Uppsala model suggests that companies are usually going through 4 stages: (1) economic activities without exporting, (2) exporting through independent agents, (3) setting up sales subsidiaries in a foreign market and (4) opening a production subsidiary in a foreign market. The model is transposed in the figure below:

Figure 1: The Uppsala Internationalization Model



Source: (Johanson and Vahlne – The Uppsala Internationalization Model, 1977)

The succession of stages above represents the increasing commitment of resources allocated to global expansion. The first stage does not offer any international experience, during the second stage the company has an information channel to the new market and receives limited information about the business environment, and stages 3 and 4 take place in foreign countries and the company has extensive international experience.

The business literature does not have a clear perspective for analyzing the internationalization process and there is no general applicable formula for success in global markets. The business environment is constantly evolving, and there is no model or theory that has plausible explanations for all needs of the companies.

The process of internationalization has been studied mostly from a singular dimension perspective and due to a fast pace changing business environment, it wasn’t until recently that the acceptance of multidimensionality stood out. The main dimensions of the internationalization process that have been identified in the business literature are speed, intensity, geographic expansion, operation method, cultural and organizational structure.

The speed of firm internationalization is defined as the time required for a company to reach a certain level of internationalization, and it’s measured by the number of years that have passed from the birth of the company to the first international economic activity. Johanson and Kalnic (2015) stated that the speed of internationalization can vary depending on the degree of the company’s commitment to international activities.

The intensity of the internationalization process generally refers to the degree of involvement that a company has during its global expansion process, and it is based on specific decisions taken by the company’s board members. Paul and Gupta (2013) believe that the intensity of the internationalization process is given by the level of resources allocated for foreign investments, and these choices are made by the members of the decision board of the company.

The geographical dimension of the internationalization process refers to the fact that generally, the border crossing and the establishment of operations abroad is necessary for a company to internationalize. Given the access to technological advancements such as the Internet, the geographic distance is not as hard to cover, the world map becoming smaller and countries more interconnected.

The method of operations refers to the way of organizing business activities in a foreign country (Hill et al., 1990); in other words, it is the governance structure that allows a company to develop and grow international economic activities. Usually, the company chooses its first operating method in a foreign country depending on its financial resources, and as the business grows, the operating method progresses as the company allocated more resources to mitigate risks. The table below shows the hierarchy of entry modes based on resource allocation:

*Table 1: The hierarchy of entry modes based on resource allocation*

No.	Operating method	Resource allocation hierarchy
1.	Indirect exports	1
2.	Direct exports	2
3.	Licensing/franchising	3
4.	Manufacturing contracting	4
5.	Management contracting	
6.	Turnkey projects	5
7.	Strategic alliances	6
8.	Joint venture	7
9.	Acquisitions and mergers	8
10.	Greenfield investment	9

*Source:* Polesello, D., Amal, M. – Determinants of International Entry Mode Choice, 2012

Table 1 illustrates the hierarchy of operating methods according to allocated resources, where 1 represents the lowest resource involvement for the company and 9 represents the highest level of involvement.

The cultural dimension refers to differences in language, political system, level of education, level of logistical development and other disruptive factors that can influence the flow of information between the company and the market. Beugelsdijk and Mudambi (2013) claimed that cultural differences between 2 countries are the most widely used type of distance in international business, and this shows the importance of cultural factors in shaping consumer and organizational behavior.

The organizational structure refers to the way a company is structured before, during and after the internationalization process as it is almost mandatory to create new departments to support the company’s activities in foreign markets. According to Garri and Konstantopoulos (2013), the major factor that determines changes in the organizational structure of the firm is the change in strategy, and as internationalization is considered one of the most complex strategies that a firm can follow, there will certainly be some structural changes throughout the company.

### 3. Research methodology

The current research relies primarily on secondary data research such as reviewing information that was readily available and could be easily accessed via the Internet. The data was free of cost, available through the university’s database where academic journals referring to the internationalization process could be downloaded. There have been downloaded roughly 35 academic articles using keywords such as: internationalization, dimensions, firm internationalization. Research works of various scholars have been studied and the information was presented in a detailed matter.



#### 4. Findings

Given the complexity of the current business environment, internationalization pioneer models like the Uppsala model do not always apply to all firms. Moreover, the internationalization process has become so elaborated that firms must consider multiple dimensions of the process in order to achieve their economic goals globally. Throughout the literature review, I have observed that certain aspects of the internationalization process have not been studied as intensively before. The corporate social responsibility activities have become common business practice around the globe, and the few studies that have been done on this topic show that there is a positive relationship between the process of internationalization and CSR. Brammer et al. (2009) concluded that companies that were involved in CSR campaigns had a higher degree of internationalization; however, most of the studies done on this topic have taken place in countries with highly developed market economies. Through CSR activities, companies can mitigate risks that they are being exposed to caused by the changing business environment when entering a new foreign market, thus it is important to consider this dimension when studying the internationalization process.

Modern communication technologies are transforming the business environment, the Internet offering both countless opportunities and new challenges to firms that are choosing to expand globally. Sinkovics and Penz (2005) argue that due to the Internet, internationalization is a more viable and less expensive option for companies. Coviello et al. (2017) stated that digitalization has an impact on global expansion in terms of accessibility of resources, knowledge acquisition and development of new skills in foreign markets. Similar to the CSR dimension, the information technology dimension that I’m proposing has not been studied extensively due to its recent appearance in the current business environment, however, the few studies that were found on this topic indicate that IT does impact the process of internationalization.

The following table includes the 6 pioneer dimensions of the internationalization process and the 2 newly proposed dimensions with their afferent summarized definitions

*Table 2: The hierarchy of entry modes based on resource allocation*

No.	Dimension of the internationalization process	Indicator proposed
1.	Speed dimension	• Time required for a company to reach a certain level of internationalization
2.	Intensity dimension	• Degree of involvement that a company has throughout the internationalization process
3.	Geographic dimension	• Geographical regions where company operates
4.	Operating method dimension	• Mode of operation that a company choose for its international activities
5.	Cultural dimension	• Disruptive factors that can influence the flow of information between the market and the company (differences in language, education, beliefs etc)
6.	Organizational structure dimension	• Structural mechanism of the company that allows it to perform international activities
7.	Corporate social responsibility dimension	• CSR activities that help the company build a stronger base for international activities
8.	Informationa technology dimension	• Digital presence of the company in order to help reduce distance between countries

*Source:* author’s representation

Table 2 enumerates the dimensions of the internationalization process along with their respective short definitions. Depending on the needs and purposes of the company, companies can focus on a mix of the above dimensions to help the internationalization process become successful.

## 5. Conclusions

The process of firm internationalization is multidimensional, dynamic, and constantly changing, and even though it is a topic that has been studied for decades, there is not a clear way that a company can follow and gain a competitive advantage over competition. The way companies internationalized 30 years ago and the methods they use today can vary extensively due to changes in the business environment such as the use of technology or the impact that the political decisions have on international business legislation. For further research, I strongly believe that the CSR and IT dimensions need to be given more attention as they are heavily impacting the way a company can internationalize. CSR is a common business practice in today’s society and helps companies have a positive impact on the community, environment or employees. Lastly, the IT dimension influences a larger number of companies that are choosing to internationalize using online tools, thus further research needs more focus on how companies are using digitalization to internationalize.

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## Views on China's International Economic Relations and the Key Dimensions in the Context of Economic Globalization

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### Abstract

*The purpose of this article is to explore China's international economic relations from the perspective regarding the implications of China's current Five-Year Plan for the economic growth and the country's role in the global economy, in a world marked by the post-pandemic recovery and China's stance on economic diplomacy. China's flagship economic cooperation, under Belt and Road Initiative, the "1+6" Round Table and "17+1" Cooperation with the countries in the Central and Eastern Europe reflect China's export of an alternative growth model based on investments in infrastructure and technology. Nonetheless, EU deemed China as a systemic rival and takes a more assertive stance on trade with and investments in China. The main conclusion is that China's international partners voice out the need for fair market access and equal opportunities on level-playing field economic competition on the markets, calling for reciprocity in international relations.*

**Key words:** China International Economic Relations, Five-Year Plan 2021-2025, Belt and Road Initiative, 1+6 Round Table, 17+1 Cooperation

**J.E.L. classification:** D60, F10, F15, F21, F50, F53, O20, O30, P20, R38

### 1. Introduction

The aims of the paper are to explore China's international economic relations under the current economic context, to describe and analyze the implications of China's current Five-Year Plan for the economic growth and to provide an integral viewpoint on the country's role in the global economy. The context of the research outlines China's dynamics from the perspective of its stance on economic diplomacy in a world marked by the post-pandemic recovery, but starting from the beginning of its opening-up and internationalization strategy in the 1990s and early 2000s, until nowadays.

Since China began opening-up and reforming its economy, the GDP growth has averaged nearly 10 percent a year, and more than 850 million people have recorded incomes above the poverty line, i.e. a daily minimum income of \$ 1.90 per person (World Bank, 2021). China has progressively emerged as a middle-income country and is now the second largest economy in the world, after the United States. However, its per capita income is only about a quarter compared to the high-income countries and about 373 million Chinese still have incomes below the \$ 5.50 a day threshold.

The broader context of China's economy is under the aegis of the 100th anniversary of the founding of the People's Republic of China, in 2050. China is currently the second largest economy in the world, with about two-thirds of the US economy size and economic planning sends a strong message regarding its stance on the future international economic relations (Global Times, 2020, a). With China's GDP per capita remaining below \$ 10,000, about one-sixth of that of the United States, China's economy has a potential for growth through trade participation, in globally integrated distribution of value-chains, continued structural reforms and internal market reform, by maintaining an international openness policy, by urbanization and by significantly improving its human capital.

China is aiming to optimize the business environment, to implement accountable use of resources and efficiency, to promote reforms in the tax system and in regards to the labor and employment law, as well as to explore how to make use of state guarantees in emerging areas such as digital services and FinTech. On the other hand, China continues to expand its investments abroad, promoting the Belt and Road initiative through investments in infrastructure and foreign companies operating in

key areas such as research and technological innovation. Regardless of the economic development or industrial transformation (Stern, N.; Xie, C., 2020), China will also rely more and more on domestic consumption, supported by fiscal reforms for the sustainability of household incomes.

China's economy has slowed its growth towards the end of 2021. The main negative factors are: (i) the introduction of restrictions to control outbreaks of COVID-19 Delta infection, (ii) the declining consumption and (iii) the adoption of prudential measures aimed at the real estate sector. The International Monetary Fund estimated, in 2018, that a \$ 1 billion increase in China's GDP in 2008 required investments of \$ 1 trillion, while in 2016, for the same GDP growth, investments of about \$ 3 trillion were needed (Chen, S.; Kang, J.S., 2018), which indicates the growing need for capital investment, given the Chinese economic growth model, especially through infrastructure. In 2019, China's real estate market accounted for about 10 percent of GDP (Zhang, W., 2022). Chinese authorities have tightened the access to finance for real estate developers (State Council of China, 2021, a) and slowed down mortgage lending, to prevent financial risks and reduce the economic growth dependence on real estate sector (State Council of China, 2021, b).

## 2. Theoretical background

### **The National Economic Development Dimension**

A key instrument for policy guidelines in China is the "Five-Year Plan" as bi-directional and bi-functional instrument. The authorities initiate the process "bottom-up", involving all the stakeholders in the Chinese society and then, is centralized, prioritized and implemented "top-down". During October 26-29, 2020, the Fifth Plenary Session of the Ninth Meeting of the Central Committee of the Chinese Communist Party (CCP) was held. During this event, the 14th Five-Year Plan for the period 2021-2025 emerged as a strategic focus for development over the medium term (State Department of China, 2020, a). According to Chinese Premier Li Keqiang, this document guides China's development through a complex multi-level strategy: social, economic, political, cultural and emphasizes optimizing economic governance through a holistic approach, that seeks to achieve a dynamic balance between multiple goals (State Council of China, 2020, a). China's five-year planning reflects a roadmap that sets out the development vision and gives predictability to the future actions of the Chinese government. Based on broad social assent, the country's five-year plan demonstrates a stable and consistent policy, providing a guiding framework for foreign investment in China. According to the Chinese authorities, the five-year plan has been developed through wide-range contributions from stakeholders in society (CGTN, 2020, a).

The guidelines of the Five-Year Plan outline four major coordinates for economic development: (i) ensuring sustainable economic growth through economic policy guidelines through specific lines and programs, (ii) further transposition of the "dual circulation" model, a concept that addresses the external vulnerabilities and international trade tensions through a reorientation of the development model towards the internal market and the domestic consumption, (iii) technological development, digitization and increase of economic productivity, and (iv) the transition to a greener economy.

President Xi Jinping outlined that China intends to take a two-step approach to achieving the goals of long term (State Department of China, 2020, b). In the first stage, from 2020 to 2035, China will pursue social prosperity through notable developments in areas such as technological innovation, expanding the social group of middle-income people and improving the environment. China aims to become a world leader in innovation, ecology, social welfare and urbanization. In the second stage, from 2035 to 2050, China aims to build social cohesion and prosperity. Although in the November 5, 2020 communication, no figures have been communicated, the estimates are that, compared to the previous five-year plan, where the average growth rate was 6.5 percent annually, the new plan might forecast a medium-term annual growth rate of 5.5 percent (Choi, R., 2020). In addition, through the Five-Year Plan 2021-2025, China looks to strengthen social reforms on personal income taxation, on the access to education, on various social projects including high-quality urbanization, leading to a stronger middle class (Peng, F., 2020).

The prudential regulations have a role to prevent the deterioration of financial stability (People's Bank of China, 2021), in the context of rising financing costs for bond loans made by real estate developers and subscribed mainly by Chinese commercial banks in local markets (Hale, T; Locket, H., 2021). China imposed the "three red guidelines" to the largest real estate developers in August

2020, in order to curb rising debt levels, rising land prices and accelerated home sales (Li, S., 2021). According to this regulation, real estate developers must submit detailed reports on their financial situation for evaluation by the regulatory authorities (People's Bank of China) and the Ministry of Housing and Urban-Rural Development, as a state building regulator. Regulators assess the financial situation of the real estate developers based on three criteria: (i) the ratio of total debt to total assets (excluding cash receipts) should be less than 70 percent, (ii) net financing ratio to customers should be less than 100 percent; and (iii) the ratio of cash to short-term debt should be greater than 1. If developers fail to meet one, two or all of the "three red guidelines", then the regulators could limit the measure to which these companies can access new loans. In July 2021 the Chinese president reiterated the concept of "common prosperity" (State Council of China, 2021, c) and underlined the importance of affordable housing in a context of high-quality development and coordination of measures, to prevent major financial risks, including the introduction of taxes on national level of property. The tax system is a powerful tool to redistribute value in society through the general and local budgets, reducing the income and welfare gaps in society

### **National Economic Development Dimension is inter-linked with Foreign Economic Policy**

The Five-Year Plan is drafted in a modular manner, which allows the development of complementary projects, strategies, plans and guidelines, supporting the international component of the "dual circulation model" (Deloitte, 2020) which is based on foreign finance and investments, via key vehicles such as the Belt and Road Initiative, the 17+1 Cooperation and the 1+6 Round Table.

### **The Foreign Economic Policy**

The "Belt and Road Initiative" is a central element of China's foreign policy strategy and was incorporated into the Constitution of China, in 2017. The initiative addresses issues pertaining to strengthening connectivity, strengthening policy synergies and promoting the green and sustainable development. Internationally, the initiative is perceived as a way for China to show openness for reforming and supporting development via international financing. The mainstream critique reflects the general perception that the "Belt and Road" increases the dependence to China of the developing states that concluded financing agreements for investments (Ruwitch, J., 2019). These countries' high debt to China through the financed projects is hindered by questionable transparency, being seen as a geopolitical tool to strengthen China's international position.

The "1+6" round table is chaired by the Chinese prime-minister and is attended by six representatives international institutions: (i) Director-General of the International Monetary Fund, (ii) President of the World Bank Group, (iii) Director-General of the World Trade Organization, (iv) Director-General of the International Labor Organization, (v) Secretary General of the Organization for Economic Co-operation and Development and (vi) President of the Financial Stability Board. The focus of this round table is on multilateralism, free trade, liberalization and facilitation of trade and investment, to strongly boost the world economy (State Council of China, 2020, b). The discussion include issues related to the world economy and growth prospects, global economic governance and views for reforms, as well as topics of interest related to economic development, in particular policies on structural reforms and trade opening through international cooperation.

The "17+1" Cooperation is a broad forum between China and the countries of Central and Eastern Europe (CEE). China, as the initiating country of the "17+1" cooperation summit, aims to improve economic cooperation and shape relations with CEE countries (Gupta, P., 2020). With the launch of the initiative in Budapest in 2012, these countries saw cooperation with China as a development opportunity, through investment, trade cooperation and infrastructure development (Cooperation between China and Central and Eastern European Countries, 2020).

A cornerstone of the EU-China bilateral relationship over the past decades is the creation of the comprehensive EU-China strategic partnership, as expressed in the EU-China 2020 Strategic Agenda for Cooperation (Belder, B., 2015). Europe has gradually taken steps to rebalance and strengthen its relationship with China in recent years including via a foreign direct investment screening tool for risks associated to cross-border incoming finances in the member states of the European Union (European Commission, 2020, a), trying to prevent a deterioration of bilateral ties, given tensions between the US and China. 2020 was supposed to be a year of transforming China's relations with the European Union, but the pandemic affected the planned actions (European Council, 2020).

### **3. Research methodology**

The research methodology to approach China's international stance on economic diplomacy and economic strategy for the internal market and the international economic expansion pertains to analysis of changes over time and synthesis of documented authentic scientific and public resources, giving substance to the main findings. The paper is developed using the following methods / techniques of investigation and analysis: (i) qualitative research, to explore in a regressive manner / in a backward looking approach, how past facts and strategies might explain China's stance on trade and economy today, (ii) descriptive research and observations to investigate how the centralized planning of state economy via the Five Year Plan is giving strength and substance to China's power position as key economic actor and partner on the international stage and explain the dynamics of its economic growth on the long-term, emerging as World's second largest economy, (iii) analytical research interpreting China's international economic relations developments, leading to the main findings related on China's economic diplomacy and infrastructure-led economic development, and (iv) applied research, on how China has looked to export its model of economic growth abroad, to use its strengths to consolidate its international role and what are the exposures to international vulnerabilities that China has been confronted with, notably in a post-pandemic global economy.

### **4. Main Findings related to China's key dimensions on Economic Diplomacy**

China, through its current economic and technological dynamism, will continue to develop, having the capacity to revise the "world economic order" (United Nations, 1974), which will determine challenges for the countries, at all levels (economic, political, geo-strategic relations). Since the introduction of the "Made in China 2025" strategy in 2015, 30 pilot cities have developed specific industries and by 2018, almost 25 National Development Zones have been set up to stimulate innovation and production. According to the guidelines in the Five Year Plan, China will reduce its carbon emissions in the next 15 years. China is committed to achieving "carbon neutrality" by 2060, which requires a total investment of about \$ 15 trillion over the next 30 years (Bloomberg, 2020). However, this goal could prove difficult to be implemented, taking into account that China's economy is dependent on coal and oil imports (Shepherd, C.; Zhou, E; Manson, K.; 2020). However, China uses its prominent market size to capitalize on inbound capital flows and trade flows to expand its role internationally, via partnerships and cooperation.

#### **Regional Partnerships in Asia**

China has been the first country to be affected by the coronavirus epidemic and the Chinese economy declined in the first three months of 2020, amid strict lockdown measures, but the economy recovered in the second quarter of 2020 and restarted the economic growth process of growth, ending the 2020 year with a 2.3% growth. The innovation and digitalization are accelerating factors for economic development in China based on investments and the impact is in the sphere of services and the electronic equipment industry. In this context, investments in Chinese or renminbi-denominated assets can be particularly attractive, given China's performance in managing the coronavirus pandemic. China uses state subsidies and aids, especially for the public sector companies, to stimulate production and exports, which can affect competition via an artificially improved competitiveness of exports. Even though, in mid-November 2020, China and the Asian states finalized a free trade agreement (Regional Comprehensive Economic Partnership, RCEP), which extends and deepens ASEAN cooperation (Regional Comprehensive Economic Partnership, 2015), China's more favorable conditions for access to external markets in the region could jeopardize the trade balance of China's partner states in the long-term. If these countries were to resort to the devaluation on long-run, of national currencies against the renminbi (Poon, D., 2020; Stephen, B., 2020), in the current context when trade balances have improved, or in the future when there is a risk of deteriorating trade balances, China could (in both situations) accuse these states of uncompetitive trade-related practices (Babones, S., 2020). Nevertheless, the state would not resort to such strategies under the new RCEP (Global Times, 2020, b), as it might consider opening foreign exchange swap lines with these states, without the intermediation of monetary exchange through the forex market. (Buesa, A., 2020).

### **The Belt and Road Initiative**

During April 25-27, 2019, the second International Cooperation Forum for the "Belt and Road" initiative was held in Beijing (Second Belt and Road Forum for International Cooperation, 2019, a). The intention to reform the "Belt and Road" is reflected in the joint communiqué of the leaders after the second International Cooperation Forum for the "Belt and Road" concluded, in particular at point no. 30, which envisages "*a greater role of development finance in line with respective national priorities, laws, regulations and international commitments, and the agreed principles by the UNGA on debt sustainability*" (Second Belt and Road Forum for International Cooperation, 2019, b). On this occasion, a list of 283 projects (Second Belt and Road Forum for International Cooperation, 2019, c), worth more than \$ 64 billion, was published (Second Belt and Road Forum for International Cooperation, 2019, d), structured on six priority axes: (i) initiatives proposed or launched by the Chinese side, (ii) bilateral and multilateral documents signed before or during the second International Cooperation Forum for the Belt and Road initiative, (iii) multilateral cooperation mechanisms under the auspices of the Belt and Road Forum, (iv) investment projects, (v) financing projects and (vi) projects of local authorities and enterprises.

The global economic downturn has exacerbated credit risks for states participating in the Belt and Road Initiative. China is pursuing an infrastructure development plan and the initiative could lead to a greater intra-regional connectivity among the participating countries. Also, the national economic recovery plans could see an increasing number of projects financed by China through this initiative, that are focused on sustainable infrastructure and digital connectivity. There are some estimates that the initiative now covers 139 countries and China's main funding institutions are "China Development Bank" and "Export-Import Bank of China" (Ghosh, R.; Li, L.; 2020). However, China's foreign policy objectives could be marked by declining Chinese investment flows abroad, compared to previous years, given the lines of the Five-Year Plan and the deterioration of global value chains in the context of COVID-19 pandemic and geostrategic tensions.

A number of international criticisms of the Belt and Road Initiative has aimed China's efforts to influence the technology regulatory frameworks and the digital governance around the world, but also to gain a privileged relationship with indebted states. Such a situation could allow China to negotiate with the indebted countries for more favorable access conditions for local resources and raw materials. In the first half of 2020 during pandemic, the value of China's new trade and investment contracts with the beneficiary countries of the Belt and Road Initiative amounted to \$ 23.5 billion, compared to \$104.7 billion in 2019. Such a decrease is attributed to the increased economic and financial pressure for the Belt and Road partner countries, many of which are small economies, with limited capacity to borrow new debt.

Under G20 Debt Service Suspension Initiative (DSSI) supported by the International Monetary Fund and the World Bank, countries like Zambia, Tanzania and Angola, have asked to benefit from favorable conditions for sovereign debt repayment. China's participation in the DSSI (under the auspices of the G20) provides the African governments with a short-term fiscal space, but the issue of indebtedness remains as a medium-term pressure factor. The Common Framework for Debt Treatment takes over the role of debt restructuring frame from DSSI, for a more transparent and consistent commitments for debt alleviation, to ensure the premises to tackle future liquidity and solvency crises (Dhen, D.; Vasse, T., 2020). However, China's goal of expanding its economic influence and increasing the regionalization of trade could lead to structural changes in the Belt and Road financing, marked by external vulnerabilities among lower-rated and the Belt and Road beneficiary countries, confronted with acute constraints and liquidity shortages, budget shortfalls and, in some cases, an increased risk of default. However, even though some Chinese state-owned companies have high exposures via the Belt and Road Initiative to some states with a high risk of default, China's sovereign exposure through the Belt and Road Initiative can be deemed as limited, when it is compared to the total size of foreign government assets it holds.

### **The "1 + 6" Round Table**

On November 24, 2020, China hosted the fifth edition of the "1 + 6" round table, where the discussions sought to promote openness to higher standards, strengthen the protection of intellectual property rights, encourage fair competition between domestic and foreign enterprises, attract more foreign investment and encourage more Chinese companies to expand their business to worldwide.

From the World Bank's viewpoint, reforms are needed to further support China's development model and the reorientation of its growth strategy, and the 14th Five-Year Plan provides an opportunity to bring about these changes in China's economic policies (World Bank, 2020). The International Monetary Fund raised concerns regarding the unequal economic recovery, marked by indebtedness, trade tensions and climate change with a negative impact. Also, the unsustainable debt should be restructured, as it has been the case through the G20 Debt Service Suspension Initiative and the current G20 Common Framework for Debt Treatments, to which China has contributed. On the other hand, China has an active role to play in promoting multilateral trade in the World Trade Organization, and its environmental policy to achieve a zero-carbon impact by 2060 is welcome (International Monetary Fund, 2020).

On December 3, 2021, the Chinese prime-minister Li Keqiang held the sixth "1+6" Round Table Dialogue and the discussions explored enhancing unity and cooperation for the steady recovery of the world economy (Finance Ministry of China, 2021). The main outcome is that major economies should strengthen coordination on macro policies and jointly safeguard the steady operation of the international economic and financial systems. China will continue the reform and opening up to improve the business environment and stimulate the vitality of market entities and the internal driving force for development. All parties need to promote a green and low-carbon transition, push forward the reform of global economic governance, and effectively tackle global challenges including climate change and development divergence.

### **The "17 + 1" Cooperation**

The ninth "17 + 1" summit between China and the countries of Central and Eastern Europe (CEE) was scheduled to take place in the first half of 2020 in Beijing, but was postponed and held online (CGTN, 2020, b). The progress has been slow in generating the desired economic results and a number of investments and projects are still under discussion, delayed or canceled, raising questions about the future of the initiative. China mobilized \$ 10 billion in loans for investment in CEE, but trade has led to a growing commercial deficit for these CEE states. Chinese foreign direct investment to CEE countries accounted for only 2 percent of total investment in this region (Gupta, P., 2020).

The "17+1" cooperation has been criticized and came under scrutiny due to the controversial investments, highlighted the differences of views in the CEE space related to the relations with China. In May 2020, the Latvian Intelligence Service referred to China as a cyber threat to NATO and the EU in its annual national security report (Kobierski, L., 2020). US Secretary of State Mike Pompeo's August 2020 visit to the CEE countries focused on China's 5G strategy in the region (Kentish, P., 2020), as Chinese companies are interested to invest for the expansion of the 5G network in CEE. The US-China technology rivalry has intensified as the US deemed Chinese technology companies as a security threat. The United Kingdom has initiated a law by which companies operating in 17 strategic areas and which are subject to takeover by foreign investors, will have to notify and request approval of the transaction by the Government, but the law is seen as initiated to counter the expansion of Chinese investment in the British economy (Pickard, J.; Thomas, D.; Warrell, H.; 2020). Such an initiative has been also undertaken by the EU, to scrutinize Chinese foreign direct investments in EU member states (European Commission, 2020).

### **EU-China economic cooperation**

The 2020 bilateral summit, an extraordinary meeting of all 27 EU heads of government with the Chinese leader Xi Jinping, covered topics such as trade and investment, climate change and biodiversity, the response to the COVID-19 pandemic, and international business and cooperation (European Commission, 2020, b). The Comprehensive Investment Agreement (CAI) aims to create a level playing field between Chinese and European companies (European Commission, 2020, c), given that in 2019, the European Commission adopted a more assertive attitude, designing China not only as a strategic partner for cooperation, but also as a competitor and "systemic rival" (European Commission, 2019).

The EU-China Agreement on Geographical Indications was signed on 20 July 2020, with the aim of improving access to the Chinese market, especially for high-quality European agricultural products (EU Council, 2020). EU and China also agreed to establish "high-level dialogues" on the environment and climate, as well as digital issues. EU emphasized the need for reciprocity and a level playing field in science and technology, backed by high standards of ethics and integrity. China



is pursuing a commitment to the Global Data Security Initiative (Financial Intelligence, 2020), given the Chinese efforts to contribute to the international regulatory framework on data and issues related to the digital environment (Ministry of Foreign Affairs of China, 2020).

## 5. Conclusions

Post-pandemic of Covid-19, China has adopted a comprehensive fiscal and monetary support package, which has allowed for early economic recovery and a resumption of economic growth. However, China's export-oriented economy and the investment and technology flows are strongly anchored in the world economy, being exposed to external vulnerabilities. In addition to domestic challenges, China will continue to face external uncertainties related to escalating trade tensions, geostrategic relations and other critical issues. Under these conditions, China's strategy, through planning and inter-related guidance, allows China to pursue complex developments through investment in infrastructure and technology projects. The "three red guidelines" have constrained the real estate developers to resort to selling properties from the earliest stages of the projects, with higher discounts and attractive prices, so that they would be able to continue activity based on cash-in-advance from downpayments. However, with rising raw material costs and restricted financing conditions, the real estate developers experience treasury gaps in accounting (Hoskins, P., 2021).

China's two-stage development strategy by 2050, the "Made in China 2025" strategy, the "Belt and Road" initiative for global infrastructure investments and the regional cooperations, such as "17+1", are modular and allow the transposition of the multi-annual vision for China's development. In line with the Five-Year Plan, China could become a high-income country by 2025, as to World Bank criteria, with estimates that China could record an average growth rate of 5.5 percent a year, to support its development. The IMF estimates that moderately expansionary macroeconomic policies of China will support a balanced growth, supported by reorientation of consumption from public to private demand. In addition, China has good access to international financial markets.

From another angle, China is widely criticized internationally for its heavily regulated domestic environment, lack of transparency and predictability of decision-making processes, for subsidies and state aid to public sector companies and for the safety net given to these companies in situations of financial difficulties. In addition, China's new orientation to technology has raised cybersecurity risks and allegations of infringements of patents and intellectual property rights. The financing of infrastructure projects abroad has attracted criticism regarding the over-indebtedness of small economies, to finance controversial infrastructure projects. China also pursued benefits of public image, as being part of the G20 DSSI, engaging in the process of exempting from paying foreign debt service for the eligible applicant states. These criticisms are also found in the relationship between the European Union and China (Oertel, J., 2020). The EU is a promoter of free, fair, equal opportunities and freedom of movement in the single market, calling for reciprocity in international relations. The distortion of competition through subsidies and state aids, the issue of technology transfers and enforcement of intellectual property rights, as well as other critical aspects for China's international relations, have led to a cautious approach expressed by the European rhetoric.

## 6. Note

The opinions expressed in this paper reflect the personal viewpoint of the author and do not involve the institutions with which the author is affiliated. The purpose of this article is to analyze public data and information. The information is available from public sources indicated for reference, in a complete form and according to specified methodology. Therefore, it is not in the scope of the article to reproduce tables and charts, but to use the relevant data to answer to questions about causes, effects, time, locations, impacts, costs, responsibilities, actions, benefits. This article focuses on a very specific subject (Chinese stance on the international economic relations and its role in the context of globalization) and takes into account a multi-disciplinary approach (financial, economic, policies, etc). As broad topic, it needs future observation, analysis and in-depth survey on all coordinates. It remains open for further research and development.

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# Machine Learning Algorithms and PV Forecast for Off-Grid Prosumers Energy Management

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## Abstract

*The actual context characterized by the high prices of the conventional power gives more and more credit to the Renewable Energy Sources (RES) to cover load requirements in large amounts. However, the volatility of RES (especially solar and wind) restricts their smooth integration into the residential consumption energy mix. One of the main challenges is to maximize the consumption of appliances from RES taking into account their availability. To fulfil this objective, first, a performant forecast is necessary to create the day-ahead schedule and optimize the operation of appliances. In this paper, we propose a framework to perform PV forecast with machine learning algorithms and various data sources for the energy management of the off-grid prosumers.*

**Key words:** renewable energy sources (RES); maximizing consumption from RES; day-ahead forecast; machine learning; prosumers

**J.E.L. classification:** papers P28, Q47, Q29

## 1. Introduction

Pollution, along with global warming, greenhouse gases and heat waves are the worst systemic threat to human civilization according to the Organization United Nations. In the last two decades, strong support has been given to the large-scale renewables-based power plants, but the European Union (EU) targets for 2030 to reduce the CO<sub>2</sub> emissions (by 45%) and integrate RES (32%) are more ambitious, leading the policy makers to empower active consumers (prosumers) and citizen energy communities (COM) beyond example. Yet, the electricity costs are constantly increasing and may range between 10-12% in the income of families without self-generation. Especially in rural areas where disconnections are more frequent, self-generation (photovoltaics-PV, Wind Turbines-WT) and storage devices represent an alternative to reduce the electricity costs and increase the consumers' comfort and secure operation. The necessity of additional research is underlined by the EU Clean Energy Package issued in June 2019 that encourages decentralization of generation and brings indisputable economic and environmental advantages, incentivizing consumers and COM to self-generate from RES. The EU Package has provided the starting point for a new shape of the power systems that are moving to a more decentralized structure. It sets targets for the next decades and empowers prosumers in transition to a sustainable low-carbon environment. Thus, prosumers are expected to reconfigure the path of the power system development. They are now able to consume, generate, store, share and sell electricity to the electricity markets, settle the imbalance, and offer flexibility to the power system as the ICT and other technology progress facilitate these activities.

## 2. Literature review

The prosumers usually have the possibility to generate and consume (off-grid) or consume or inject into the grid (on-grid). For the on-grid prosumers, the surplus of energy is injected into the grid, whereas for off-grid prosumers, the surplus is either stored or the PV panels stop generating

and the energy is lost. Thus, it is more difficult for off-grid prosumers to predict their generation as sometimes the generation is interrupted and unknown not due to the lack of weather favorable conditions, but due to the lack of local load. Another option would be to generate and locally share the energy with the neighbors (Oprea and Bâra, 2021), (Oprea and Bâra, 2020), but in many countries the infrastructure and market platforms are missing.

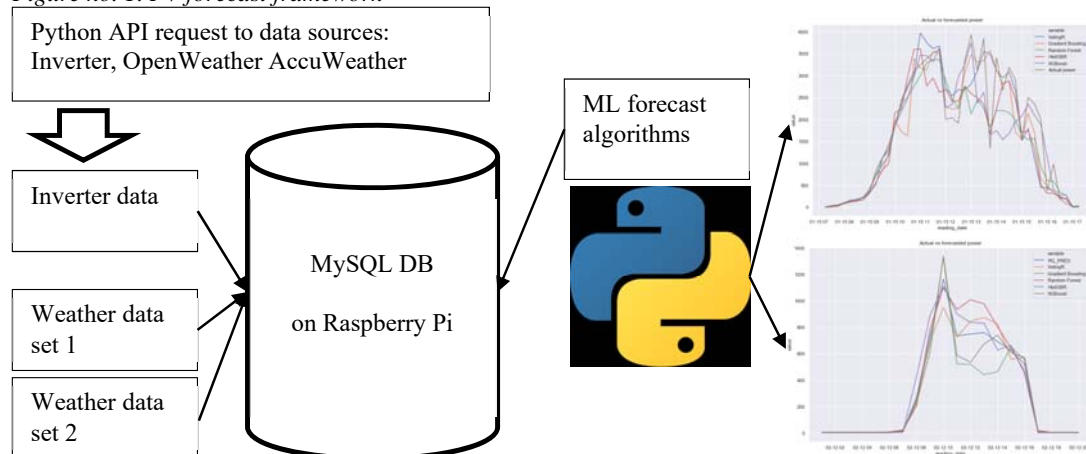
In any case, the PV forecast is necessary to correctly schedule the operation of programmable appliances such as water heater, electric heating system, storage facilities and batteries for the battery-operated appliances. The control of the appliances is performed by means of smart plugs that can be scheduled to be on or off. Thus, especially for off-grid prosumers, it is very important to use the RES when they are available energizing the appliances and storing the energy in storage facilities, battery-based appliances, including EV batteries, water heaters, heating, etc., otherwise the green energy is lost. An accurate forecast provides savings and maximizes the usage of RES leading to CO<sub>2</sub>, deforestation and standard coal reductions improving the environment. Savings come from the optimal schedule of the appliances. For instance, the water heater can operate at noon when the PV panels usually generate more and store the warm water in the water tank, not in the evening when the warm water is used.

Thus, in this paper, we propose a framework with various data sources and Machine Learning (ML) algorithms to perform PV generation forecast and improve the energy management performance at the prosumers’ level. Day-ahead probabilistic PV forecast for buildings in Germany based on historic and weather data was proposed in (El-Baz, Tzscheutschler and Wagner, 2018). A comparative study between parametric using Matlab modelling tool and non-parametric (in R) PV forecast is presented in (Almeida *et al.*, 2017) showing that the parametric forecast displayed more significant bias. However, the forecast can be performed as input data for other objectives such as maximizing the prosumers’ profits (Panapakidis, Koltsaklis and Christoforidis, 2021), (Agathokleous, Tuan and Steen, 2019). In (Giordano *et al.*, 2020), an interesting approach for the scheduling batteries to optimally match local RES, loads, including storage is envisioned. PV generation is forecasted using statistic algorithms and clustering techniques.

### 3. Research methodology

The proposed framework consists in storing the inverter and weather data into tables T\_METER\_READINGS (for inverter) and T\_WEATHER\_READINGS (for weather data provided via websites APIs) into an open database such as MySQL that can be installed on Raspberry Pi. In Python, data is read and processed to perform forecast for the next 24 hours. The 30-days ago generated power recorded at 5 minutes is stored into T\_METER\_READINGS table, whereas the hourly weather data from two websites (OpenWeather <https://openweathermap.org/> and AccuWeather <https://www.accuweather.com/>) is stored into T\_WEATHER\_READINGS table as .json files as in Figure 1.

Figure no. 1. PV forecast framework



Source: Authors’ contribution

The data is read in Python as local variables and processed using join, label encoders, interpolation, scaling the input data with MinMaxScaler() and StandardScaler() and building new features with group by functions and SQL analytic functions.

Interpolation is used to both eliminate null values and mediate the differences in readings. Feature selection aims to identify the most relevant features that are involved in training the model. Then, ten ML algorithms are proposed to train the model: Linear Regression, Ridge, Stochastic Gradient Descent Regressor, Multi-layer Perceptron Regressor, Gradient Boosting Regressor, Random Forest Regressor, XGB Regressor, HistGradientBoosting Regressor, Decision Tree, Voting Regressor. The hyperparameters of the ten algorithms are presented in Table 1. Also, a dataframe acc\_df was created to store the accuracy of the models. In practice, the last five algorithms proved to perform better.

Table no. 1. ML algorithms, hyperparameters and metrics

ML algorithms, hyperparameters and metrics
<pre> acc_df = pd.DataFrame(columns = ['Model','Model name','Train Score', 'Test Score', 'R2_Test']) models.append(("Linear Regression:",linear_model.LinearRegression())) models.append(("Ridge Regression:",linear_model.Ridge(alpha=0.5)) models.append(("SGD Regression:",linear_model.SGDRegressor(alpha=1,max_iter=1000,learning_rate='optimal')) models.append(("MLP:",MLPRegressor(solver='sgd', activation='relu', hidden_layer_sizes=(70,70), max_iter=1000,learning_rate='adaptive', alpha=0.01, learning_rate_init=.01, momentum=0.95, nesterovs_momentum=True))) models.append(("Gradient Boosting:",GradientBoostingRegressor(n_estimators=200, criterion='squared_error',learning_rate=0.05,max_depth=5, alpha=0.03, loss='squared_error')) models.append(("Random Forest:", RandomForestRegressor(n_estimators = 200, criterion='squared_error',max_depth=10))) models.append(("XGBoost:", XGBRegressor(n_estimators=200, n_jobs=8, random_state = 10, max_depth=5,reg_lambda= 0.01, learning_rate=0.05))) models.append(("HistGBR:", HistGradientBoostingRegressor(random_state = 10, max_depth=10,learning_rate=0.08, l2_regularization=0.05, max_iter=100))) models.append(("DT:",tree.DecisionTreeRegressor())) reg1=GradientBoostingRegressor(n_estimators=200, criterion='squared_error',learning_rate=0.05,max_depth=5, alpha=0.03, loss='squared_error') reg2=RandomForestRegressor(n_estimators = 200, criterion='squared_error',max_depth=10) reg3=XGBRegressor(n_estimators=200, n_jobs=8, random_state = 10, max_depth=5,reg_lambda= 0.01, learning_rate=0.05) reg4= HistGradientBoostingRegressor(random_state = 10,max_depth=10,learning_rate=0.08, l2_regularization=0.05, max_iter=100) models.append(("VotingR:",VotingRegressor(estimators=[('gb', reg1), ('rf', reg2), ('xgb', reg3), ('hist', reg4)]))) </pre>

Source: Authors' contribution

The results are graphically displayed, and the metrics are stored and can be easily compared.

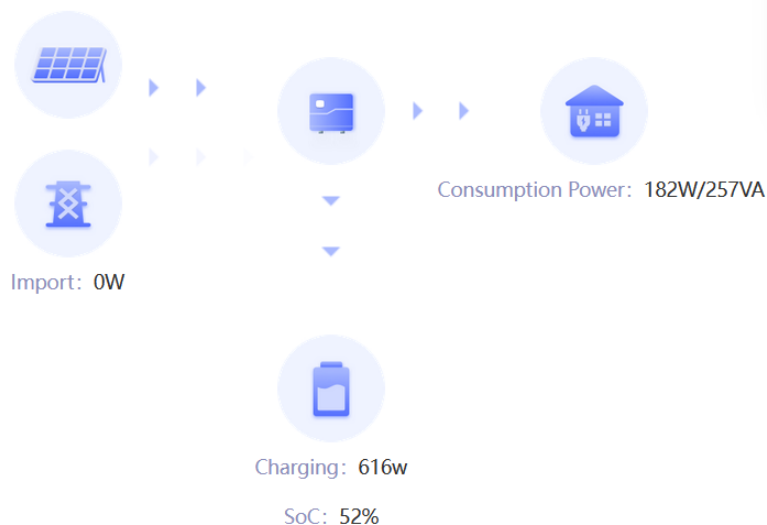
#### 4. Findings

The PV system consists in self-generation of 5.94 kWp PV capacity connected through a off-grid inverter and 8.3 kWh LiFePO4 batteries. A snapshot of the flows is extracted from the application of an inverter as in Figure 2. The PV system generates 827 W that are consumed by the appliances and storage facility. The input from the grid is zero. The State of Charge (SoC) of the storage facility is 52%.



Figure no. 2. PV system operation snapshot

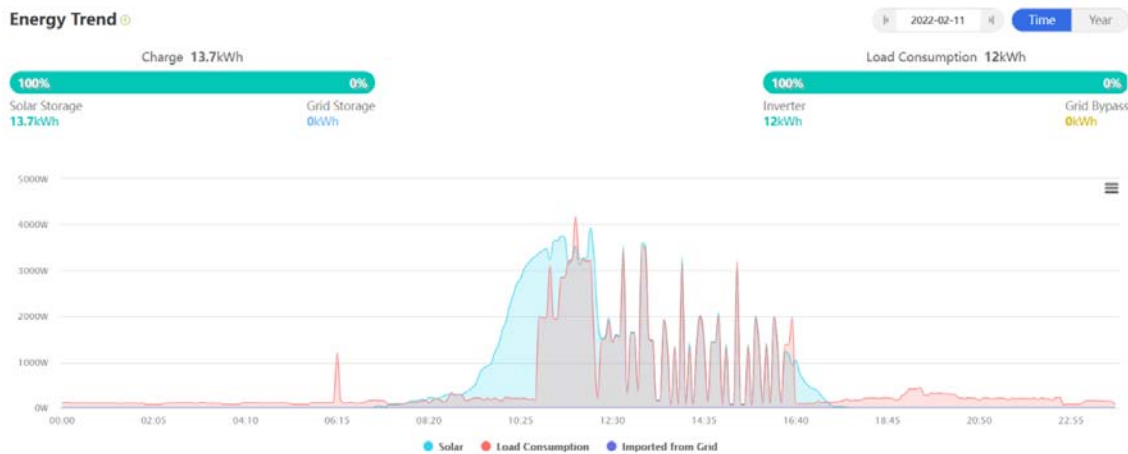
Solar: 827W



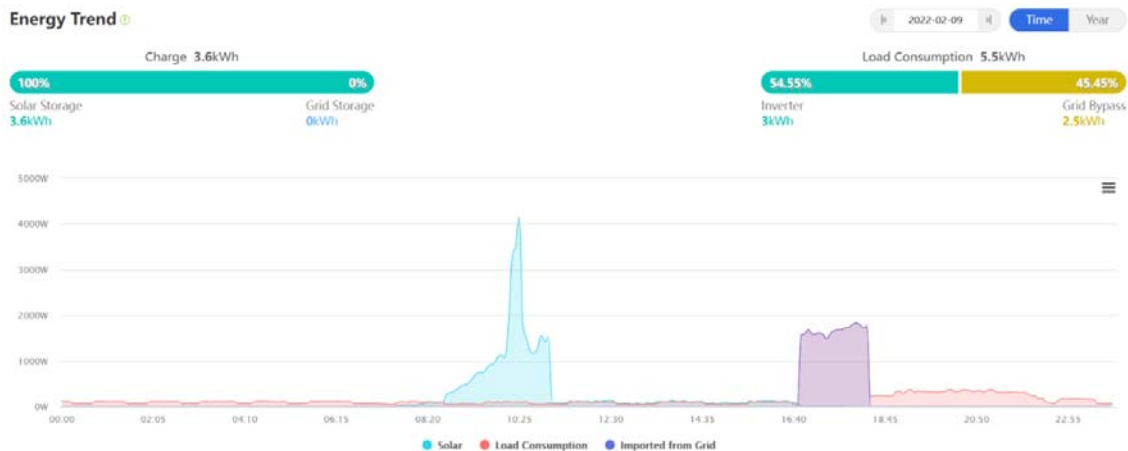
Source: Authors' contribution

To understand the off-grid prosumers, two diagrams are presented in Figure 3 (a) and (b). The first one shows the operation of various appliances as the load is varying from 06:15 in the morning until 16:40 afternoon when the PV generation become lower. The second day shows a much smaller activity up to 16:40 when the appliances were fed from the grid. However, in the second day, the solar energy was lower and the grid input was required to energize an appliance of 1800 W (water heater). This scenario indicates that the consumers were not at home during the day. These charts were extracted in February (9th and 11th) from the inverter application.

Figure no. 3. Generation, load and storage for 9th (a) and 11th (b) of February for an off-grid prosumer



(a)

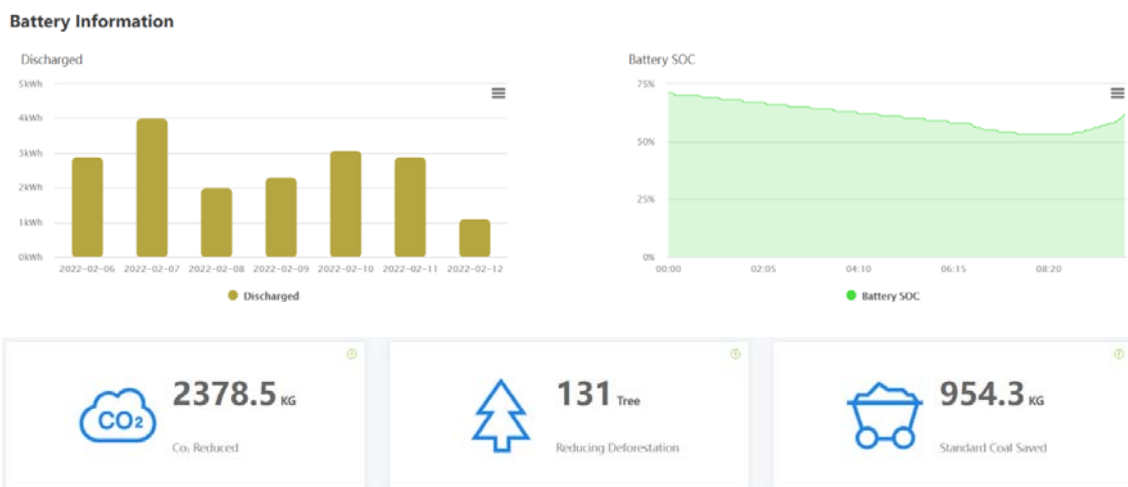


(b)

Source: Authors’ contribution

The application of inverter also offers details regarding battery and metrics related to environment as in Figure 4, that can further motivate the prosumer to improve his energy management.

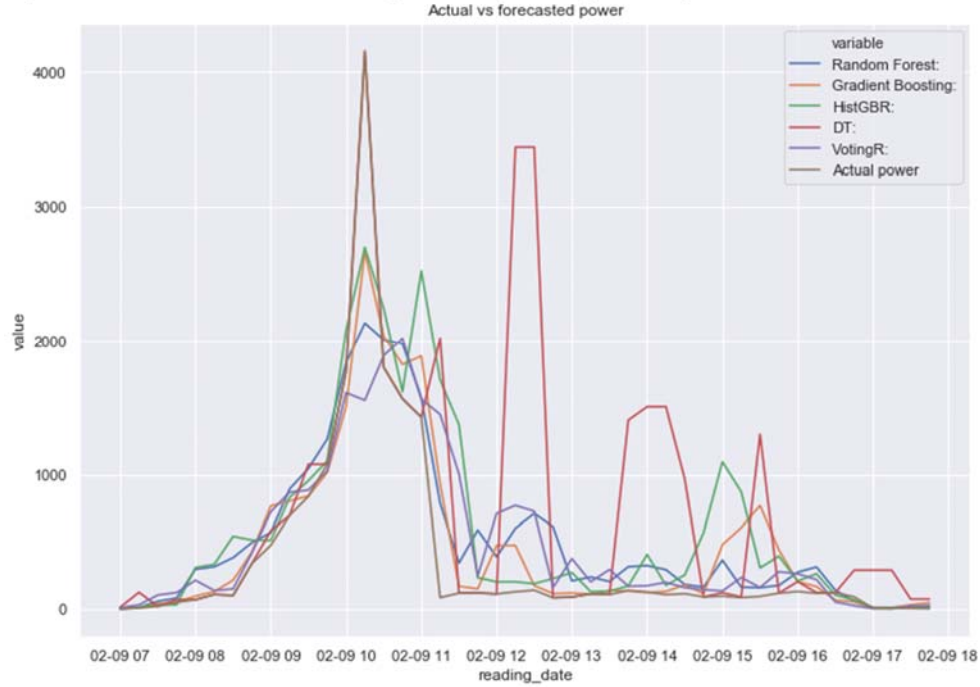
Figure no. 4. Battery info and pro-environmental metrics



Source: Authors’ contribution

The PV forecast and actual generation for the two days are displayed in Figures 5 and 6.

Figure no. 5. Forecast and actual PV generation for 9th of February, 2022



Source: Authors' contribution

Figure no. 6. Forecast and actual PV generation for 11th of February, 2022



Source: Authors' contribution

The graphical results show a good approximation of the actual PV generation. On average, during one month (February) the RMSE is 0.92 and R square is 0.97.

## 5. Conclusions

Prosumers are not a new concept, they appeared long before the energy transition era where the access to the grid was not possible or too costly. They are heavily associated to the difficulties related to the grid access, environmental concerns driven by oil prices and nuclear dangerous potential that have started in the '60s. It was also an attitude of reducing dependencies and centralized control of the power systems. The expansion of self-generation after the '90s reveals a strong correlation to policies. More and more people envision to be less dependent on a centralized system that sometimes fails to fulfil their necessities. After the '90s, prosumers have become more numerous driven by cheaper and reliable technology, reduced payback period, and increased awareness regarding solar potential. Prosumers will speed up the transition to an economy based on clean energy from RES, especially solar as PV systems cost and efficiency have improved significantly over time. They are becoming cheaper, increasing conversion efficiency, hence producing more energy. Their lifetime also increased to 25 years. Moreover, solar energy can become a solution not only for the environment but also for vulnerable consumers or those who do not have access to the grid. Nowadays, PV systems are able to energize a large range of devices from mobile phone batteries to cars, boats, trains to airplanes. Storage-based modern appliances such as mowers, chainsaw, vacuum cleaners, etc. can be energized when solar energy is available and be used anytime. However, prosumers are still far from being mature and showing their full potential. Multiple barriers, including uncertainties regarding benefits, that impede the development and growth of prosumers have been identified. More research is necessary to reveal their potential, provide solutions and quantify their impact from the economic, environmental and social point of view.

The importance of RES is increasing in the actual context of conventional sources scarcity and high prices that may lead to higher bills. Therefore, in this paper we proposed a framework of various sources integration and ML algorithm to forecast the output of a PV system offering encouraging results for off-grid prosumers. We expect that this framework provides better results for on-grid prosumers as their predictability is higher as it does not depend on the load. As future study, we will implement the proposed framework for on-grid prosumers and further test the algorithms. Additionally, this forecast will be integrated into a more complex application that will include optimal schedule of the appliances and real-time operation.

## 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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## Sustainable and Regional Development in European Union

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### Abstract

*Regional development is one of the most important and difficult development policies of the EU. Its goal is to reduce the economic and social inequality between different European states, defending development and economic growth in the field of SMEs, transport, agriculture, development of villages and towns or environmental protection.*

*Sustainable development means a dignified life, combining both financial aspects, by improving the standard of living, and aspects related to environmental protection, which consist in adopting a socially responsible behavior, by selective garbage collection or choosing alternative methods of transport with zero emissions. These are just a few aspects that a growing part of Romania and the European Union citizens are beginning to consider, according to the quantitative research conducted by applying an online questionnaire.*

**Key words:** sustainable development, regional development, European Union

**J.E.L. classification:** K40

### 1. Introduction

This theme is of major importance both globally and regionally, as it should be the starting point for all public policies. Sustainable development is an imperative requirement of the present, which aims at a sustainable economic growth and the thoughtful use of natural resources, so that future generations will enjoy the same benefits as those of today.

### 2. Theoretical background

#### 2.1. General considerations on the concept of sustainable development

All human threats such as climate change, inequality, poverty and hunger can only be addressed on a global scale by promoting the concept of sustainable development, which means economic and social development, the reasonable use of natural resources and the development of individual well-being. Sustainable development refers to improving the lives of all, anywhere in the world, by respecting these principles. Countries' economies need to grow, companies need sustainable development and people need to work in decent, non-life-threatening conditions. This can be done by replacing old and polluting technologies with new, innovative, efficient and non-polluting ones.

The Brundtland Commission report has become a global agenda for change and has come at a time when the UN General Assembly has realized that there is a serious threat to the environment and natural resources, as many climate threats that have not been adequately addressed. The organization aimed to promote the idea of a united international community, with common goals and objectives, that identify sustainability issues all around the world and come up with solutions to them.

Following the publication of the Brundtland Report and the definition of sustainable development in 1987 as "development that seeks to meet the needs of the present without compromising the ability of future generations to meet their own needs", the concept was enriched along the way, but also adapted to current socio-economic issues. (Ionel Popa, 2010)

Therefore, we deal with the concepts of: (Ionel Popa, 2010)

- sustainable ecological industrial development;
- sustainable logging;
- sustainable energy;
- sustainable trade;
- sustainable water management;
- sustainable jobs.

"People have the right to a healthy and productive life in harmony with nature; nations have the sovereign right to exploit their own resources without causing damage to the environment. Nations need to protect the environment. Where there are threats that could lead to serious consequences or irreversible damage to the environment, scientific uncertainty should not be used to delay cost-effective measures to prevent environmental degradation. " (United Nations, 2012)

Sustainable development was initially intended to be a solution to the economic crisis caused by the intense industrial exploitation of resources and the degradation of environmental factors. Initially, this concept presumed that both development and the environment, approached so far as separate themes, could be managed together in a harmonious development. Today, the concept of sustainable development has extended to the quality of life and is an imperative requirement of the present. It no longer means only economically sustainable development, but also individual well-being, creating a perfect harmony between personal and economic layers.

The Sustainable Development Strategy is a current priority of the European Union Plans, with a special emphasis on environmental protection. This strategy is not only European, it is also a global strategy promoted all over the world by a variety of international treaties, underlining once again the complex features of the concept of regional extension and the internal cohesion of the EU's principles of sustainable transformation.

## **2.2. Sustainable development in relation to environment, economy and transport**

The consequences of climate change, of environmental pollution, are as old as time, and until recently, the only goal of human evolution was economic development, without emphasizing sustainable development. Thus, the global interest in the field of environmental protection became of interest at the end of the twentieth century, when negative changes in the environment became a reality.

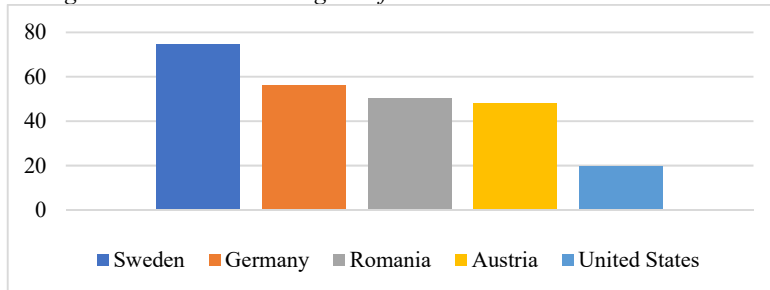
Now, even if all the countries worldwide would take the necessary steps to reduce carbon emissions, a warmer climate in the future is inevitable, because environmental pollution, careless resource use without thinking of sustainable development, has negatively influenced and will continue to influence the quality of life for generations while creating irreparable damage to the environment.

The first documents on environmental protection were published in the middle of the twentieth century by the European Coal and Steel Treaty in 1951, and by the Treaty on European Economic Community in 1957. These treaties mainly regulated health conditions and occupational safety, but for the first time they also mentioned elements of environmental protection. They were a milestone for what followed in the field of European public policy making. (Costică Mihai, 2009)

In 1986, after years of talking about a real "ecological revolution", the first document laying down the legal basis within the Community in the field of environmental protection appeared, was the Single European Act. The directors of large steel companies operating in the European continent are beginning to become familiar with notions such as systematic approach, sustainable development or ecological balance. These concepts were either unknown or under-applied in the run-up of the act. (Costică Mihai, 2009)

Transport is responsible for almost 30% of carbon dioxide emissions in the European Union. The Union, through its institutions, aims to reduce transport emissions by 60% by 2030 and by 2050 tends to climate neutrality in all Member States. (European Parliament, 2018)

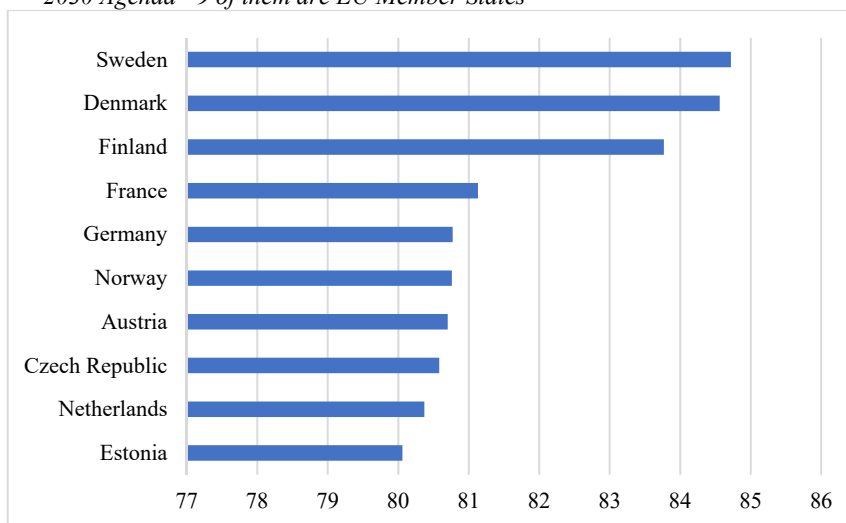
Figure no. 1 Climate Change Performance Index



Source: <https://ccpi.org/download/the-climate-change-performance-index-2021/>

Globally, the Climate Change Performance Index, published in late 2020 by the Germanwatch NGO, shows nations that take climate change seriously and seek to combat it, as well as countries that do not make enough efforts to do so, even though they have the financial and social resources. Sweden ranks first in the ranking, with very good scores in the areas of greenhouse gas emissions, renewable energy and environmental policies. Paradoxically, one of the richest and most developed countries in the world, the United States, is in last place, with environmental activists not impressed by efforts to combat climate change, especially since the country has chosen to leave in 2020 the most important contemporary agreement on climate change, overturning the effects of the Paris Agreement, signed in 2015.

Figure no. 2 Top 10 countries in the world in implementing sustainable development goals under the 2030 Agenda - 9 of them are EU Member States



Source: <https://dashboards.sdindex.org/rankings>

Based on data from the United Nations, we can see in the chart above, a ranking of the 10 leading countries in implementing the 17 goals of sustainable development included in the 2030 Agenda. Nine Member States of the European Union are among the top 10 countries globally, which shows that the community bloc is in a pole-position in implementing these sustainable development goals.

Sweden, a Member State of the European Union and an active promoter of sustainable development, is currently leading the global trend in the implementation of the 2030 Agenda objectives. Both effective implementation of Sweden's objectives through coherent government decisions and the life style of the citizens made these processes go smoothly, thus reiterating the healthy values of Swedish society, and the perfect connection between the Mayn actors of the society, the social, economic and political environment. Through the democratic path Sweden has had the opportunity to develop a model of social welfare with the ambition of guaranteeing all its citizens free access to quality medical services, a free and effective education process, affordable housing and sufficient jobs for all levels of educational training. (United Nations, 2017)

### 2.3. Regional development in the European Union

EU Regional Policy or Cohesion Policy is a policy based on the allotment of funds, supporting the creation of new jobs, seeking to strengthen economic and social growth by improving the quality of citizens' life and the development of underdeveloped regions.

Cohesion policy also shows the EU's unity within its Member States and less developed regions, pooling funds in areas and sectors where they are able to have value, aiming at reducing the significant economic, social and territorial disparities that still exist between the European countries. Such differences could undermine some of the EU's core principles, including its single enlarged market and its currency, the euro.

Reducing inequality at regional and national level is an important goal, both for each member state of the European Communities and for a European Union seen as a multistate and multilingual organization knowing for a fact that inequality between regions and states can be a major obstacle, even a barrier, to deepening integration.

As a majority strategy of the European Union - aiming at increasing economic and social unity - it is in fact a multicolor of a single market, eliminating the internal borders between EU Member States, summing up, by the entry into force of the Maastricht Treaty on 7 February 1992 and by the appearance of the European single market, almost 250 regions that are part of Community policy objectives.

The new objectives of the transformation policies of the regions seen from the EU's point of view appear as a unit of national communities that undergo serious changes over time, both in terms of the new objectives and the tools used, aiming at the beginning, the diminution of territorial and spatial instabilities. Nowadays, these policies are emphasizing their value within the principles of Community policies, alongside with political, monetary and economic union, one of the most important policies of the European Union.

### 3. Research methodology

In order to identify citizens' perceptions of the concept of sustainable development, we conducted a quantitative research, based on the application of an online questionnaire (153 respondents) using the Google Forms platform.

In order to achieve the proposed goal, we established the following hypotheses:

1. If most people are familiar with the concept of sustainable development, then they are more likely to adopt responsible behaviors, being more inclined to selectively collect garbage, to choose transport alternatives that do not use fossil fuels or to limit water consumption, when possible.
2. If this concept of sustainable development is relevant to the 21<sup>st</sup> century society, then it should be implemented both by the decision-making authorities in the implementation of public policies, but also by the citizens without leadership positions in those communities.
3. If most respondents are at least moderately familiar with the concept of sustainable development, then they are more likely to choose the products they want to buy from brands that have a good reputation for environmental protection.

### 4. Findings

The respondents were 51% (78 people) women, and 49% men (75 people).

The questionnaire was answered by both people under 20 (5.9%) and people over 60 (1.3%). The age group from which the most answers were received is the one of 20-29 years (45.1%), at the opposite pole being the age group 60 years<sup>+</sup>, which counted in proportion of only 1,3% .

Most respondents came from urban areas (86.9%), representing a total of 133 people, while 13.1% were from rural zones (20 people).

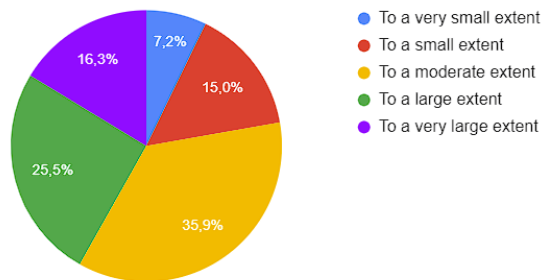
Regarding the level of completed studies, 45.8%, (70 of those surveyed) said they had graduated high school, and only 4.6% said they have not graduated high school (7 respondents were included in this category).



Figure no. 3 The degree of familiarity of the respondents with regard to the concept of sustainable development

Q1. To what extent are you familiar with the concept of sustainable development?

153 respondents



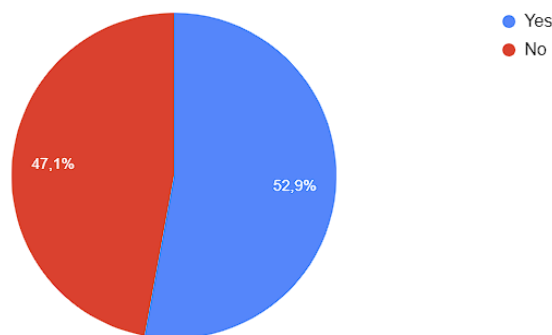
Source: Authors' contribution

According to the results obtained from the questionnaire applied to the respondents, most of them, in a percentage of 35.9%, stated that they are familiar to a moderate extent with the concept of sustainable development presupposes. The percentage of 25.5% belongs to those who know a lot about the concept of sustainable development. 16.3% say they are very familiar with it. The concept of sustainable development is known to a small extent by 15% of those surveyed, and 7.2% say that they master the topic of the questionnaire to a very small extent.

Figure no. 4 Respondents knowledge of the 2030 Agenda

Q7. Have you heard of the UN's 2030 Agenda for Sustainable Development, which includes the 17 Sustainable Development Goals?

153 respondents



Source: Authors' contribution

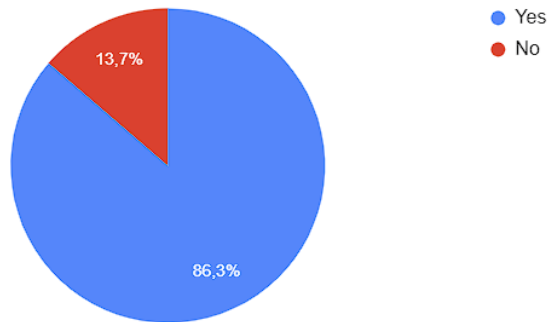
The 2030 Agenda and the 17 Sustainable Development Objectives were adopted in 2015 by the member countries of the United Nations. Its content applies to all countries and political and social actors, reiterating the need for climate action, gender equality, low unemployment and the promotion of civil society.

Hence, about Agenda 2030 heard a little over half of the total number of respondents of the questionnaire we applied (52.9%), while a significant number of 47.1% of those surveyed mention that they have not never heard of the 2030 Agenda.

Figure no. 5 The perception of the respondents regarding the consumption of natural resources

Q12. Do you consider yourself a thoughtful person when it comes to consuming natural resources?

153 respondents



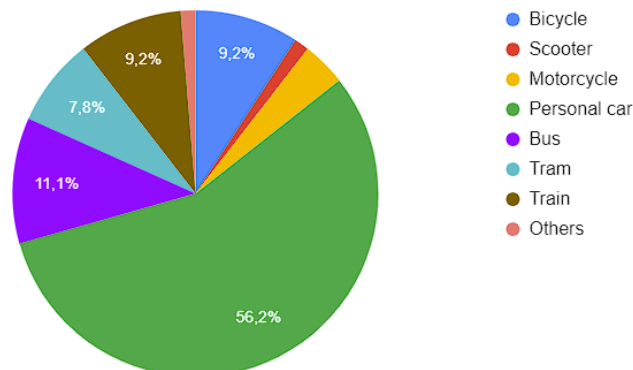
Source: Authors' contribution

To the question "Do you consider yourself a thoughtful person when it comes to consuming natural resources? (Do you limit water consumption when possible, for example?)" the vast majority of respondents claim they are thoughtful, while only 13.7% voluntarily say they do not consider themselves thoughtful when it comes to consuming natural resources.

Figure no. 6 Respondents' preferred means of transport

Q13. Which mode of transportation do you prefer?

153 respondents



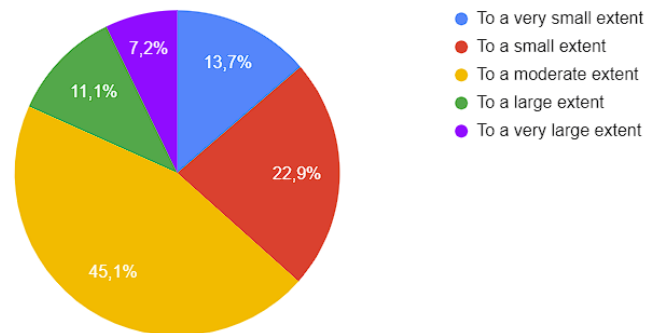
Source: Authors' contribution

The question no.13 aims to find out the respondents' preferred means of transport. The question has been an open one, with many options including the "Others" option too. Thus, 56.2% of those who answered the questionnaire have as a favorite means of transport their own car, 11.1% the bus and an equal percentage of 9.2%, the train and the bicycle. On the other hand, only 1.3% have a scooter as their preferred means of transport, and 1.3% state in the "Others" section that they prefer walking.

Figure no. 7 The importance of the company's reputation for environmental protection in choosing a product, as a customer

Q15. When shopping, to what extent does the company's reputation for environmental protection matter in the choice of the product you intend to buy?

153 respondents



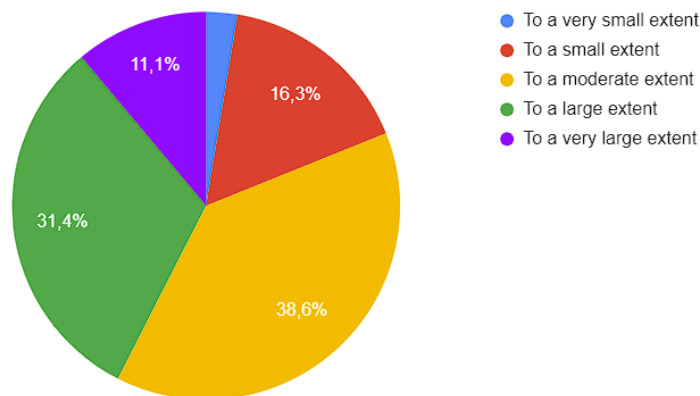
Source: Authors' contribution

To the question "When shopping, to what extent does the company's reputation for environmental protection matter in the choice of the product you intend to buy?", 45.1% of respondents chose "on a moderate extent". 22.9% selected "to a small extent". The "very small extent" option was chosen by 13.7% and only 7.2% say that the company's reputation for environmental protection matters very much when choosing the product they want to buy.

Figure no. 8 Respondents perception of how pollution is affecting them

Q21. To what extent do you consider that you are affected by pollution?

153 respondents



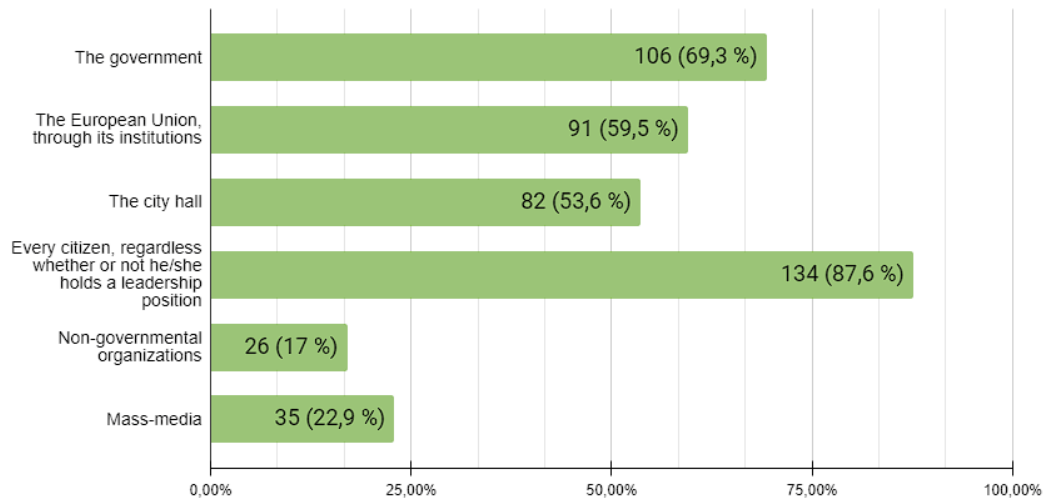
Source: Authors' contribution

The question "To what extent do you consider that you are affected by pollution" has had divided options. Thus, 38.6% consider themselves to be affected by pollution to a moderate extent, 31.4% to a large extent, while 16.3% of the respondents consider themselves to be affected to a small extent. Only 11.1% consider themselves to be very affected by pollution, and 2.6% choose the "very small extent" option.

Figure no. 9 Perception of respondents on the importance of decision-makers in environmental protection

Q22. Who do you think should be in charge of environmental protection?  
(Multiple answers can be selected)

153 respondents



Source: Authors' contribution

To the question “Who do you think should be in charge of environmental protection? (Multiple answers can be selected)”, the vast majority of respondents (87.6%) believe that this activity should be performed by every citizen, regardless whether or not he/she holds a leadership position. The government is the second decision-maker chosen by the respondents (59.5%), and the European Union, through its institutions, should also proactively deal with environmental protection, this option being chosen by 59.5% of respondents. The mayor's office is also an important factor in environmental protection, according to 53.6% of the respondents. Only 22.9% and 17%, see the media and non-governmental organizations as having a responsibility to protect the environment.

## 5. Conclusions

The first hypothesis was confirmed based on the answers received in the questionnaire. Therefore, 77% of respondents understand the concept of sustainable development at least on moderate extent (taking into account both *to a large extent* and *to a very large extent* options). Moreover, 72.5% of the respondents, state that they choose to selectively collect garbage, 68% voluntarily state that they use an alternative means of transport, such as bicycle or scooter, when possible, to the detriment of conventional means of transport, and 86.3% of respondents consider themselves prudent when it comes to the consumption of natural resources, limiting the consumption of water when possible.

The second hypothesis is confirmed by the answers received to the question no.22 “ Who do you think should be in charge of environmental protection? (multiple answers can be selected)”, most of the respondents highlighting the importance of each citizen, regardless whether or not one holds a leading position in the implementation of public policies.

The third hypothesis is refuted in the light of the answers received to the question no.15 “ When shopping, to what extent does the company's reputation for environmental protection matter when it comes to choosing the product you intend to buy? ” Most respondents mentioned a moderate to low level of 85% (taking into account the responses from the small and very small extent options) in influencing their decision based on the company's reputation for environmental protection.

The common citizen can influence the application of every aspect of sustainable development. Starting from the right information on the Sustainable Development Goals/Objectives, any individual could provide assistance, even by simply reporting the problems he/she encounters every day that negatively affect his/her life. Active citizens are encouraged to take part in voluntary activities, such as sanitation in natural areas or awareness-raising activities about the dangers of accidental dumping.

Even less active people can lead a sustainable lifestyle by reducing their electricity consumption or switching to electronic bills (eliminating unnecessary paper consumption). Reducing water consumption, consuming less animal food or selective waste collection are just a few of the solutions that any citizen, whether or not having a leadership position, can apply today.

Companies have the leverage to implement the concept of sustainable development with a considerably greater impact than that of a simple citizen. They should adhere to policies that involve a reduction in the consumption of natural resources. Furtheron it should also be borne in mind that employees spend an average of eight hours a day or a third of their adult life at work, and a healthy work environment would ensure a high level of mental and physical health. Firms should scrutinize the entire distribution chain to ensure that the materials from which they make their products come from sustainable sources.

The Romanian government is increasingly confronted with the complex problems caused by the challenges involved in economic and social development or environmental protection. It has a crucial role to play in implementing sustainable development policies, which can only be achieved through a medium and long-term vision and cooperation with civil society and companies.

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## Good Governance Strategies and Pandemic Crisis Management

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### Abstract

*COVID-19 crisis management has been a multi-level governance issue. Moreover, the way governments have approached the COVID-19 crisis has also become a major research trend worldwide. Different national and local governments have adopted various strategies in managing the pandemic response, due to differences in existing political structures and dynamics. From 2019 to 2022, the COVID-19 pandemic is the main enemy in most countries of the world, affecting in 2020 more than 50 million people worldwide. Governments around the world have had to deal with a number of uncertainties, to make difficult decisions or compromises, while facing challenges from health care, economic and social systems.*

*While the COVID-19 pandemic has hit states with various intensity, the response to the crisis has been an unprecedented challenge for most governments, which have reacted differently to the health, economy and well-being of citizens, as evidenced by studies that will be presented in this paper.*

**Key words:** strategy, factors, efficiency, decisions, governance

**J.E.L. classification:** K40

### 1. Introduction

In 2020, more than half of the world's population was forced to comply with difficult isolation and quarantine measures. Beyond the human health and tragedy of coronavirus, it is now widely acknowledged that the pandemic triggered one of the strongest economic crises in the post-World War II period. The nature of the crisis is unprecedented: beyond repeated short-term economic and health shocks, the long-term effects on human capital, productivity and behavior can be long-lasting. The COVID crisis has massively accelerated some pre-existing trends, especially digitization. It has shaken the world, setting in motion waves of change with a wide range of possible trajectories. (OECD, 2020)

### 2. Theoretical background

#### 2.1. Government strategies applied to combat the COVID-19 pandemic

The Chinese government's reactions have shown internationally that social distancing, quarantine and isolation of infected populations may contain or control the spread of the virus. This impact of the response to COVID-19 in China is encouraging for the many countries where COVID-19 has spread rapidly. However, it is not clear whether other countries can implement the strict measures that China has finally adopted. (WHO, 2020)

The OECD proposed in January 2022 the COVID-19 Response Assessment Framework developed to identify the main types of policy responses that governments need to assess at the state level, in order to better understand what worked well and what did not go well in solving the situation. The main policy responses observed at the state level correspond to the major phases of the risk management cycle, namely: pandemic preparedness, crisis management and pandemic response and recovery after a pandemic wave. (OECD, 2022)

According to this OECD report, initial assessments have shown that many governments have reached similar conclusions, enabling policy makers to identify important perspectives that can contribute both to the responses to the COVID-19 crisis and to improving future resilience. In short, the findings showed that:

- Preparation for this situation has generally been insufficient, given the major human and financial costs associated with the COVID-19 pandemic.
- Governments have reacted quickly to mitigate the financial and economic effects of the pandemic, however they have failed to calculate the long-term costs of such measures.
- Communication as well as transparency were a necessity during this period.

Taking into account that government responses to the crisis have required the mobilization of actors from different fields and resources, cooperation between government institutions and agencies is a vital element in ensuring a coherent response. Governments have implemented new structures and mechanisms, as well as new institutional commitments to ensure a coordinated response to the pandemic.

For example, in Australia, the Department of Industry, Science, Energy and Resources has worked with the Department of Health to provide an increase in the national medical stock. The French government set up an inter-ministerial crisis unit in March 2020 to coordinate the actions of the various ministries and their responses at the collective level. In Belgium, the Hospital & Transport Surge Capacity Committee (HTSC) was set up in March 2020 with the task of monitoring the number of inpatients and proposing measures to organize adequate hospital care. (Belgian Health Care Knowledge Centre, 2020)

In order to provide a clear picture of international pandemic responses, the Oxford COVID-19 Government Response Tracker (OxCGRT) has been created, allowing an international comparison. This project includes 19 indicators, eight of which are related to closure and containment measures, four to economic measures and seven to sanitary measures. (Hale, 2021)

Gianino and colleagues study from 2021, in which the Oxford COVID-19 Government Response Tracker (OxCGRT) was applied, showed that most of the interventions analyzed for states such as Italy, Germany, Spain and the United Kingdom were not correlated with the number of incident cases of Covid-19, although other studies have shown that some interventions (such as closing schools and universities and limiting meetings to 10 people) have had moderate to high effects in preventing the spread of the virus. (Gianino, 2021)

The EU-wide COVID-19 pandemic reflected different variations in the total number of registered cases, deaths, types of transmission and CFR (number of deaths / total number of cases), as identified from data published by the World Health Organization. Health, and some of the data are presented in Table 1, below.

*Table no. 1 Cases and deaths reported by the World Health Organization in Europe*

European state	Total reported cases	Total confirmed deaths
France	25.781.400	139.911
Germany	22.441.051	131.370
United Kingdom	21.508.550	169.412
Russia	17.99.431	371.169
Italy	15.106.066	160.402
Turkey	14.939.259	98.311
Spain	11.578.653	102.747
Netherlands	7.960.982	22.067
Poland	5.976.364	115.594
Ukraine	4.982.249	108.118
Austria	3.983.671	10.559
Israel	3.983.671	10.559

European state	Total reported cases	Total confirmed deaths
Belgium	3.915.732	30.997
Czech Republic	3.855.898	39.844
Portugal	3.657.785	21.851
Switzerland	3.512.106	13.031
Greece	3.137.714	27.968
Denmark	3.078.295	5.837
Romania	2.968.777	65.170
Sweden	2.491.980	18.506
Serbia	1.986.349	15.982
Hungary	1.88.007	45.721
Slovakia	1.745.004	19.523
Ireland	1.484.321	6.843

Source: World Health Organization

Figure no. 1 Chronology of suppression strategies in the most powerful EU countries



Source: (Malek, 2020)

The chronology of suppression strategies implementation in the strongest states in the European Union, but also with the most cases of disease is presented in Figure 1. Italy was the first state in the European Union to implement the blockades at national and regional level compared to other EU nations. France and Spain followed with nationwide restrictions in March, but Germany waited longer to implement a regional blockade. France reopened late (in May) compared to other countries, which reopened in April. The lack of a timely response from the authorities, weak strategies (eg quarantine postponement), an aging population and increased stress on health systems were the most important factors that contributed to the increase in the number of cases across the continent. (Rudan, 2020)

Other non-EU countries, such as China, Thailand and Singapore, have adopted virus isolation and suppression strategies, such as extended testing, contact tracking and isolation. Rapid testing led to the effective identification of COVID-19 cases, which could then be isolated and treated to limit the transmission of the virus. Moreover, due to the usage of new innovative technologies, the test result time was reduced to 4 hours.

The differences between EU COVID-19 statistics and Asian countries could be related to the different mitigation and suppression strategies adopted. However, the rate of transmission may have been linked to a variety of other factors, such as public awareness of COVID-19, personal care and management practices, and a lack of support from the authorities. While reopening the markets, the ambiguity around preventive strategies has increased, as the impact of the COVID-19 pandemic, which is clearly a negative one, can be observed and analyzed from different perspectives, such as mental disorders, anxiety, stress, fatigue, etc.

Meanwhile, Germany and Austria stand out as nations that have adopted aggressive and early control strategies compared to other countries such as Italy, France and Spain, which have implemented similar measures, including blocking, but later. So far, Germany and Austria have had fewer deaths per capita than all other countries.



The most appropriate solution according to the main state governments that involved measures at the international level was the creation and placing on the market of a vaccine against the Covid-19 virus. From December 2020 to March 2022, the European Commission approved and agreed to four marketing authorizations for four types of Covid-19 vaccines, belonging to the companies BioNTech and Pfizer, Moderna, Astra Zeneca and Johnson & Johnson. Deliveries of vaccine doses to all EU Member States have steadily increased over the past two years. Vaccination has been widely debated, and the population was encouraged to get vaccinated, so that by August 2021, 70% of the entire EU population was already vaccinated with a complete scheme. (European Commission, 2022)

New variants of coronavirus have been discovered in all European countries, so the European Commission has decided to mobilize funds for further research and to sign new purchase agreements for buying vaccine doses and booster to adapt to these new variants of the virus. The European Commission's intervention also introduced a common procurement procedure from Member States for equipment needed for vaccination, and in the case of hospitals and doctors, it was recommended to eliminate the value added tax for test kits and vaccines. (European Commission, 2022)

## **2.2. Romania's national strategy in response to the COVID-19 pandemic**

Romania is one of the largest diaspora states in the European Union with over three million citizens living abroad, and many of these citizens have been forced to return home from countries severely affected by the pandemic, such as Italy or France. The migratory movement of the population has proven to be a good predictor of the magnitude of the pandemic, and waves of border citizens have been a huge challenge for both border control authorities and healthcare services. The problem required a quick approach, especially since the initial spread of the virus was crucial in controlling the pandemic. (Kluge, 2020)

In response to this challenge, all Romanian citizens returning home from the regions affected by COVID-19 signed a declaration obliging themselves to remain in self-isolation for a period of 14 days.

At the beginning of Covid-19 pandemic, the Romanian Government issued numerous documents in an attempt to manage the crisis as best as possible and to help the sectors that were massively affected: from health to economy, education , culture, sports, etc.

The main initial measures included:

- April - May 2020 wearing a protective mask has become mandatory;
- May - September 2020 a new state of alert was imposed, but it was subsequently followed by relaxation measures;
- September - November 2020 the schools were reopened and the local elections were organized;
- November 2020 - early February 2021: partial isolation, legislative elections were held and the vaccination campaign began;
- February - March 2021: children return to school, but the number of illnesses increases again;
- March 2021 - the third wave of cases;
- October 2021 - the fourth wave of cases;
- End of October 2021 - children receive two weeks of vacation in an attempt to reduce the number of cases;
- Winter 2021 - spring 2022 - the fifth wave of infection. (Romanian Government, 2022)

## **3. Research methodology**

In order to establish the awareness of the respondents on the strategies of good governance and management of the crisis generated by the pandemic, we considered it opportune to carry out a quantitative research, which consisted in applying an online questionnaire using the Google Forms platform. The questionnaire could be filled in for 13 days, between May 30, 2022 - June 12, 2022. During this time, the questionnaire was validated by a number of 143 respondents. This study was conducted in order to highlight the popular perception of the most successful methods and strategies for preventing and combating the pandemic in the European Union.

The questionnaire consisted of 18 questions and was divided into 4 sections, so that the answers given by the respondents were relevant to their level of knowledge of the topics covered. The questionnaire used both closed questions, with single or multiple answer options, and open-ended questions, where respondents could come up with their own additions.

#### 4. Findings

The respondents were 43.4% men and 56.6% women.

Most respondents are in the 18-30 age segment (46.2%), 30-45 years old (35%), 45-60 years old (16.1%) and over 60 years old (2,8%).

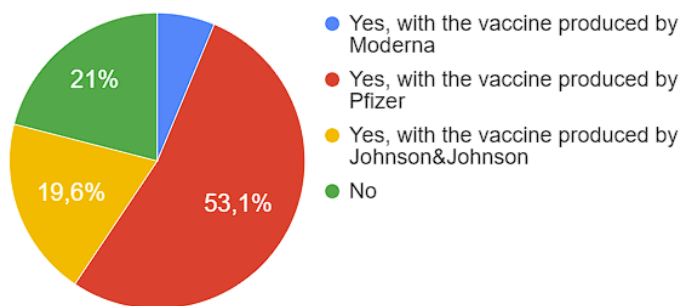
The vast majority of respondents come from urban areas, 109 people selecting this option, (76.2%), while a number of 34 people, 23.8% come from rural areas.

Regarding the level of graduated studies, 51% of the respondents state that they have a bachelor degree, 43 respondents, (30.1%) had a master degree of master's university studies, and a percentage of 17.5% graduated only high school . Only 2 respondents had a doctoral degree.

Figure no. 2 Respondents reported their vaccination status

Q5. Are you vaccinated against the SARS-COV2 virus?

143 respondents



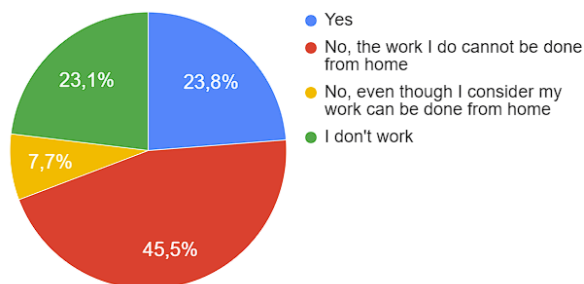
Source: Authors' contribution

When asked the first question, the respondents had to state whether they were vaccinated, with 53.1% of them being vaccinated with the serum produced by Pfizer-BioNTech. 21% say they are not vaccinated against the SARS-COV2 virus.

Figure no. 3 How coronavirus has changed the way respondents work

Q6. During the state of alert period, did the company / institution where you work provided you the opportunity to work from home?

143 respondents

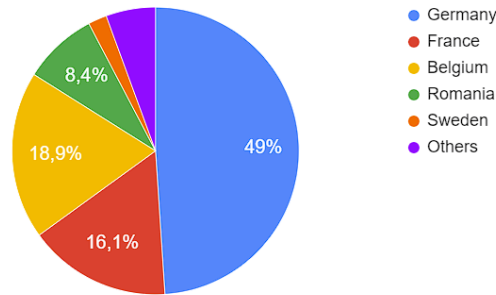


Source: Authors' contribution

During the state of alert period, 65 respondents (45.5%) did not carry out their work-related activity at home, because this was not possible, and 7.7% consider that their job allows home office, but from subjective reasons this has not been decided. In addition, 23.8% of respondents had the option to work from home.

Figure no. 4 Public opinion about the way EU member states handled the coronavirus crisis

Q7. Which EU country have managed the global pandemic the best?  
143 respondents

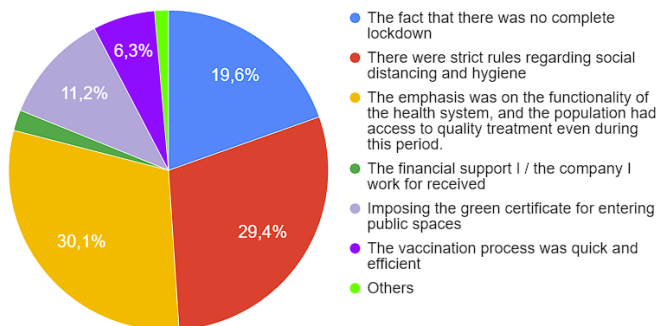


Source: Authors' contribution

The most successful strategy to fight against the SARS-COV2 pandemic is considered to be in Germany, with 49% of respondents choosing this option, followed by Belgium (18.9%) and France (16.1%).

Figure no. 5 The most important strategy regarding the handling of the COVID-19 pandemic, according to the respondents

Q8. What EU Member State strategy do you think was most important in combating the negative effects of the pandemic?  
143 respondents

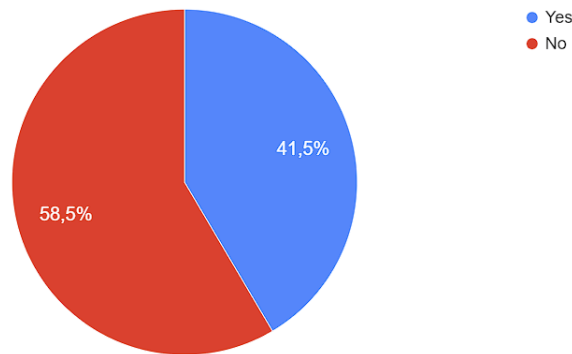


Source: Authors' contribution

If we refer to the reason why the respondents chose the Member State of the European Union, most of them, 30.1% chose this option because in that country the emphasis was on the functionality of the health system, and the medical activity has not been discontinued but continued to be provided in a manner appropriate to patients with diseases other than those caused by the SARS-COV2 virus. On the one hand a total of 42 respondents, (29.4%), consider that the very strict rules of keeping social distance and hygiene, such as imposing the wearing of a mask in closed spaces or respecting the distance from other people were vital to combat the negative effects of the pandemic. On the other hand, only 6.3% of respondents believe that the vaccination process was fast and efficient, which reveals synopses in the distribution of vaccines in the Member States.

Figure no. 6 Romanians are not impressed with China's "Zero COVID" policy

Q11. Do you consider that the measures in handling of the crisis and the effects of it have been properly carried out in China?  
65 respondents

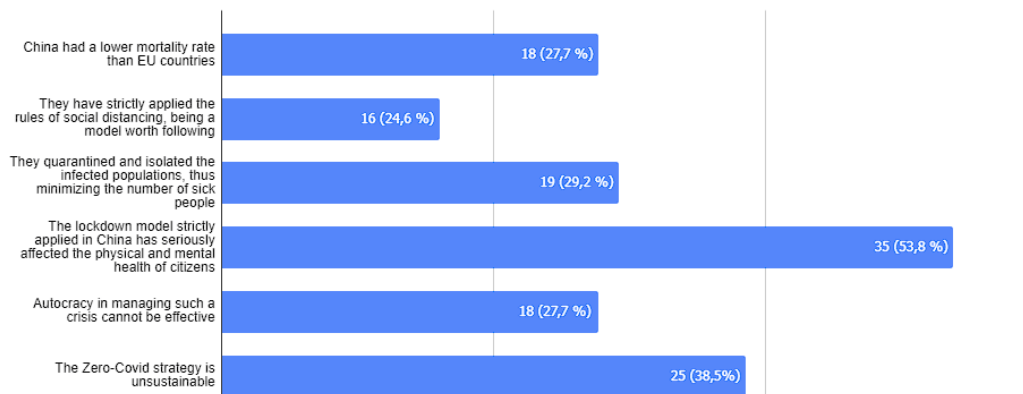


Source: Authors' contribution

If we refer to strategies outside the EU bloc, the Chinese model of pandemic management was not appreciated by the respondents, 58.5% of them considering that the management of the crisis and the effects of the pandemic were not carried out properly in their country with a totalitarian regime.

Figure no. 7 Respondents option justification regarding the previous question

Q12. What made you choose this option?  
65 respondents



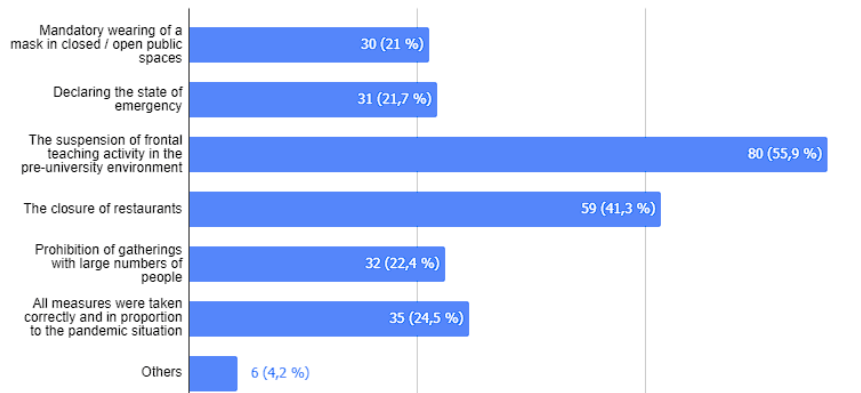
Source: Authors' contribution

When asked why they chose the previous option, we can see that most of the respondents (53.8%) point out that the lockdown model strictly applied in China has seriously affected the physical and mental health of citizens, 38.5% believe that The Zero-Covid strategy is unsustainable, and only 24.6% believe that the Chinese model can be followed, because they have strictly applied the rules of social distancing.

Figure no. 8 Respondents opinion regarding the subject of the measures taken by the Romanian Government in managing the pandemic period

Q15. What measures do you think were wrongly taken by the Romanian Government in managing the pandemic period?

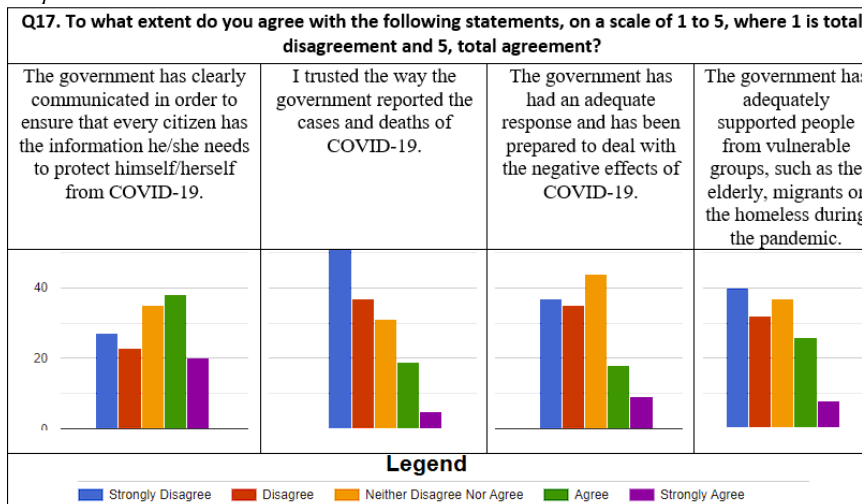
153 respondents



Source: Authors' contribution

Referring to our country, the respondents were asked to choose the measures they consider to have been taken incorrectly during the pandemic, the majority of respondents (55.9%) considering the suspension of frontal teaching activity in the pre-university environment as a mistake, and a significant percentage (41.3%) considered the closure of restaurants to be wrong. We can see that a small number of respondents (4.2%) wanted to express their own opinion, drawing attention to the erroneous way in which methods such as night quarantine were applied, (when citizens could no longer leave their home after 10 p.m.) or the imposition of the green certificate in crowded spaces or public institutions.

Figure no. 9 Likert-scale scores given by respondents for affirmations on the Government handling of the pandemic



Source: Authors' contribution

This content question consisted of 4 statements, to which the respondents had to answer, on Likert's scale, from 1, which represents strong disagreement and 5, which represents strong agreement to the statements.

At the first statement, namely that "the Government has clearly communicated in order to ensure that every citizen has the information he/she needs to protect himself/herself from COVID-19", a number of 38 respondents agreed with this it, 20 respondents stated that they strongly agreed while 35 chose the neutral option, 23 disagreed, and 27 strongly disagreed.

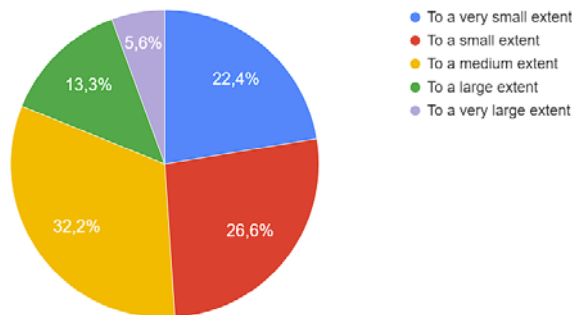
In the second statement, "I trusted the way the government reported the cases and deaths of COVID-19" 51 respondents state that they strongly disagree, 37 disagreed, and only 5 respondents state that they fully agree with the statement, which reveals a low level of confidence among respondents in the way in which the authorities transmitted the data on deaths and the number of illnesses.

The statement "The government has had an adequate response and has been prepared to deal with the negative effects of COVID-19" was assessed in a neutral way, 44 of the respondents stating that they do not agree or disagree with what was stated, 37 are in strong disagreement and only 9 respondents are in strong agreement.

The latest statement, "The government has adequately supported people from vulnerable groups, such as the elderly, migrants or the homeless during the pandemic" was one in which 40 of the respondents revealed that they strongly disagree with what was stated, 37 chose the neutral option, and 8 respondents appreciate the government's efforts, choosing the option of strong agreement.

Figure no. 10 Worry level of respondents regarding the appearance of monkeypox cases in EU Countries

Q19. To what extent do you think the worrying situation caused by the appearance of cases of monkeypox in EU countries could eventually lead to a new pandemic?  
143 respondents



Source: Authors' contribution

To the last question, the respondents had to choose their own level of concern about a possible new pandemic, caused by the appearance of monkeypox cases on the European Union territory. In this regard, 32.2% of respondents say that they are worried to a medium extent, 26.6% to a small extent and only 5.6% are concerned to a very large extent.

## 5. Conclusions

The COVID-19 crisis has been, and still is, a global challenge for most countries in the world and requires global solutions. The EU and its Member States support partner countries' efforts to fight against the virus by providing financial support to address the immediate health crisis and humanitarian needs. The total effort of the European team amounts to 46 billion euros. (European Council, 2022)

In order to raise awareness of the pandemic situation, the Romanian authorities have launched information campaigns at national level through various media channels, including television and social media (General Secretariat of the Romanian Government, 2022). Through this campaign, there were taken different preventive measures such as social distancing, wearing masks or using disinfectants. However, the numerous fines issued by public authorities at the beginning of the epidemic revealed citizens' reluctance to comply with the restrictions.

As strategic measures at the beginning of the Covid-19 pandemic, the Romanian Government issued numerous emergency ordinances in an attempt to manage the crisis as best as possible and to help the sectors that were massively affected: from health, to economy, education or culture.

Although these measures were taken in order to reduce the negative effects of the pandemic, the result was not as desired, as evidenced by the data of the questionnaire we interpreted, the respondents being dissatisfied with the way the Government managed the pandemic, especially by taking measures that involved suspending frontal activity in pre-university education system, closing

restaurants or banning assemblies that involved meeting a large number of people in an enclosed space. Respondents also pointed out that confidence in reporting deaths and cases caused by the SARS-COV2 virus or helping people from vulnerable groups has become desirable during the aforementioned period.

Internationally, national governments have implemented a number of stringent control measures (e.g., decisions and orders to remain immobilized in the home, travel restrictions, closing non-essential business, closing schools and other gathering places), and a set of public health policies (e.g., preventive and protective measures such as washing or disinfecting hands with disinfectant gel, using gloves, wearing a mask) to reduce the transmission of COVID-19.

These similarities in the measures taken, together with the specific political and socio-demographic contexts, make complex comparisons between the effectiveness of international responses to pandemics.

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# Monitoring and Measuring Expenditure on Social Protection Benefits of Member States in the European Union

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## Abstract

*Given the financial crisis that has now affected most of Europe's regions, especially due to the COVID-19 pandemic, there has been a significant increase in unemployment in many EU Member States in recent years. Governments have an obligation to control the progressive pressure on social spending given its subsidiary importance. Individuals who have difficulty in being supported, such as the unemployed and other non-working persons, in particular, are entitled to and receive social benefits in order to ensure an acceptable level of economic income.*

*The main objective of this Article is to respect the right to social assistance through the supervision and evaluation of social expenditure, as well as the convenient administration of the social assistance benefits system for people who lack sufficient resources, in accordance with European Union law and national laws and practices.*

**Key words:** benefits of social assistance, social benefits, social expenses

**J.E.L. classification:** H55, I30, O57

## 1. Introduction

The European Union (EU) recognizes and respects the fundamental right to social security and social assistance by enshrining it in Article 34 of the Charter of Fundamental Rights in order to protect disadvantaged or vulnerable persons with a view to reducing economic and social uncertainty, each State having its own historical contexts, public finances and different policy options.

At European level, social protection expenditure is broken down into: social benefits, administration costs and other expenditure.

Social spending can act as an economic stabilizer. The organization and financing of social protection systems is the responsibility of each Member State according to the models used that differ from one country to another.

"The main EU policy framework for social protection is the open method of coordination (WTO), which aims to promote social cohesion and equality through adequate, accessible and financially sustainable social protection systems and social inclusion policies." (Olteanu, 2021, p.18)

Looking ahead, many focus on combining social protection policies and social investment to achieve flexibility, stability and protection, including collective risk sharing.

Data for the different Member States vary significantly, partly due to different social protection systems, demographic trends, unemployment rates and other social, institutional and economic factors.

Social protection is a distinctive component of each state that must preserve the responsibility of organizing and financing its own social security system. Security systems guarantee a minimum income, ensure social cohesion, especially in times of crisis, and promote equal treatment between men and women.



## 2. Theoretical background

In Romania, social policy is coordinated by the Ministry of Labor and Social Solidarity and supported by the work of other ministries, such as the Ministry of Health and the Ministry of Education.

“Social policy is the intervention of the state in the configuration of the social processes characteristic of a particular collectivity, in order to modify them in a direction considered by the political actors to be desirable.” (Zamfir and others, 1995, p.22)

The areas of activity of social policy are: pensions and other social security rights, social assistance and family policies, the labor market (including unemployment) and wage policies, labor relations, occupational safety and health, health insurance and other social policies for which other ministries are responsible.

Within the framework of the European Union strategy, Romania has committed itself through the Law no. 47/2006 on the national social assistance system, which was repealed by Article 146 of the Law no. 292/2011 on social assistance in the direction of a global approach to social development policies.

Law no. 292/2011 “regulates the general framework for the organization, functioning and financing of the national social assistance system in Romania, the type of benefits, the beneficiaries and their concrete needs”.

Social assistance benefits are a structure of the national social protection system constituting means of financial distribution established for persons who meet the eligibility clauses specified by the law in force. Social services are a heterogeneous system of methods and procedures of individuals, families or communities to combat and overcome certain difficult, uncertain or interdependent circumstances in order to develop quality of life and support social solidarity.

“In the public system, the insured cannot simultaneously benefit from two or more social security benefits for the same insured risk, except for those for the prevention of illness and the recovery of work capacity.” (Crăciunescu, 2013, p.54).

## 3. Research methodology

The considerations set out in this Article concern the tracking of expenditure on social protection benefits and their size in the Member States of the European Union. In composing the Article, we resorted to various scientific methods of research, namely: induction, deduction, analysis, synthesis and comparative method.

## 4. Findings

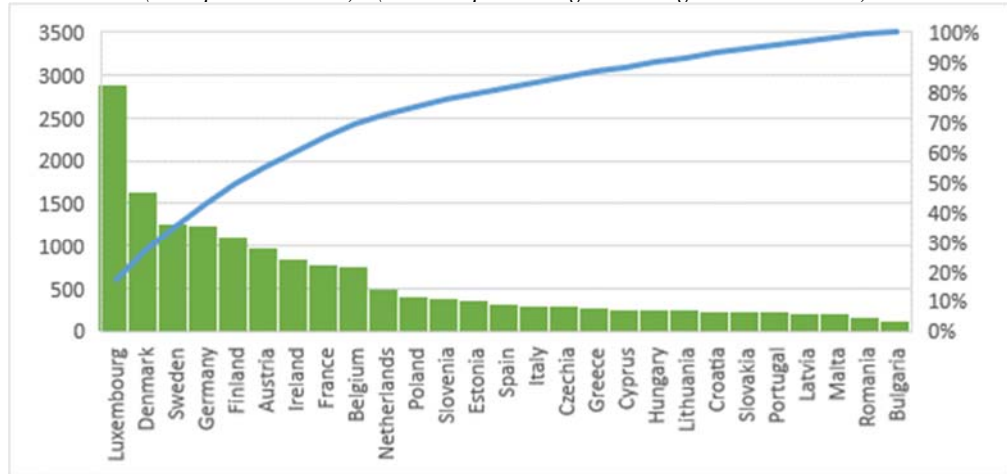
EU action in the field of social security in the EU is strictly linked to the implementation of the "European Pillar of Social Rights" or the "Social Pillar", as well as to the progress of the labor market. In 2018, the European Commission carried out the first monitoring on the implementation of the social pillar to respect citizens' rights on the basis of 20 social principles aimed at guiding EU Member countries toward a strong, fair and opportunity-rich European social unit.

Restrictive measures taken by national governments in response to the SARS-COV-2 pandemic have affected the situation of working life where major economic consequences have been observed on the labor market. It is important to note that the impact of the COVID-19 crisis should be focused on the most vulnerable segments of the working population, and that measures should be implemented to provide income support and ensure access to social protection for those vulnerable segments of the population.

The analysis in this Article shows net social protection benefits that measure net expenditure by collecting information on the average rates of taxes and social contributions paid by the beneficiaries of each cash benefit, rates which are then applied to gross expenditure for each benefit in order to acquire a net value.

According to the 2019 statistics, we see differences between EU Member States in spending on social protection benefits in euro per capita, where Luxembourg (2 891,61€), Denmark (1 639,91€) and Sweden (1 264,13€) are the top and in the last three places are Malta (201,48 €), Romania (163,62 €) and Bulgaria (119,99 €).

Figure no.1. Structure of expenditure on social protection benefits in the Member States of the European Union in 2019 (euro per inhabitant) - (author's processing according to Eurostat data).



Source: [https://ec.europa.eu/eurostat/databrowser/view/SPR\\_NET\\_BEN\\_custom\\_2728503/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/SPR_NET_BEN_custom_2728503/default/table?lang=en)

The data recorded in the Eurostat basic system show that in 2019 there are significant differences between gross social benefit expenditure and net expenditure in million euro in Germany (95.953,69 million euro), Italy (67.957,40 million euro) and the Netherlands (41.270,44 million euro), and Bulgaria has a low fluctuation of only 4,09 million euros.

Table no.1. Structure of gross and net welfare expenditure of the Member States of the European Union in 2019 (million euro) - (author's processing according to Eurostat data).

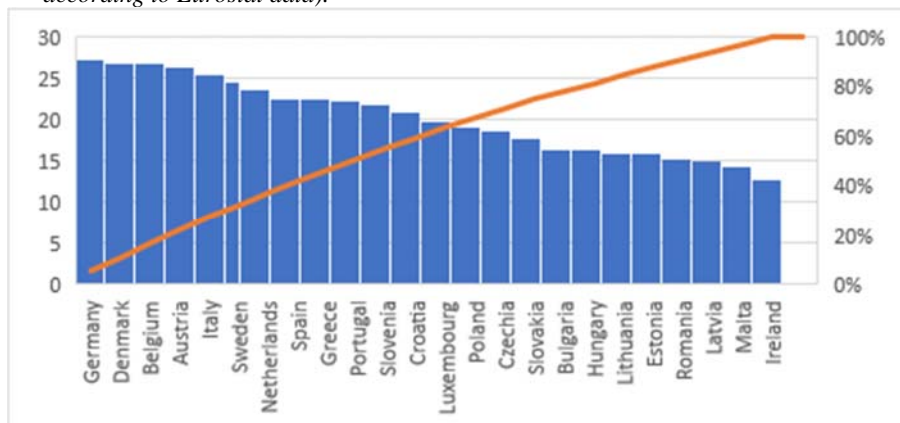
EU countries	Gross social protection	Net social protection	Differences (gross-net)
Austria	116.563,96	105.397,86	11.166,10
Belgium	137.515,33	128.876,08	8.639,25
Bulgaria	10.184,34	10.180,25	4,09
Czechia	42.407,59	42.207,79	199,80
Croatia	11.814,16	11.621,63	192,53
Denmark	97.931,87	83.793,46	14.138,41
Estonia	4.590,73	4.453,01	137,72
Germany	1.045.321,26	949.367,57	95.953,69
Greece	45.928,01	41.444,86	4.483,15
Ireland	48.427,18	46.019,86	2.407,32
Italy	524.422,00	456.464,60	67.957,40
Latvia	4.774,45	4.602,93	171,52
Lithuania	8.055,03	7.852,87	202,16
Luxembourg	13.746,55	12.402,81	1.343,74
Malta	2.059,88	2.037,00	22,88
Poland	113.451,69	102.087,13	11.364,56
Portugal	51.453,09	48.133,42	3.319,67

Romania	34.129,54	33.932,41	197,13
Slovakia	16.843,40	16.798,73	44,67
Slovenia	10.730,99	10.559,18	171,81
Spain	299.817,45	281.605,72	18.211,73
Sweden	131.622,80	116.881,40	14.741,40
Netherlands	233.884,00	192.613,56	41.270,44
Hungary	24.339,41	24.003,05	336,36

Source: [https://ec.europa.eu/eurostat/databrowser/view/SPR\\_NET\\_BEN\\_custom\\_2729225/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/SPR_NET_BEN_custom_2729225/default/table?lang=en)

The total net social protection expenditure in 2019, as a percentage of gross domestic product (GDP), better reveals the differences between EU Member States, thus using the Pareto chart the distribution of data in descending order of frequency, with a cumulative line on a secondary axis, as a percentage of the total (Figure no. 2).

Figure no. 2. Rate of total net social protection expenditure in 2019 (% of GDP) - (author's processing according to Eurostat data).



Source: [https://ec.europa.eu/eurostat/databrowser/view/SPR\\_NET\\_BEN\\_custom\\_2729225/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/SPR_NET_BEN_custom_2729225/default/table?lang=en)

According to European statistics, in 2019 it is noted that Germany is at the top with 27,33%, Denmark with 26,99% and Belgium with 26,95%, and in the last 3 posts there are Latvia with 15,02%, followed by Malta with 14,49% and Ireland with 12,91%, Romania being at the 21 position.

The purpose of the absolute value of net social protection benefits is to demonstrate the real impact of social transfers on the income of beneficiaries, limited to measuring the impact of the tax system on the value of gross benefits (in cash) registered there and cannot take into account the amount of tax benefits granted to persons who do not receive such cash benefits.

In Romania, according to the legislative provisions in force, the state consents and is responsible for granting social assistance benefits through central and local public authorities, being granted both in cash and in kind that include allowances, allowances, social benefits and facilities. The most significant expenses incurred by the authorities are: Social aid, heating aid, family support allowance; state child benefit, foster allowance, child rearing allowance and insertion incentive; Rights granted to persons with disabilities in accordance with Law no.448/2006, HIV/AIDS food allowance, indemnity of persons with severe and accentuated disabilities, complementary personal budgets granted to persons with disabilities, as well as food allowance for children with HIV/AIDS type disabilities.

Such expenditure exists in all Member States of the European Union, regardless of whether the emphasis is placed in each country according to other divergent profiles.

## 5. Conclusions

The efficiency of the national social protection system depends on the efficiency of the income redistribution systems within a state, i.e. on the efficiency of the tax and social systems. In a country where the shadow economy is a significant part of economic life, where tax evasion and economic fraud are a natural practice, effective income redistribution and reducing social inequality is an impossible task.

The current system of social protection can be characterized as a centralized one, even if the intentions of decentralization of some responsibilities are pronounced once the financial capacities of local public authorities are strengthened in this regard.

In terms of information, we can say that those statistics and data on the execution of the national public budget on social programs are few and do not allow an analysis of the efficiency of their use.

To this aspect we can add the lack of an information system, which would allow an operational analysis and management of the resources managed by the Ministry of Labor and Social Solidarity.

Therefore, it is not possible to monitor many indicators with statistical validity, which is recommended at European level.

We conclude that certain vulnerable groups at risk of social exclusion have a particular need for integrated social services in the community, in particular social services without accommodation, where they can receive information, advice, education, mediation, connection to resources, psychological, social, educational, medical, employment support, housing, etc. multidisciplinary interventions are essential in an inclusive urban community with high economic potential.

The role of the authorities is to facilitate access to the basic services of the community, since in the absence of alternative socio-professional integration, opportunities to improve health, adequate housing conditions and participation in quality initial and continuing education, social inclusion of vulnerable people cannot be achieved.

The reserves for the increase of the funds of social programs remained directed toward optimizing the expenditures and less toward the increase of revenues as a share in the total revenues of the national public budget.

In the institutional aspect, the way of using these funds remains an outdated one, which is based on the resources and structures taken over from the former state institutions in the field – boarding schools, local labor agencies, etc., without an analysis of the optimization of this network.

The low capacity to monitor and analyze interventions through various social programs at both central and local levels persists.

There is a tendency to induce the proposed objectives and a weak correlation of the expected effects from social programs with predestined funds.

Compared to the legislation present at the level of most developed European countries, the Romanian unemployment insurance system is focused on granting some ungenerous benefits, especially in terms of the extent to which previous salary incomes are replaced.

In the case-law of some European countries, there is an interest in differentiating the categories of unemployed not only according to their seniority and the value of their previous income, but also according to a number of additional criteria, such as the family situation or the age of the applicant. The importance of these provisions lies in the ability to mitigate a number of collateral risks of unemployment (e.g., poverty) and cover vulnerable generations from the labor market point of view (e.g. people close to retirement age), thus relieving the pension system of expenses incurred with early retirement. In the case of Romania, such a measure could have beneficial effects, providing support to a category of population that, in the absence of earned income on the labor market, seeks financial stability by “forcing” early retirement levers.

Considering the statistical data on social benefits expenses, we believe that Romania is among the last positions in the rankings, which leads us to a state of the economy inclined to decline by the absolute decrease in real terms of the level of social expenses, but not their decrease in relative terms, in a time of heightened need.

The social protection issues that all States currently encounter are of particular interest to countries in transition, including Romania.

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# An Analysis of Network Effects and the Financial Performance of Online Learning Platforms

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## Abstract

*With the advances in the cloud computing, the Internet, and mobile communications technologies in the last two decades, a large number of business opportunities have emerged. The online learning providers bring together individuals and organizations so they can interact in ways not otherwise possible in order to generate value and utility. The global online learning market represents a growing and attractive opportunity for the incumbents from this sector. All of the analyzed platforms have recorded consistent growth over the years. Our research aims to develop a better understanding about the network effects and the financial performance of the major online learning platforms. We have focused on the context of Massive Open Online Course (MOOC) platforms since they have a higher impact on the online learning communities, analyzing their market segments and financial performance.*

**Key words:** online learning platform, MOOC, network effect, knowledge marketplace

**J.E.L. classification:** F23, M29

## 1. Introduction

The online learning has recorded a significant growth due to a number of factors including attractive costs, convenience, or novelty. Universities can use the online learning to promote or extend their courses and even to offer online degrees. Individuals can address conveniently their newer skills gaps created because of rapidly changing working environment. Organizations can use online learning to train their workforce or to offer access to online learning providers as an extra benefit for their employees. Instructors can deliver training classes to an audience that could not be reached otherwise and securing a higher revenue. These can be achieved by using the online learning platforms. Their scalable software architectures can make possible an efficient interaction between a large numbers of users.

A platform is defined as “a business based on enabling value-creating interactions between external producers and consumers” (Parker et al., 2016). An online learning platform is a set of interactive online learning services that provide the actors involved in education process with the information, tools and resources to support and enhance educational content delivery and management.

The introduction of online learning platforms has represented a significant step in the process of democratizing the education at global level. Their evolution since launching until the present days is an interesting process that can be analyzed from different perspectives. These platforms have initially started as local or regional initiatives and have gradually extended to national and global level. In many cases, these were initiated by top universities such as Stanford, MIT or Harvard. If initially, the online learning platforms did not have a commercial purpose; their original promises were to deliver a free education. Later on, they become genuine corporations in which private investors of venture capital (VC) funds have invested significant amounts of money for development.

## **2. Literature review**

In an internet-based economy, technology plays an important in enhancing demand-side economies or network effects. The companies that attract more participants offer a higher average value per recorded transaction (Van Alstyne et al., 2016).

Our research focuses on online learning platforms. They becomes more flexible, and are available for individual learners wherever they have computers, mobile phones, and internet access. They can better meet the needs of learners of different ages and different learning goals (Jie, 2021). In the academic literature, certain authors identifies distinct categories of online learning platforms such as Massive Open Online Courseware (MOOC) and Knowledge Marketplaces (KM) platforms (Cisel et al., 2021). Among MOOC platforms, the most representative are Coursera, EdX, Udacity or FutureLearn while the Knowledge Marketplaces platforms are represented by Udemy, Domestika or Skillshare. The MOOC platforms are typically collaborating with institutions of higher education or companies to produce course content in contrast with the online knowledge marketplaces that allow anyone to broadcast courses and charge a fee for them. Certain authors (Ansah et al., 2020) argue that in extending MOOCs globally, it is essentially to offer a localized courseware content. We see this already happening to a certain extent on certain online platforms such as Udemy. In the book “More than a moment” (Krause, 2020), the author describes the evolution of MOOC platform as a raise and fail, specifically, they failed to disrupt the way universities teach undergraduate students and award degrees. A slightly different opinion regarding MOOCs we find on an earlier paper (Haber, 2014), where the author states that the MOOCs have already demonstrated a “global appetite for high-quality, college-level courses and have succeeded in triggering a transformation within institutions of higher learning”.

## **3. Research methodology**

In the current research, we have examined the financial reports from the public companies running the online learning platforms such as Coursera, Udemy, EdX (U2, Inc.) in order to assess the economic performance and identify their major sources of revenues and expenses. Furthermore, we have performed a thorough review of the public data available on the official websites pertaining to the online learning platforms in order to identify the main features of their offers and the market segments addressed. Based on this information, we have conducted a comparative analysis of their business models and have examined the most important strategic moves that these companies have pursued in order to maintain a significant growth over the years.

## **4. Findings**

### **4.1 The global online learning market**

The current estimations for 2022 for the segment of online learning platform are as follows: the revenues of the online learning platforms will reach 57.25 billion US dollars. By 2026, the revenue is expected to reach 63.21 billion US dollars and the number of learners is expected to amount to 936.8 million (Statista, 2022). This suggests that there is a huge opportunity for online learning platforms to extend on different market segments.

### **4.2 Online learning and Higher Education**

The most prestigious universities such as Stanford University and Harvard University have offered free access for a number of online courses of from various domains such as computer science, mathematics, engineering, business and personal development. Furthermore, the major online learning platforms have collaborated with universities to generate learning content. Recently, it can be seen that more and more courses are created by the top technology companies such as Microsoft, Google, Salesforce, Amazon Web Services, DeepLearning.AI, etc. For example, Coursera has increased the percentage of such classes from 31% in 2020 to 39% in 2021, as illustrated in the Table 1 below.

Table no. 1 The percentage of new non-university courses

Online learning platform	2020	2021
Coursera	31%	39%
EdX	16%	26%
FutureLearn	38%	51%

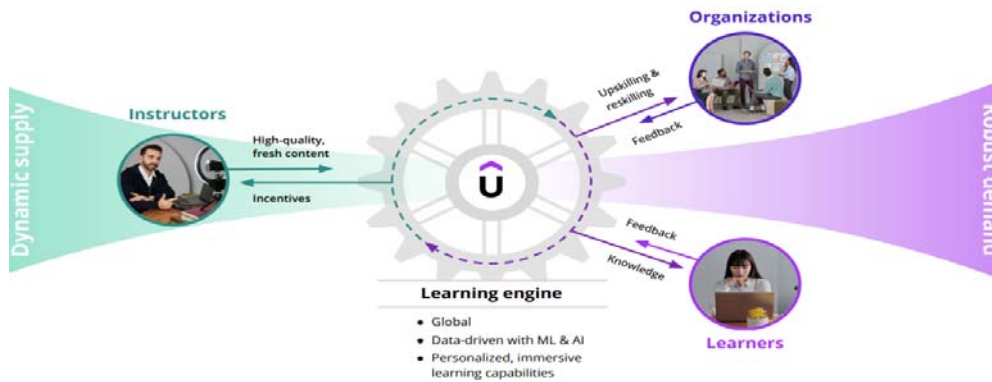
Source: ClassCentral.com, 2021

### 4.3 Network effects on online learning platforms

According with certain authors, “a network effect describes what happens when products get more valuable as more people use them” (Chen, 2016). The same author argues that the network effects can help as a protective barrier against competition. The online learning platforms brings together different categories of actors (instructors/trainers/professors or course producers, the students/learners/users and institutions). The platforms connect these actors that otherwise would not easily connect. As a result, the platforms generates network effects. To be more specific, the online platforms generates cross-side network effects, which means that the process of enrolling more students will attract more course producers or instructors to generate content on the platform. This in exchange generates more revenues for both platforms and instructors.

At Udemy, revenue incentives attract and motivate sixty-eight thousands instructors to create and regularly refresh the online learning content, currently totaling over 196000 courses. (Udemy.com, 2022). According with company data, the payments to course instructors have reached 180 million US dollars in the last 12 month, with top instructors earning more than one million US dollars per year. The courses are provided in 75 different languages, each language acting as a mini-marketplace. The figure 1 below illustrates the content generation engine as a result of cross-side network effect.

Figure no. 1 Udemy content generation engine

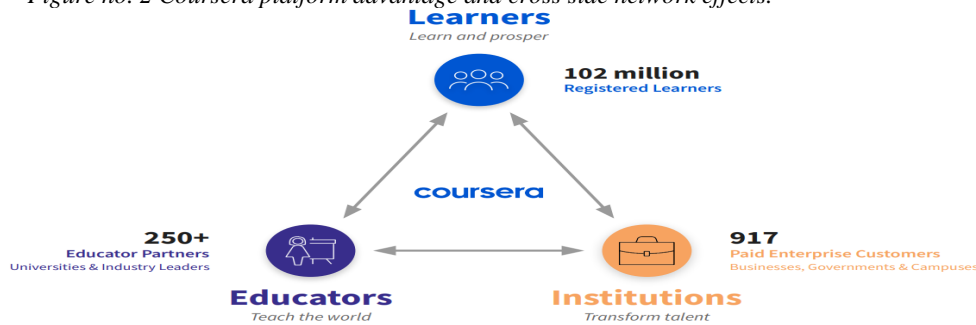


Source: Udemy Investor Presentation Q1 2022

At Coursera, the high number of learners and potential for revenues attract more content to be generated from universities or industry content providers. Consequently, the “fremium” content and credentials from top universities and technology companies attracts more learners. Equally important, quality content from top universities attracts various institutions (private and public organizations or campuses) which in return generates more learners and revenue for the platform and content producers. The Figure 2 illustrates the cross-side network effects for Coursera.



Figure no. 2 Coursera platform advantage and cross side network effects.



Source: Coursera data, as of March 31, 2022

#### 4.4 The market value of the online learning platforms

**Coursera** is the most valuable publicly traded MOOC platform, with a market capitalization of 2.354 billion US dollars (based on the share price from 17 June 2022). This is listed on NYSE (New York Stock Exchange) under the ticker symbol COUR.

**Udemy** went public at the end of October 2021 at 29 US dollars per share and has been listed on NASDAQ, under ticker symbol UDMY.

**EdX** platform, initially a non-profit MOOC platform, has been acquired by 2U, Inc. in November 2021 for 800 million US dollars in cash. 2U, Inc. is a public company listed on NASDAQ, under ticker symbol TWOU. Currently, the market value of 2U has dropped below the acquisition cost of EdX platform, reaching less than 650 million US dollars on second week of June 2022.

**Skillshare** is a for profit knowledge marketplace for creative domain that has been founded in 2010 and is headquartered in New York. The company is in its pre IPO phase (initial public offering) and had so far 11 founding rounds from 26 investors. The company has raised so far over 137 million US dollars in funding. Among the company investors, there are Adobe, Spero Ventures and Union Square Ventures. (CrunchBase.com, 2022). The estimated market value of the company (post-money valuation) is in the range of \$100M to \$500M as of August 10, 2020 (PrivCo.com, 2022).

**Udacity** is a for-profit MOOC platform founded by founded by Sebastian Thrun, David Stavens, and Mike Sokolsky. According with Crunchbase.com, the platform has raised a total of 240 million US dollars in funding over 12 rounds from 18 investors. The estimated market value of the company (post-money valuation) is in the range of 1 to 10 billion US dollars as of Sep 30, 2020 (PrivCo.com, 2022).

**Domestika** is private, for-profit online course marketplace for creatives. The company had a series C funding for 20 million US dollars from Late Stage Venture. On January 2022, the platform has raised another 110 million US dollars in Series D round from GSV Ventures and Zeev Ventures. This brings the company valuation to over one billion US dollars.

**FutureLearn** is a private company owned by The Open University and SEEK Ltd. In April 2019, in a press release, the company announced that SEEK Ltd invested 50 million GBP in the company. In return, SEEK has received a 50% stake in the company.

The Table no 2 below illustrates the market values of the online learning platforms based on the public data. Coursera, Udemy and 2U valuation are based on their share price as of 17 June 2022. Skillshare, Udacity and Domestika are evaluated based on Crunchbase.com data and FutureLearn valuation is based on company's press release from 29 April 2019.

Table no. 2 The financial valuation of the online learning platforms

Online Learning Platform	Market Capitalization
Coursera (COUR)	2.35 Billion USD
Udemy (UDMY)	1.712 Billion USD
2U, Inc. /EdX (TWOU)	647.401 Million USD
Skillshare	100 - 500 Million USD*
Udacity	1 Billion USD*

Domestika	1.3 Billion USD*
FutureLearn	122-129 Million USD**

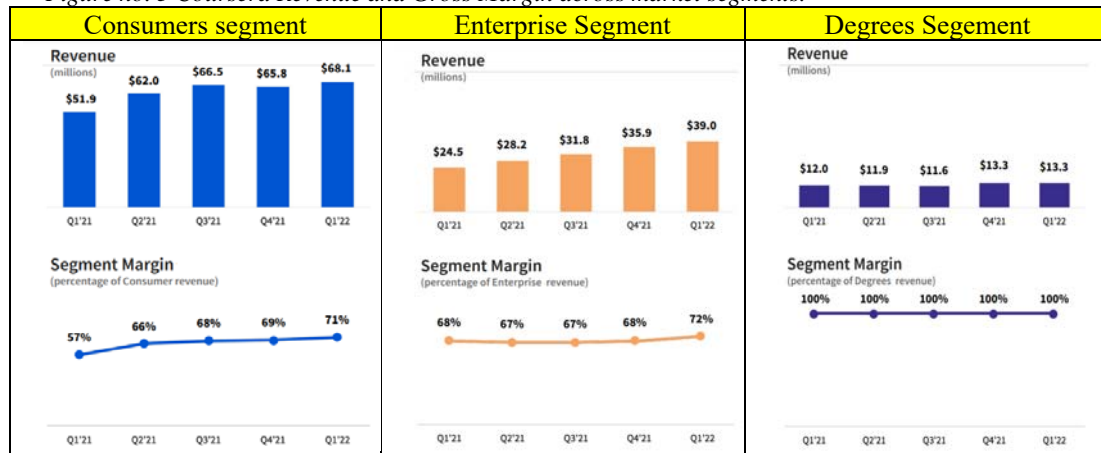
Source: Yahoo Finance, 2022, \*Crunchbase.com, 2022 and \*\*FutureLearn, 2019

#### 4.5 Financial performance of the online learning platforms

##### 4.5.1 Coursera Revenue and Gross Margin per market segments

The company operates on three major segments: Consumers, Enterprise and Degrees. As illustrated in the Figure 3 below, the company has the largest margin on Degrees segment (100%) and the largest revenue from Consumers segment. There is no content cost attributable to the Degrees segment as students pay tuition directly to the university, and the university pays the company a fee based on the amount of tuition.

Figure no. 3 Coursera Revenue and Gross Margin across market segments.

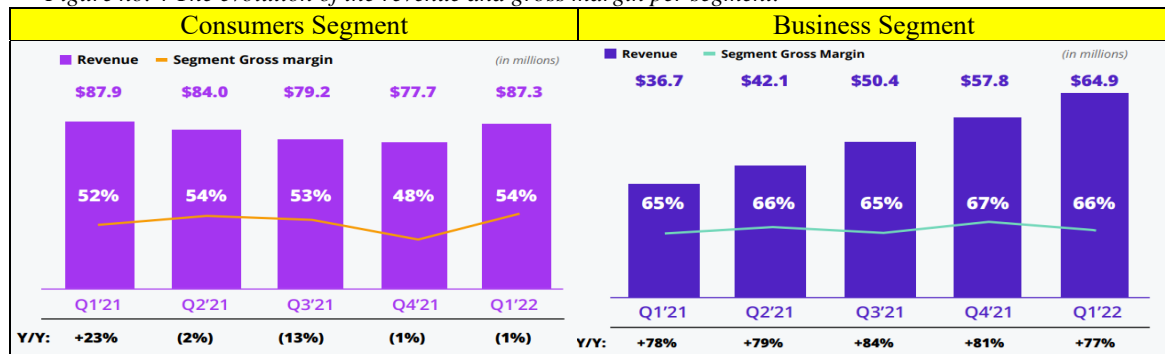


Source: Coursera, 2022

##### 4.5.2 Udemy Revenue and Gross Margin per market segments

As illustrated in the Figure 4 below, based on the most recent data from first quarter of fiscal year 2022, the company has recorded the highest revenue from the consumers segment (87.3 million US dollars) while the Enterprise/Business segment has the highest margin (66%). The Enterprise segment has the highest growth year over year (77%).

Figure no. 4 The evolution of the revenue and gross margin per segment.

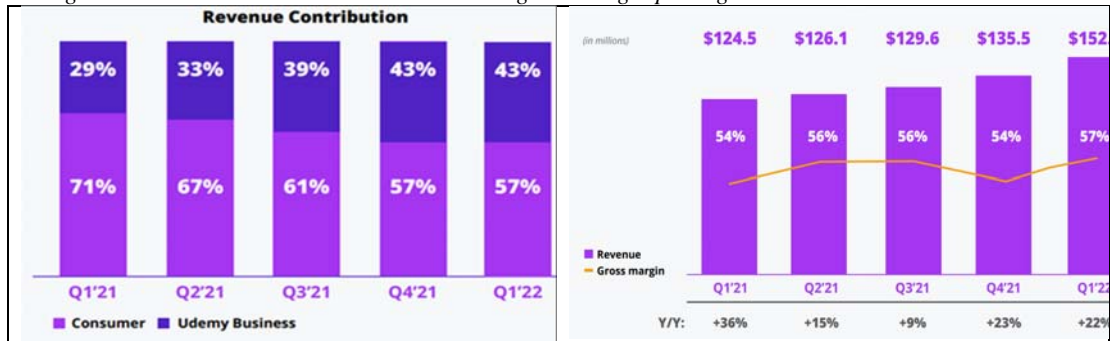


Source: Udemy Investor Presentation Q1 2022, Udemy.com

From the data illustrated in the Figure 5 below, it can be noticed an increase of overall contribution to the business segment to the total revenue, from 29% from first quarter of fiscal year 2021 to 43% in the most recent two quarters. It may be possible that the company’s business segment to bring the highest contribution to revenue generation in the next years, assuming the same rate of growth (year

over year). Furthermore, the total revenue has increased with 22% comparing with the same period of the previous year, reaching 152.2 million US dollars in Q1 2022.

Figure no. 5 Revenue contribution and overall gross margin per segment.



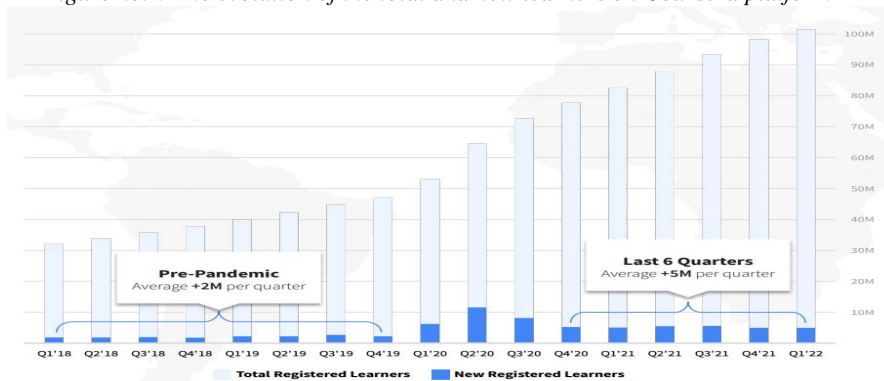
Source: UdeMy Investor Presentation Q1 2022

## 4.6 The evolution of the learners on Coursera and UdeMy platforms

### 4.6.1 The evolution of learners for Coursera

As illustrated in the Figure 6 below, we can see that the company has added more learners in the last six quarters, with over five millions new registered learners per quarter. This is the largest number of new registered learners recorded by an online learning platform during and post pandemic period.

Figure no. 6 The evolution of the total and new learners on Coursera platform

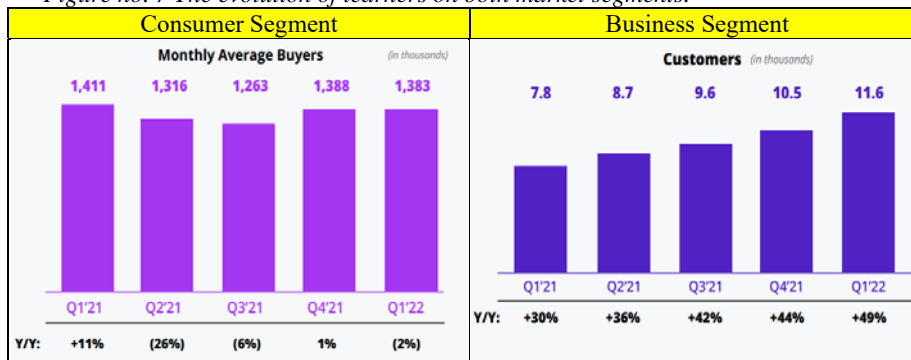


Source: Coursera.org, 2022

### 4.6.2 The evolution of learners for UdeMy

The Figure 7 below shows a small increase in the new learners from individual consumer segment and a consistent increase of customers from Enterprise/Business segment.

Figure no. 7 The evolution of learners on both market segments.



Source: UdeMy Investor Presentation Q1 2022

#### 4.7 Learner’s Switching Costs, Multi-Homing and Dropouts

After reviewing the offerings of both MOOC and KM platforms, there is a significant percentage of free classes offered by these platforms. Furthermore, the subscription and one-time payment business models used by the online learning platforms allows the learners can use and attend classes on multiple platforms. The large share of free MOOCs – in combination with relatively low switching costs between platforms – provides consumers with further incentives for multi-homing. Therefore, the online learning platforms need to leverage the available software technologies (big data/ learning analytics, machine learning, CRM, subscription management software, etc.) in order to better understand their customers and to fit their offerings to learners’ needs. With lower barriers to entry in the sector and with low switching costs from learners’ side, the online learning platforms will likely have an increasingly higher competition either from industry incumbents or from new players. In addition to the above, there is another point to consider is the attrition of the learners / student dropouts. According with certain authors (Reich et al., 2019), most of the students that have registered to an MOOC leave soon after enrollment. A percentage of 52% of the students that register for a MOOC never enter the courseware. This results in additional challenges for online learning platforms and additional measures needs implemented in order to achieve a higher success rate for registered learners.

#### 5. Conclusions

In the context of a global online learning market, the platforms have a major potential for development. There is a major shift toward online education and the mobile technologies have offered access to an increasingly larger number of learners.

The Enterprise segment is a new source of growth for the analyzed platforms and the margins seems to be more attractive comparing with individual consumers segment.

The analyzed online learning platforms have recorded very attractive margins on all the analyzed segments. This will allow the platforms to have access to capital, to thrive and to continue growing. In the same time, the lower barriers to entry and attractive margins may determine the players from different industries to consider entering on the online learning market via an acquisition, a joint venture or even a direct investment.

The online learning platforms collect a large volume of data from learners therefore, they can leverage the big data / learning analytics and can build more accurate machine learning algorithms in order to better adapt to the learners needs.

As they continue the growth process, the online learning platforms benefit from cross-side network effects.

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# The MSP Stakeholders' Perception of Port and Coastal Protection Activity

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## Abstract

*The management of coastal and marine areas is a dynamic and complex one, which must take into account ways of balancing resource use and promoting the sustainable growth of the maritime economy. The MSP Directive (2014/89/EU) requires the Member States to consider economic, social, and environmental aspects in order to support sustainable development and the growth of the maritime sector, taking into account the interactions between land and sea. Thus, the aim of this article is to carry out an assessment of stakeholders' perceptions of land-sea interactions' impact on the port and coastal protection activities in the Romanian Black Sea coastal area, from the point of view of their priorities: ecological, economic, and social. The analysis was performed on the basis of a questionnaire drafted within the MARSPLAN BS II project, to which MSP stakeholders, public and private entities, responded, the variables being grouped according to the scale on which the participating organization is operating: international, local and national.*

**Key words:** port and coastal protection activity, stakeholders, Land–Sea Interaction (LSI), Romanian coastal area, Maritime Spatial Planning (MSP)

**J.E.L. classification:** O20, R10

## 1. Introduction

The coastal area is the transition area, especially the part of the land marked by its proximity to the sea, an area in which the processes that depend on the interaction between land and sea are the most intense (Clark, 1996). As a consequence of the fact that coastal areas have often been used for a series of destructive and consumerist uses not necessarily specific to them (for instance, seaports and marinas) (Nguyen *et al.*, 2020, p. 125) and of the diversity of the economic activities which develop in these areas, an integrated approach to the management processes is necessary. Since one can observe an intensification of the use of this space whereby deficits and potential conflicts are rising, there is a need to institutionalize these uses so as to reduce direct or induced negative effects (Schlüter *et al.*, 2020, p. 1).

One of the European policies which aims to ensure a sustainable balance for coastal and marine areas is Directive 2014/89/EU on Maritime Spatial Planning. It provides the framework for an integrated planning and adaptive approach to how the EU Member States are managing their human activities in these areas. This is one of the reasons why most EU coastal states are preparing different types of maritime spatial plans, and the Member States have the responsibilities and abilities to design and determine the format and content of these plans for their marine waters.

Thus, Bulgaria and Romania, in partnership, implemented in the 2019-2021 period the MARSPLAN BS II project, one of the main objectives of the project being the development of the maritime spatial plans at national and regional/cross-border levels for the Black Sea area. Within the project, several studies on the Romanian and Bulgarian maritime space were conducted (Aivaz, Stan and Vintilă, 2021a; Aivaz, Stan and Vintilă, 2021b; Stan and Vintilă, 2022; Stancheva and Stanchev, 2021; Stancheva *et al.*, 2021), which tackled economic and social issues of public and private entities from the perspective of human activities and uses, mainly in the marine areas, in close relation with the coastal areas. Complying with the requirement of the MSP Directive (2014/89/EU), within the

project, under Activity 2.3 "Integration of Land-Sea Interactions (LSI) in MSP for the cross-border region", a study on Land-Sea Interactions (LSI) was performed, by consulting MSP stakeholders.

This paper carries out an analysis of the perception of MSP stakeholders regarding the most important land-sea interactions' impact on port and coastal protection activity in the Romanian Black Sea coastal area.

## 2. Literature review

The management of coastal and marine areas is a dynamic and complex one, which must take into account ways of balancing resource use and promoting the sustainable growth of the maritime economy. The development of specific economic activities in these areas (e.g., fishing, agriculture, maritime transport, resource extraction, tourism, other land-based activities) can have a direct, indirect, or induced negative impact on the environment. Therefore, coastal area management must integrate information from all the entities in this area, from a multidisciplinary perspective (Álvarez-Berastegui *et al.*, 2014, p. 1), especially regarding human uses and activities, as these can have an impact on coastal and marine ecosystems.

Article 4 of Directive 2014/89/EU specifies that the relevant current and future activities and uses, as well as their impact on the environment and the natural resources specific to each marine region must be taken into account when drafting the MSP, while also paying attention to the interactions between land and sea.

The Land and Sea Interactions (LSI) analysis is not a new discipline in itself, nor is it an additional requirement for the coastal or marine planning activity (SUPREME, 2018, p. 4), it is merely a framework developed to be taken into consideration within MSP. The study of these interactions demonstrates the need for balance in the relationships between socio-economic activities both at sea and on land (Creamer *et al.*, 2020, p. 13).

At the same time, the MSP Directive (2014/89/EU) stipulates that in the preparation of MSP plans particular attention should be paid to the various pressures arising from: human activities, climate change effects, natural hazards and shoreline evolution through erosion or accretion, as these can have a serious impact on the development and economic growth of the coastal areas.

The multiple economic, social, and recreational opportunities of this area have attracted people to the coastal areas (Petrișor *et al.*, 2020, p. 2), leading over time to pressures resulting from human activities, the coastal and marine areas being among the most relevant areas when tackling management and conservation processes due to the interactions that characterize the exchange zone between land and sea (de Andrés and Barragán Muñoz, 2022, p. 1).

In the context of maritime spatial planning (MSP), land-sea interactions (LSIs) are important, given the many coastal activities that are developing, especially the port and coastal protection activities. In this context, maritime spatial plans can create important enabling conditions for the operation and development of ports (Czermański *et al.*, 2021, p. 1), the coastal area being fully protected for its use purposes.

The MSP Directive requires the Member States to consider economic, social, and environmental aspects in order to support sustainable development and growth in the maritime sector, taking into account land-sea interactions.

From the perspective of MSP stakeholders, in addition to all the challenges that have come up over time in the coastal area, the unprecedented global economic context generated by Covid-19 has raised a new issue, that of organizational resilience, given that a resilient company will design and implement effective actions in order to increase the likelihood of its own survival (Aivaz and Căpățână, 2021, p. 289). Starting from the premise that a company's financial assets are those means by which a company can secure an income for a period of several years, given that they are economic resources that can generate future economic benefits for the company which owns them, Aivaz, in a series of comprehensive research, analyzed the economic activity of companies in key sectors located in the Black Sea coastal area: agriculture, forestry and fishing (Aivaz 2021a, p. 2; Aivaz, 2021b, p. 31), Horeca (Aivaz and Micu, 2021, p. 324), maritime fishing and aquaculture (Aivaz, 2021c, p. 9). The selected financial indicators - fixed assets, current assets, accrued expenses, net income, return on total assets - emphasized a whole series of particularities regarding the flexibility or rigidity of the groups and sub-groups of analyzed activities. Both the companies which survived and those

which improved their results were able to transform their business by amplifying the intrinsic value of their products and by becoming a psychological and social bond for the consumers. As a general conclusion, the implementation in MSP of the results of certain studies which are focused on entities operating in various fields of activity (fishing, aquaculture, agriculture, transport, tourism, construction, Horeca, etc.) is relevant for the efficient management of the sustainable development of the coastal and maritime area.

Thus, the multitude of economic activities taking place in the coastal area requires the involvement and participation of various authorities, economic operators and other stakeholders, from different levels, while MSP has to discover the preferences and interests of all stakeholders (Zauchă and Kreiner, 2021, p. 1). In order to successfully promote sustainable development, it is essential for the stakeholders representing the multiple sectors operating in the coastal area, the authorities and the public to be consulted in a timely manner during the preparation of MSPs (Directive 2014/89/EU).

To this end, Bulgaria and Romania have carried out the analysis of the land-sea interactions (LSI) for the cross-border area, using descriptive and exploratory methods (Stancheva and Stanchev, 2021, p. 50).

### **3. Research methodology**

The aim of this paper is to carry out an assessment of stakeholders' perceptions regarding land-sea interactions' impact on port and coastal protection activities in the Romanian Black Sea coastal area from the point of view of their priorities: ecological, economic, and social.

For the implementation of Activity 2.3 "Integration of Land-Sea Interactions (LSI) in MSP for the cross-border region", a questionnaire was prepared by the representatives of the National Institute for Marine Research and Development "Grigore Antipa", and distributed online to the stakeholders by the partners involved in the MARSPLAN BS II project and interpreted by the members of the research team from "Ovidius" University of Constanta.

The questionnaire comprised 65 questions and was designed to clarify aspects which include the two components related to (1) interactions with landward to seaward impact and (2) seaward to landward interactions. They cover both economic activities and natural phenomena and processes. The stakeholders, public and private entities, filled in the questionnaire (Vlasceanu *et al.*, 2021, p. 241), the variables being grouped according to the scale on which the participating organization operates: international, local, and national. From a methodological point of view, this assessment was carried out for each natural activity or process by assigning a value in relation to the three dimensions of sustainability (ecological, economic, and social), using a numerical set of values from 3 to 0. Thus, for each response option the assessment of ecological priority, economic priority and social priority is defined by the score value given, as follows: High (score 3), Medium (score 2), Low (score 1) and Not Known (score 0). The data processing, systematization of results, and obtaining indicators used for the statistical analysis were performed using the Statistical Program for the Social Sciences (SPSS).

### **4. Findings**

Romania's coastal area stretches for about 245 km along the North-Western shore of the Black Sea. For the sustainable development of the coastal area, as well as for the reduction of the coastal erosion which has severely impacted the Romanian Black Sea shore, the Master Plan "Protection and Rehabilitation of the Coastal Zone" was drawn up so as to assess the existing situation and identify the required investments - projects related to coastal erosion control (Stan, 2014, p. 54; Stan, Aivaz and Ionițiu, 2019, p. 111).

Thus, complex coastal engineering interventions have been carried out along the Romanian coast aimed at protecting the shoreline and expanding the port of Constanta, the coastal protection approach consisting in the implementation of "heavy" and "light" structural rehabilitation solutions (Stan, Vintilă and Țenea, 2014, p. 578).



For the analysis performed in this article, port and coastal protection activities were selected from the comprehensive questionnaire distributed among the stakeholders that targeted the most relevant activities taking place in the Romanian coastal area. The surveyed stakeholders were public and private entities from the activity sectors which are relevant in terms of the use of marine space and operating in the coastal area (public authorities, economic agents, non-governmental organizations, research institutes and universities, public companies, etc.) and whose activities are carried out at different levels - international/national/local.

The performed analysis pays attention to stakeholder's assessment regarding how land-based developments influence and support marine developments and how they influence the environment in terms of port and coastal protection activities, according to the information and the interests which are impacted by maritime spatial planning.

Table no. 1 Stakeholders' assessment on the environmental priority

			The scale on which the organization operates			Total
			International	Local	National	
To what extent can port activity, coastal protection (seawalls) be considered an Ecological Priority?	3	Count	7	16	13	36
		% within The scale on which the organization operates	70.00%	76.20%	65.00%	70.60%
	2	Count	3	3	5	11
		% within The scale on which the organization operates	30.00%	14.20%	25.00%	21.60%
	1	Count	0	1	1	2
		% within The scale on which the organization operates	0.00%	4.80%	5.00%	3.90%
	0	Count	0	1	1	2
		% within The scale on which the organization operates	0.00%	4.80%	5.00%	3.90%
Total	Count	10	21	20	51	
	% within The scale on which the organization operates	100.00%	100.00%	100.00%	100.00%	

Source: Author's own processing

Thus, for the surveyed entities, regardless of the scale on which the organization operates (international, local, national), port and coastal protection activities are considered an *environmental priority*, the following values being assigned: 70.60% - High, 21.60% - Medium, 3.90% - Low and 3.90% - Not Known (Table no. 1). The coastal and littoral area is subject to pressure from anthropogenic factors with a major impact on coastal and marine ecosystems, through port activities, maritime transport, fishing, agriculture, fish farming/pisciculture, large urban agglomerations and tourist resorts, tourism and water sports, industrial objectives, etc. One can notice that the local level entities consider these activities as a high priority - 76.20%, because the negative impact on the ecological status has consequences on the local coastal communities, the local community's interest in the implementation of the coastal area management process being very significant (Braşoveanu, 2015, p. 20).

The infrastructures along the Romanian coastline are: harbors, marine / coastal / artificial reef civil engineering works, submerged, emersed, perpendicular to the shore, parallel breakwaters, etc. In the coastal and marine area, measures to mitigate the potential negative impact on the ecological status are needed. A positive impact is generated by construction works on the sea, which are mainly aimed at stopping coastal erosion.

Coastal protection works regulate local alluvial transport and help maintain certain beaches along the seashore, areas which are in the proximity of several EU-designated protected areas (Filip, Stan and Vintilă, 2016, p. 525). However, major beach sanding works have a negative effect on shallow water biodiversity from an ecological point of view.

According to the data analysis, regardless of the scale on which the respondent organization operates (international, local, national), port and coastal protection activities are considered an *economic priority*, as the following scores resulted: 74.50% - High, 13.70% - Medium, 2.00% - Low and 9.80% - Not Known (Table no. 2). Ports play a significant role in the development of coastal areas, the undertaken economic activities contributing essentially to the growth of port cities from an economic perspective. Moreover, ports are important in terms of supporting economic activities in the hinterland, given that they act as a crucial link between maritime and land transport (Dwarakish and Salim, 2015, p. 295).

Table no. 2 Stakeholders' assessment on the economic priority

			The scale on which the organization operates			Total
			International	Local	National	
To what extent can port activity, coastal protection (seawalls) be considered an Economic Priority?	3	Count	8	17	13	38
		% within The scale on which the organization operates	80.00%	81.00%	65.00%	74.50%
	2	Count	1	1	5	7
		% within The scale on which the organization operates	10.00%	4.80%	25.00%	13.70%
	1	Count	1	0	0	1
		% within The scale on which the organization operates	10.00%	0.00%	0.00%	2.00%
	0	Count	0	3	2	5
		% within The scale on which the organization operates	0.00%	14.20%	10.00%	9.80%
Total	Count	10	21	20	51	
	% within The scale on which the organization operates	100.00%	100.00%	100.00%	100.00%	

Source: Author's own processing

The Romanian coastal area includes the Port of Constanta, located on the Western coast of the Black Sea, being positioned on the routes of 3 pan-European transport corridors linking the North Sea to the Black Sea via the Rhine-Main-Danube corridor. One can notice that this criterion is a top priority for the international level entities - 80.00%, and for the local level entities - 81.00%. The entities' interest in this economic activity is particularly strong because the advantageous position of the Port of Constanta confirms its major role within the European intermodal transport network, being favorably located at the intersection of the trade routes connecting the markets of landlocked countries in Central and Eastern Europe with the Transcaucasian region, Central Asia and the Far East (National Company "Administrația Porturilor Maritime" S.A. Constanța). The Port of Constanta is both a maritime and a river port and a tourist port and it performs these functions together with its two satellite ports, Midia and Mangalia, which are part of the Romanian seaport complex.

On the other hand, the rehabilitation works carried out on the beaches of the Romanian coastline, which will lead to the expansion of the beach areas, will have the main effect of increasing the tourist potential and, implicitly, increasing the number of tourists in the coastal area. The attractiveness of the area will generate new investments in tourist infrastructure (hotels, restaurants, leisure facilities, etc.).

Regarding the extent to which port and maritime coastal protection activities are a *social priority*, the distribution of stakeholders' scores regarding the assessment of this priority are: 56.90% - High, 29.20% - Medium and 13.70% - Not Known (Table no. 3). This stakeholders' perception is supported by the differences in terms of development between the city of Constanta and the other urban and rural localities along the coastal area. It is worth noting that for the international level entities these activities are considered a top priority (90.00%), since the company carrying out most of the coastal area rehabilitation works is an international one which absorbs local workforce, but also other workforce. The coastal area rehabilitation measures, including infrastructure projects, currently being implemented, over time, will lead to the development of coastal communities. On the other hand, the Free Zone status of the Port of Constanta facilitates foreign trade and the transit of goods to/from Central and Eastern Europe.

Table no. 3 Stakeholders' assessment on the social priority

		The scale on which the organization operates			Total	
		International	Local	National		
To what extent can port activity, coastal protection (seawalls) be considered a Social Priority?	3	Count	9	10	10	29
		% within The scale on which the organization operates	90.00%	47.60%	50.00%	56.90%
	2	Count	0	7	8	15
		% within The scale on which the organization operates	0.00%	33.40%	40.00%	29.40%
	0	Count	1	4	2	7
		% within The scale on which the organization operates	10.00%	19.00%	10.00%	13.70%
Total		Count	10	21	20	51
		% within The scale on which the organization operates	100.00%	100.00%	100.00%	100.00%

Source: Author's own processing

From the performed analysis, one can see that stakeholders' assessment on how land-based developments influence and support marine developments and how they impact the environment in relation to port and coastal protection activities is perceived differently depending on their knowledge, expertise, information and interests, which are affected by maritime spatial planning, with land and sea interactions (LSI) being strongly linked to the economic benefits of MSP (Creamer *et al.*, 2020, p. 13). Thus, the involvement of the stakeholders representing the multiple sectors operating in the coastal area in maritime spatial planning is necessary and useful, being among the key factors in MSP's success (Zauchá and Kreiner, 2021, p. 1).

The shared use of maritime space with other activities, especially in the coastal zone, as well as its socio-economic consequences will also be addressed in maritime spatial planning, as the integration of land-sea planning is known to be challenging, due to the complex groups of actors and agencies and to competing sectoral uses (Morf *et al.*, 2022, p. 336).

## 5. Conclusions

Even though the economic and social well-being of the coastal area depends to a large extent on the rational and sustainable use of natural resources (Vintilă *et al.*, 2017, p. 670), nevertheless, sustainable development with regard to the marine area, while not having succeeded in definitively stopping the harmful effects of human activities, has largely allowed the environment to better manage itself (Braşoveanu, 2013, p. 89), with MSP supporting sustainable development and growth in the maritime sector taking into account the interactions between land and sea.

Maritime Spatial Planning (MSP) is a complex process that needs to take into account Land and Sea Interactions (LSI), and the contribution of stakeholders at different levels is important given the variety of challenges facing MSP-LSI. Thus, when drawing up MSP plans there is a need to integrate significant information and data regarding the relevant activities from an LSI perspective, including by creating national strategies covering both land and sea areas (Kidd, Jones and Jay, 2019, p. 259).

Therefore, drafting the MSP plan for the Black Sea area at national and regional/cross-border levels will be a tool for the efficient organization of coastal area management.

## 6. Acknowledgments

This work has been supported by the European Commission through the European Maritime and Fisheries Fund, Cross-border Maritime Spatial Planning for Black Sea – Bulgaria and Romania (MARSPLAN-BS-II), EASME/EMFF/2018/1.2.1.5/01/SI2.806725.

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# An Analysis of the Municipal Waste Management of Romania and Bulgaria in the European Context

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## Abstract

*Since municipal waste accounts for 7% - 10% of all waste generated in the European Union, this issue drums up major interest at the institutional level, given that increasing the levels of collected waste poses significant challenges to the environment and human health. The European Union adopted a legislative package which promotes the shift towards a more sustainable development model, known as the circular economy. The aim of this article is to analyze the dynamics of municipal waste management in Romania and Bulgaria in the European context, as there are deficiencies in these countries' implementation of the European waste management legislation. Eurostat's data for the 2000-2020 time horizon was used for the undertaken analysis. The results of the study show that both Romania and Bulgaria are facing similar challenges in terms of waste management due to the fact that some of the European directives have not been transposed into the national legislation.*

**Key words:** municipal waste, Romania, Bulgaria, sustainable development, circular economy

**J.E.L. classification:** Q01, Q53

## 1. Introduction

The municipal waste issue preoccupies European Union's institutions, since the increasing levels of collected waste pose significant challenges to the environment and human health, with municipal waste accounting for approximately 7%-10% of all waste generated in the European Union (Directive UE/2018/851).

The *2030 Agenda for Sustainable Development* has identified 17 Sustainable Development Goals (SDGs) and 169 targets structured around five pillars, which included all three aspects of sustainable development - social, economic, and environmental. At EU's level, the European Commission has made a commitment to implement the *2030 Agenda for Sustainable Development*, focusing on performing specific actions which will lead to tangible progress in the areas of the Sustainable Development Goals (SDGs).

Every year, the European Union produces more than 2.5 billion tons of waste, which is why, in 2018, it adopted the Circular Economy Package, which set new legally binding objectives for waste recycling and landfill reduction, with fixed deadlines (European Parliament, 2018) in order to promote the shift towards a more sustainable development model.

Subsequently, in 2020, the European Commission presented a new *Circular Economy Action Plan for a Cleaner and More Competitive Europe* aimed at reducing waste through better resource management, with a focus on accelerating the radical changes requested by the *European Green Deal* - Europe's new agenda for sustainable growth (European Commission, COM/2020/98 final).

In 2021, the Resolution on the new *Circular Economy Action Plan* was adopted, which considered this to be the way for the EU and European businesses to remain innovative and competitive on the global market, while reducing their negative environmental footprint (European Parliament, 2020/2077(INI)).

Therefore, the waste problem at EU's level is a complex one and it needs to be treated seriously by the Member States, as waste is not only an environmental problem, but also a cause of economic losses.



The aim of this paper is to carry out a dynamic analysis of municipal waste management in Romania and Bulgaria in the European context, given that there are deficiencies in these countries' implementation of the European waste management legislation.

## 2. Literature review

At EU's level, waste can often be seen as a resource that can generate added value. Since the implementation of economic instruments can maximize the environmental benefits (Directive 2008/98/EC), the management of material waste must be sustainable in order to protect, preserve and improve the quality of the environment, protect human health, ensure prudent, efficient and rational use of natural resources, promote the circular economy's principles (Directive EU/2018/851).

Waste has a direct and indirect negative impact on the environment, the citizens' well-being and the economy, and the clean-up costs are an economic burden on society (Directive UE/2018/851). EU waste management legislation and specialized literature classify as municipal waste both household waste and waste from other sources - public institutions, companies, industrial enterprises, the education sector, health services, accommodation and restaurant services, construction activities, which is similar in nature and composition to household waste - or the waste generated in the residential area - habitable and non-residential area - commercial/business district, corporate institutions/construction/demolition services of buildings and special structures (Bello, Al-Ghouti and Abu-Dieyeh, 2022, p. 2). Municipal waste also includes, inter alia, the waste resulted from the maintenance of parks and gardens, green space management being the responsibility of the local public administration (Stan, 2022, p. 61).

A country's economic growth is necessary, but not always sufficient so as to ensure economic development. Thus, a consequence of a linear economic development based on the intensive use of natural resources, with a negative impact on the environment and waste production, is that it does not ensure economic and social sustainability (Vuță *et al.*, 2018, p. 169). The transition to the circular economy is an exceptional opportunity to transform the economy and make it more sustainable, to contribute to achieving climate goals and to preserve world's resources, to create local jobs (European Commission, COM/2018/029 final), given that the circular economy is a production and consumption model that involves sharing, reusing, repairing, refurbishing, and recycling existing materials and products as long as possible.

The circular economy is a philosophy through which broader sustainability issues in society can be tackled (Marsh, Velenturf and Bernal, 2022, p. 2), being seen as a necessary and pragmatic solution for reconciling the connection between the pace of economic growth and the pressure on the resources provided by the environment (Căuțișanu *et al.*, 2018, p. 182), and it needs to be embraced in everyday life by each economic agent, and also by households and governments (Bongers and Casas, 2022, p. 2).

In the European Commission's Action Plan, key circular sectors, such as plastics, textiles, waste electrical and electronic equipment, food, water and nutrients, packaging, batteries and vehicles, buildings and constructions, were established (European Parliament, 2021), the circular economy applying to all sectors of activity as it has the capacity to achieve synergies which, through cumulation, can lead to new development opportunities (Târțiu *et al.*, 2019, p. 14). For example, plastic waste impacts the marine environment and poses a threat to economy, in general, to tourism, fish farming, aquaculture, maritime transportation, in particular, and for the coastal communities. Construction and demolition waste is a potential source for recycling and reuse in the construction industry, the construction sector being a key area with a significant economic and environmental impact, thus contributing to economic growth (Stan and Vintilă, 2021, p. 172; Aivaz and Avram, 2021, p. 475). Therefore, growth in the construction sector largely depends on the size of the business (Stan, 2021, p. 227), being one of the most resource and waste intensive economic activities (Sáez-de-Guinoa *et al.*, 2022, p. 1), thus economic operators need to have a clear perspective on the necessary investments for waste management.

Lately, strategies and regulations which are in force in the business sphere increasingly require companies to improve their social and environmental performances, which are assessed via corporate social responsibility (CSR) practices. Aivaz (2021a, p. 52) highlighted the fact that these practices are or should be a very present preoccupation for the activities of business support services, where



economic entities' initiatives or companies' annual CSR reports demonstrate the increasing involvement of companies in responsible business practices. Whereas there are many examples of successful CSR endeavors, there are still many situations in which companies' activities do not correspond to responsible behavior. In the Romanian business sector, where each company chooses, at its establishment, a core activity that generically defines its future operations, there is an operational subcategory that encompasses in an interesting way many of the activities of interest to the sustainability principles. The results of studies carried out based on results indicators, by fields of activity (Aivaz and Căpățână, 2021, p. 289; Aivaz and Micu, 2021, p. 324; Aivaz, 2021b, p. 2; Aivaz, 2021c, p. 31; Aivaz, 2021d, p. 9) suggest that although stakeholders control resources which may be important to companies, the relationships established with them should be properly managed, so as to ensure the revenues and profits that the companies seek. Therefore, at a time when business orientation is competing to promote a balanced working environment, the attention to the environment is increasingly pressing, and innovation is a key to performance, operational diversity in the form of support services is of particular interest, and waste management can be incorporated into the object of activity of all the businesses.

Municipal waste, which is usually in close proximity to the citizens, has a very high degree of public visibility and important consequences for the environment and the health of the population. (Directive UE/2018/851). Its management is the responsibility of the local administration, thus contributing to the achievement of national targets. Hence, although the responsibility for municipal waste management lies with the local public administration, through the public sanitation services organized at the level of the administrative-territorial units, contracts for sanitation services may be concluded with economic agents in the field.

The municipal waste management issue deals with waste generation, storage at source, collection, transport, processing, and disposal at its final destination, implicitly regulation and monitoring, while complying with the legislation, health regulations and economic framework, so as to achieve environmental sustainability. Therefore, municipal waste management requires an efficient waste management system through the active involvement of citizens and enterprises and a detailed financing system (Directive UE/2018/851). Moreover, public and private decision-makers must integrate the environmental component into their development strategy in order to prevent their activities from irreversibly degrading the environment, in line with the two fundamental principles: prevention and sustainable development (Brașoveanu, 2013, p. 148).

### 3. Research methodology

The aim of this research is to carry out a quantitative, dynamic analysis of municipal waste management in Romania and Bulgaria. The specific objective of the research is to analyze, by means of statistical indicators representative of the distribution series, the municipal waste per capita (kg) generated in Romania and Bulgaria compared to European Union's level.

For the undertaken analysis, we have used data provided by Eurostat, the Statistical Office of the European Communities, for the 2000-2020 period. The analyzed database was formed by applying several filters: the theme *circular economy indicators, production and consumption*, and the indicator *municipal waste production per capita* were selected. The indicator measures the waste collected by or on behalf of municipal authorities and disposed of through the waste management system and it consists largely of waste generated by households, although similar waste from sources such as commerce, offices and public institutions may also be included.

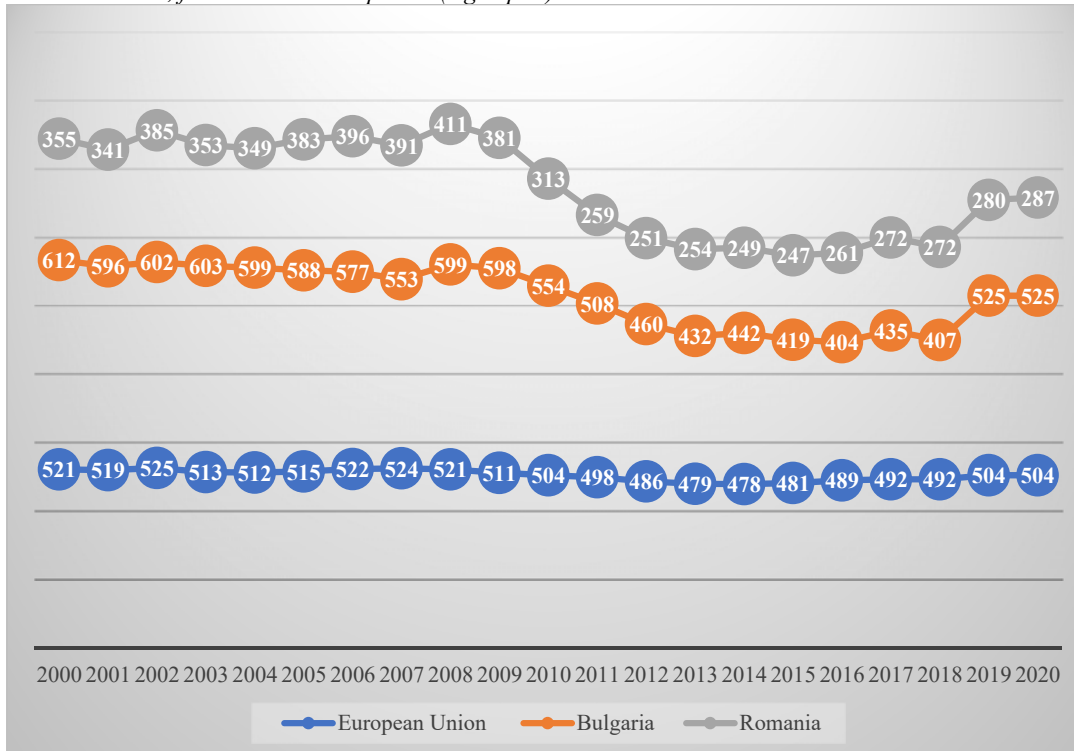
The data processing, the systematization of results, and obtaining indicators used for the statistical analysis were performed using the Statistical Program for the Social Sciences (SPSS).

### 4. Findings

The article analyzes the amount of municipal waste generated by Romania and Bulgaria compared to European Union's level, for the 2000-2020 time period. Municipal waste generation varies considerably between the EU Member States.

Figure no. 1 shows that, for the 21-year period analyzed, the amount of municipal waste at EU's level has been relatively constant, at around 500 kg/capita.

Figure no. 1 The amount of municipal waste generated by Romania and Bulgaria compared to European Union's level, for the 2000-2020 period (Kg/capita)



Source: Author's own processing

Thus, a person in the European Union generated, on average, an amount of 504.29 kg/capita of municipal waste for the analyzed period (Figure no. 2). In 2020, the amount of municipal waste generated by a person in the European Union was 505 kg/capita, a decrease of 17 kg being recorded since 2000. In 2012 the highest amount of municipal waste generated was recorded, i.e., 525 kg/capita and in 2014 the lowest amount of municipal waste generated, i.e., 478 kg/capita (Table no. 1).

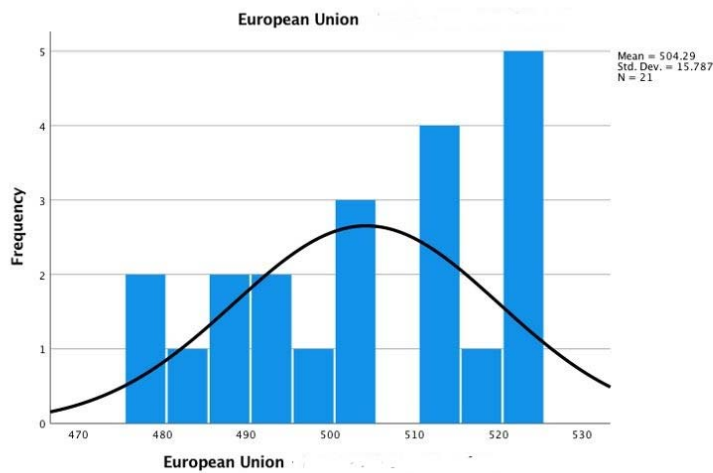
Table no. 1 The statistical description of the "amount of waste" indicator

		European Union	Bulgaria	Romania
N	Valid	21	21	21
	Missing	0	0	0
Mean		504.29	525.62	318.57
Range		47	208	164
Minimum		478	404	247
Maximum		525	612	411

Source: Author's own processing

One can notice a relatively constant trend with slight fluctuations in municipal waste generation for the 2000-2020 period at EU's level.

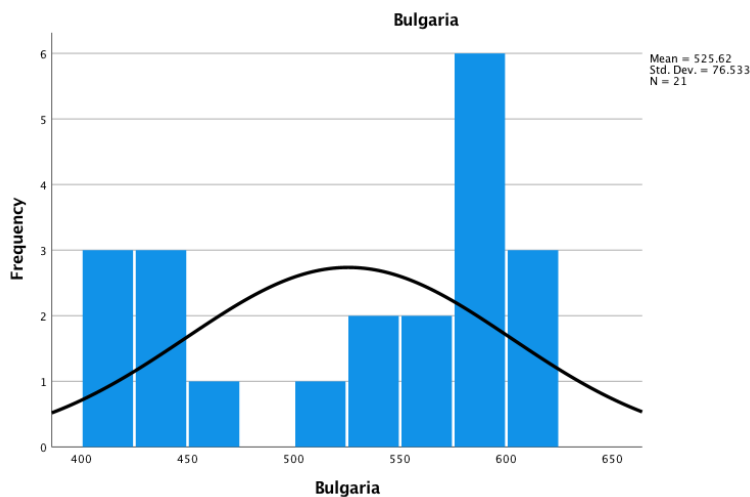
Figure no. 2 Histogram of waste amounts at European Union’s level



Source: Author’s own processing

For the analyzed period, in Bulgaria, one person has generated, on average, an amount of 525.62 kg/capita of municipal waste (Figure no. 3). In 2020, the amount of municipal waste generated by a person in Bulgaria was 525 kg/capita compared to 2000, a decrease of 87 kg being recorded. One can see that in the year 2000 there was the highest amount of municipal waste generated, i.e., 612 kg/capita, and in 2016 the lowest amount of municipal waste generated, 404 kg/capita (Table no. 1).

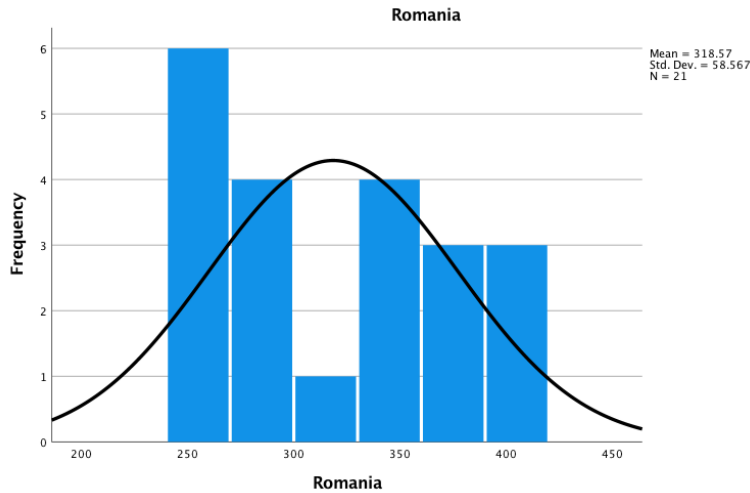
Figure no. 3 Histogram of waste amounts at the level of Bulgaria



Source: Author’s own processing

In Romania, a person produced, on average, an amount of 318.57 kg/capita of municipal waste for the analyzed period (Figure no. 4). In 2020, the amount of municipal waste generated by a person in Romania was 287 kg/capita, a decrease of 68 kg being recorded, compared to 2000. In 2008 the highest amount of municipal waste generated was recorded, i.e., 411 kg/capita, and in 2015 the lowest amount of municipal waste generated, i.e., 247 kg/capita (Table no. 1).

Figure no. 4 Histogram of waste amounts at the level of Romania



Source: Author's own processing

Thus, in the 21-year period under review, in Bulgaria there was an increase of about 4.23% in the average amount of municipal waste per person compared to EU's average value (504.29 kg/capita). On the other hand, Romania recorded a decrease of 36.82% in the average amount of municipal waste per person, below the European average. One can see that in the two EU Member States analyzed the amount of municipal waste per capita varied according to the way it was collected, transported, processed, and disposed of at its final destination.

Being former communist countries, Bulgaria and Romania are facing serious challenges in meeting the criteria of the Directive 1999/31/EC on the landfill of waste, namely closing non-compliant landfills or upgrading them in order to meet the current EU standards.

In Romania, over the last 30 years the amount of waste has increased, exceeding the technical and financial capacity related to the collection and storage at the level of administrative-territorial units. Thus, in 2017, Romania was referred by the European Commission to the Court of Justice of the European Union for non-compliance with the obligation to revise and adopt the National Waste Management Plan and the Waste Generation Prevention Program, in accordance with the European directives on waste and circular economy.

In 2021, the European Commission requested Romania and Bulgaria to correctly implement the Directive on the landfill of waste (Directive 1999/31/EC) and the Waste Framework Directive (Directive 2008/98/EC) (European Commission, 2021).

Therefore, both Romania and Bulgaria are facing similar challenges in waste management, such as: a part of the European directives have not been transposed into national legislation, many non-compliant landfills are still not closed (as a consequence, both countries are in infringement proceedings), recycling targets for 2020 have not been reached, such as the 50% reuse and recycling rate of the total amount of municipal waste, etc.; the two countries have always been seen as twin sisters, since joining the EU and in terms of their evolution over the years (Apostol and Stan, 2021, p. 51).

Consequently, the highest priority direction for waste reduction is the prevention of waste generation (Soltanian *et al.*, 2022, p.3), as this is the most effective way of improving the efficient use of resources and reducing the impact of waste on the environment (Directive EU/2018/851).

## 5. Conclusions

As a result, inadequate waste management poses a significant challenge to the environment, human health and, implicitly, to the achievement of the SDGs.

The fight against waste should be a common effort of all stakeholders (relevant authorities, businesses, producers and consumers), in order to generate substantial environmental, economic and social benefits and to accelerate the transition to a circular economy.

While the transition to a circular economy is already underway at European level, with the Member States being at various stages of implementation, in Romania the implementation of the circular model is characterized as modest and fragile (Vermeșan, Mangău and Tiuc, 2020, p. 2), moreover, in Bulgaria it has proceeded slowly, requiring fundamental changes in the production and consumption systems (Sterew and Ivanova, 2019, p. 765).

Therefore, most sectors of economic activity need sustainable solutions to the problems they are facing today, whereas the transition to a circular economy is the solution for achieving the goals that need to be met in the future.

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# Analysis of Competitiveness of Small and Medium-sized Enterprises (SMEs) and Sustainable Regional Development – Result of European Funding in the CENTER Region-Romania

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## Abstract

*Sustainable regional development must focus on regional economic development in accordance with their potential, competitive development and specialization strategy of each county in Romania. For the implementation of the Regional Operational Program (ROP) 2014-2020, concerning CENTER Region, notable progress was registered and was possible due to new tools and mechanisms that have supported the implementation of operations with performances under investment priorities dedicated to SMEs. To these was added the experience gained by the coordination, management and control system in the previous programming cycle 2007-2013. SMEs aim to make the most of the opportunities that appear in the market, including those regarding financing. The mobility of their demand is high and they benefit from a number of advantages. All these are common to the investment priority on which the financing was obtained but different in terms of the purpose and objectives of each project.*

**Key words:** SMEs, funding, entrepreneurial culture, regional development, profit.

**J.E.L. clasification:** G29

## 1. Introduction

Increasing the competitiveness of SMEs is a key element in meeting the objectives of the EU 2020 Strategy, given that 99% of European Union businesses belong to this sector. In Romania, SMEs are the basic structure of the economy and, although they are the main engine of economic growth, this sector faces a number of problems, having a direct impact on economic competitiveness both nationally and especially regionally.

## 2. Theoretical background

Thus, the low level of entrepreneurial culture - reflected in the disproportionate concentration of business in all regions - is one of the main problems. Then, the issue of the critical mass of SMEs is also influenced by the resilience of new businesses, given that two thirds of the newly established companies disappearing from the market in the first year of activity. It is observed that the development of an SME is limited by the reduced access to finance, by the low efficiency of the production process and the degree of innovation, but also by the weak links with its own markets.

In the previous budget programming period 2014-2020, the business incubation structures offered good support to SMEs, but this was not enough to succeed and progress. According to studies, the incubators provided services help most companies that have received all these to continue the activity and not to have a failure in the first year.



### 3. Research methodology

In Romania, the SMEs sector represents the strongest structure of the economy, holding more than 90% of the number of active enterprises in the last five years, a proportion that has stabilized and stayed the same in the meantime. Taking in consideration few aspects: productive activities and reduced access to capital, technology and infrastructure, the conclusion for this sector is that negatively affect economic productivity.

SMEs need to be helped to thrive! Supporting SMEs should become a basic policy for each state and regions. All the policy-making based on rules, from regulations to public services, must reflect the interest of people and community who will use them.

In order to increase the success rate of the future business, Romania needs to do more to grow a generation of entrepreneurs, with skills cultivated in business mentoring programs. A specialized analysis made public at the end of 2018, revealed that 117,000 companies in the country closed or declared insolvency. Data collected by *Sierra Quadrant*, a company with over 21 years of experience in insolvency (one of the most important companies in Romania, specialized in complex administration and liquidation works, with a high degree of difficulty), shows that the main causes of failure of these businesses are insufficient capitalization, difficult access to finance and poor training economic growth of investors. These things have been talked about for many years, and the main European funding mechanisms that young entrepreneurs have had access to so far have focused on supporting measures to extend the life of small and medium-sized businesses. Although there has been progress, Romania has serious gaps in competitiveness compared to EU countries, at the level and reflected in low productivity.

It's also meant to ensure the sustainable development of the regions who should become able to have efficient resources (human and materials) and put the accent on their potential for innovation and assimilation of technological progress. In accordance with these come the general objective of ROP 2014–2020, who support the development of the business environment, infrastructure and services and help to increase economic competitiveness.

Referring to the steps that an SME must follow to access European funds, we can recommend the following for an entrepreneur:

- 1) must carefully read the official documents regarding the existing funding (the applicant's guide, its annexes, the declarations and commitments required to be made);
- 2) to become a member of an association of entrepreneurs that provides support to its members and keeps them informed about what is required of them through and within the funding provided;
- 3) to be willing to allocate money to design the project: from the purchase of land or renting the space, to obtaining building permits and finally putting into operation the investment objective;
- 4) to think about the project in the medium term and to be patient, to be aware that it cannot start implementing tomorrow;
- 5) must choose their consultant well and respect their work, to differentiate between making an investment and putting it into operation.

It is vital to know that European funds finance the realization of the investment, its commissioning depending on the amounts that the investor must hold. The SME must also expect that it can invest time and money in writing a project that may not be funded. This means that he may have some expenses that he can no longer recover, such as those related to consulting.

### 4. Findings

In the period 2014-2020, investments in tangible assets were and are being supported for micro-enterprises, such as those related to land and space, new constructions or modernization and expansion of the existing production and service space, necessary for specific activities, endowment with equipment, as well as investments in intangible assets such as patents, licenses and other rights and similar assets. In terms of equipment, the purchase of IT equipment, computing equipment, technological equipment, machinery, work equipment - including related software - measuring, checking and regulation equipment and installations necessary for carrying out the activities for

which funding was requested. Funding was also provided for the provision of office equipment necessary for the normal operation of the business, the creation of websites for the presentation of the business and the products or services promoted, including online sales tools, trade facilitation and specific innovations, activities necessary for completing and implementing the certification process of specific products, services or processes, participation in international fairs and exhibitions, as well as investments in adapting the technological production processes of certification and standardization systems, specific to export markets.

Within the applicants' guides, for ROP 2014-2020, the mandatory internationalization activity was introduced as novelty. The goal for this action was to offer the expansion of eligible activities, the demand from micro-enterprises and SMEs to stimulating exports by participating in fairs and exhibitions and have the opportunity to produce and disseminate promotional materials; building website and platforms for e-commerce. Also, the purchase of specific installations or equipment is being financed in order to achieve energy savings, as well as systems that use renewable and alternative energy sources to streamline the activities for which it has applied for funding.

Depending on the category to which SMEs belong, they have distinct needs and different types of support. As a major conclusion is that the ROP proposes financing solutions based on the distinct needs of SMEs and their directions for increase turnover and profit, taking in consideration financial instruments for implementing public policies to support the development of and trying to adapt to all the problems of all SMEs in different sectors of the Romanian economy.

Undoubtedly, the quality of the guidelines specific to the various calls has increased. The corrections that have been made and the improvement of the guidelines prove that there is a learning process that the implementation system is still going through, along with the financed of the SME specific sector. Some of the planning mistakes can be removed during the period for the preparation of the future guides, with a strong focus on the link between theory and practice and used the good practice in implementation examples.

SMEs aim to make the most of the opportunities that appear on the market, including those of financing. A region can benefit from a number of advantages of different business relocations, where the funds were granted and where the project implementation location is located. Few of these should be: increasing the number of active business units, jobs for a certain period, the introduction of new business management, payment of local taxes and fees, etc. Less developed regions are concerned with a number of questions about the goal of reducing regional disparities in the same country, in the context of the demand for funding from more developed regions migrating to less developed regions with financial allocations for SMEs. In the new period perspective (2021-2027), sustainable regional development must be focused on the specific economic potential and competitive development and specialization plans of each region in accordance with their regional economic development. Two regions /countries could be completely different, in the same country, with their own strategy and the money/funds will be allocated taking into account them.

On various public policy and strategy proposals, the SMEs consulted at the focus groups at national level complain that, in an effort to address of different standards Union's internal market, they face a number of non-tariff barriers. A number of factors: lack of economic competitiveness, ignorance of the legislation in those countries, the institutional ecosystem for business establishment and development, language barriers (including those of international circulation), can be attributed to their inaction on international markets, at the same time. All these means risks (including non-payment of exported products and services) and obstacles from the sphere of organizational culture in the respective geographical areas which, in theory, still represent very attractive potential markets with individual consumers interested in traditional products and local brands. In conclusion, complementary support measures are needed in guiding and supporting SMEs to access the EU internal market, through effective market research, identifying intermediaries in the retail sector or building their own distribution networks. The expansion of SME activities remaining "to do" objectives, not only at European level.

An important role in achieving this goal is the transfer of technology, defined as a broad group of processes through which the transmission of scientific or technological information (general, specialized or patented), the transmission of techniques, industrial experience and new equipment between different parties involved. In short, through technology transfer, information or technology is transferred from the author to the recipient, from the source to the receiver.

In general, the object of the transfer may consist of: manufacturing technologies, product technologies, process technologies, management techniques (design and management), services delivery processes. The content of the technology transfer can be very varied, depending on the object of the transfer. For example, the transfer of product technology may involve materials and components that together form the finished product, while the transfer of process technology may include production machinery and equipment. In both the transfer of product and process technology, this transfer may include the submission of documentation and procedures on the design of the product and its manufacture or instructions for use of the machinery involved in the manufacture.

Technology transfer activities related to SMEs include, but are not limited to: processing and evaluation of descriptions of inventions, protection of patents, technology marketing, licensing and protection of intellectual property arising from research and assistance in starting new businesses. and promoting existing companies. The results of these activities will be: new products, more and higher quality jobs and, implicitly, a developed economy.

In general, it is difficult to "transfer" technology without adaptations, from one industrial environment to another, especially in the case of technology transfer from industrialized to less developed regions. Technology transferability is affected by small local markets; constraints on raw materials or materials; the lack of the necessary skilled workforce and, last but not least, the underdeveloped infrastructure. Thus, except for the simplest transfers, the technologies will generally have to be modified in order to become adequate to the new industrial environment and to the typology of the existing SMEs in each region of Romania.

## 5. Conclusions

The fact that almost half of the small and medium companies in Romania fail to perform or at least stay afloat in the first three years after the establishment is not just a consequence of the environment in which they operate. Most of the time, business failure comes from a personal failure of the one who manages the business. The entrepreneur is the main success factor of a business, and the lack of skills and knowledge needed to run the business, the unsuitability of the entrepreneur, are elements that can lead to its failure. Romanian entrepreneurs, in addition to the fact that they do not yet have a culture of innovative business development, do not place much value on research and development. It's just that these are mandatory ingredients in the race for competitiveness! Engaging in research and development, as well as implementing innovative ideas are more difficult for SMEs than for big companies. For small businesses is difficult to find a competent business partner to develop their ideas and access research and innovation co-financing programs. Often lack the financial resources and in-house expertise to conduct research, are the major obstacles.

Although there is no business with guaranteed success, a young entrepreneur from Romania can be closer to success if he has those qualities that make the difference in business, namely: vision, creativity, determination, passion, confidence, risk appetite and competitive spirit.

ROP support measures 2021-2027, which aim to increase economic competitiveness, aim to target SMEs with high growth potential, entrepreneurial partnership structures, including informal ones, innovative clusters and value chains upstream and downstream. They want to better focus the eligibility of activities on the areas of specialization of development regions, so they have good chances to take European funds.

In principle, the financial support should not be given to those who can help themselves or a high co-financing rate should be required to make them more responsible! From the observations and comparative analysis of their situation, it can be concluded that entrepreneurs are more responsible in spending their own funds and even follow austerity policies. It is envisioned that, in the next future, financial support will be provided in a "waterfall" system to the same beneficiary entities, in order to support their economic growth. The transition to a higher size class with a larger number of employees, higher economic performance (market share) and financial performance (turnover, gross profit) means growth.

The main conclusion for necessary technological modernization is to be focused investing in SMEs! So far, they have learned what to do with public money, namely European funding and they have to follow the rules: obtained on a competitive basis; consulting costs have fallen while their ability to negotiate with equipment suppliers has increased.

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# Understanding the Effects of the Russia-Ukraine Conflict on the Global Economy

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## Abstract

*The present paper outlines how the Ukraine-Russia conflict has proven to be something beyond the humanitarian crisis. Since the war has started, the risks to financial stability are increasing, and the after-effects of Western countries' huge sanctions against Russia can finally be observed and analyzed. The article sets the record straight by explaining in detail how the war between the two countries has caused the current economic crisis.*

**Key words:** global economy, ukraine-russia conflict, economic crisis, labour market, inflation rate

**J.E.L. classification:** F01, R53, E24

## 1. Introduction

From a general perspective, war always brings several issues, challenges, and unseen repercussions due to the demolition that it causes. The nature of these "issues" could be classified as social, humanitarian, psychological, economic, etc. How deeply it affects all aspects of life depends on the amount of destruction that results due to the events that take place and many different factors, such as the intensity of the situation, countries' resilience etc. However, the present paper discusses and focuses only on the economic aspects of the war between Russia and Ukraine, which started on 24<sup>th</sup> February 2022 (DW News, 2022).

## 2. Theoretical background

The Russian invasion of Ukraine raises strong questions about global security and the economic system. Due to globalization, the consequences of this war cannot be expected to remain limited only to one part of the world. Whatever is happening in Ukraine is also experienced by all countries' labor markets, supply chains, economic growth, stock markets, etc. (The World Economic Forum, 2022). Therefore, one may conclude that the economic impact of this humanitarian crisis is felt globally. It is so interesting to note how volatile the market is. Any unprecedented event has the potential to shake the global economy. For the same reason, it is critical (especially for investors and financial decision makers) to understand what is going on in the market in order to make better and more informed decisions in order to avoid financial difficulties.

One must also pay attention to the time frame in which the war started. It is relevant because it followed the COVID-19 pandemic. The economic recovery from the pandemic was the first concern of the concerned authorities till the news of war suddenly broke. The Russian invasion of Ukraine further complicated the COVID-19 economic recovery even more (The United Nations, 2022). Following the invasion, many Western countries issued unprecedented bans and huge sanctions on Russia (Bloomberg, 2022). How this "move" will affect Russia is also a colossal topic of discussion.

In this context, the present paper contributes to a better understanding of the impact of the Russia-Ukraine war on the economy as a whole. The main goal of this paper is to provide a concise report on the topic by analyzing what various scientific papers and news articles share about this subject.

### 3. Research methodology

A literature review methodology has been used to evaluate the present subject. Since the conflict is still ongoing, the information or data included in this engaging paper is as up-to-date as possible and sourced only from credible sources (such as the UN, BBC, ILO, CNBC, and so on) to ensure the topic's relevance for the readers.

As this is a sensitive topic for many people, the research has been done in an objective way with a focus on the economic aspects of the current issue. The geopolitical aspects have been completely ignored because they are not the focus of this research.

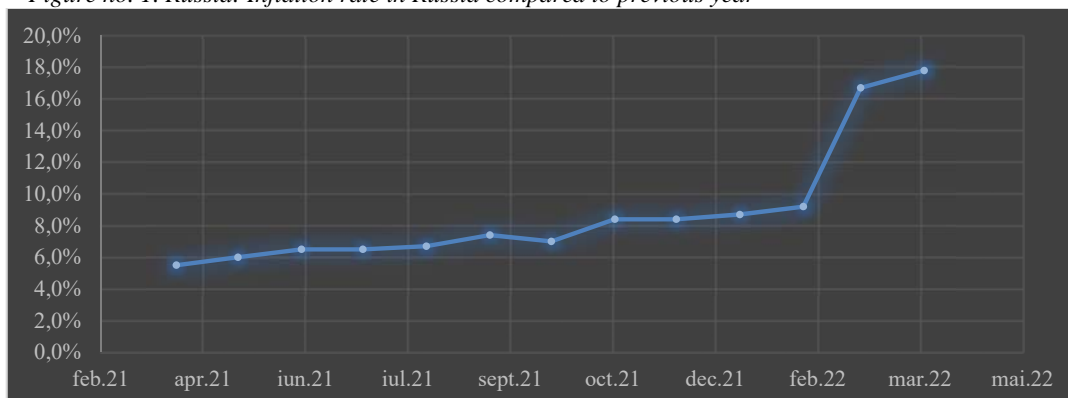
### 4. Findings

From a soaring food crisis to sky-rocketing inflation rates, the fallout of the Russia-Ukraine conflict has had its impact on almost all the economic aspects. In the following section, we will study how the war affected prices, the stock market, inflation rates, the labor market, and economic growth.

As Carmen Reinhart, Chief Economist of the World Bank, states on inflation, the pressure that the Ukraine-Russia crisis brings to bear at a time in which inflation is already concerning means that the uphill battle is even more uphill (Financial Times, 2022). This statement best describes the current situation. For quite some time, even before the war between Ukraine and Russia began, the topic of inflation was in the headlines of many well-known news forums and business magazines. Analyzing different articles, one may draw the conclusion that on today's date the inflation rates of many different countries, including France, Slovakia, and Germany, have hit a new record (Reuters, 2022; IntelliNews, 2022; Business Standard, 2022).

A crucial factor in the inflation rate may be the lack of energy supplies from Russia and food shortages from Ukraine. This can cause a supply shock, which in turn will lead to additional inflation (VoxEU, 2022). Therefore, inflation is an ongoing issue for many investors and policy-makers. Investors are flustered by rampant inflation and its consequences. The International Monetary Fund predicts the U.S. inflation rate will reach 7.7% this year and 5.3% in the euro zone. (CNBC, 2022). The worst is yet to come, as the National Institute of Economic and Social Research (NIESR) made a prediction regarding the aggravating economic circumstances, stating that real disposable income might drop by 2.4% this year (Forbes, 2022). But, along with the economic effects of the war in Ukraine, it is also thought that the recent "inflation surge" was caused by rapidly rising energy and fuel prices (Forbes, 2022).

Figure no. 1. Russia: Inflation rate in Russia compared to previous year



Source: (Statista Research Department, 2022)

Figure no. 1 is a graphical representation of monthly inflation rates in Russia compared to the same month of the previous year. It is evident from the given graph that Russia has gone through a gradual increase in inflation rate in this one-year span (starting from April 2021 till April 2022) till February 2022 (Statista Research Department, 2022). In March 2022, Russia went through the highest inflation rate increase over the course of this period. This "sudden growth" may be justified by the fact that the war between Ukraine and Russia started in February 2022.

As a matter of fact, since the news broke-out, many chose to flee the country, and according to a recent update, more than 14 million people are thought to have already fled their homes since Russia's invasion of Ukraine in various countries like Poland, Romania, and Hungary (The BBC News, 2022). This key piece of information is crucial because, due to this migration, 5 million jobs have been lost (The International Labour Organization, 2022). This crisis has been putting pressure on labour markets and is increasing unemployment rates, as the UN states in one of its reports (The World Economic Forum, 2022).

Although the direct consequences of COVID-19 are considered to be health-related, their impact on the economy is enormous (Palomino *et al*, 2021, p.2). Several scientific papers support the idea that the labor market has gone through a shock due to the COVID-19 pandemic. In the US, the unemployment rate stood at 14.7% in April 2020 (Borjas *et al*, 2020, p.2).

Unemployment is a humongous issue that even Russia is facing today. Many employees are becoming jobless since companies are fleeing Russia. As per a report of the Centre for Strategic Research, in February 2022, 3 million employees were estimated to be unemployed, while 2 million jobs are still at high-risk this year (Quartz publication, 2022). Therefore, the war has had a strong negative impact on the labor market, which is being felt by the citizens of both the countries involved. Obviously, with fewer job opportunities and more people getting unemployed in Russia, its impact will also be felt on the Russian economy.

Regarding the stock market, it is impossible in today's world to imagine a world without stock markets. In a market economy, the capital market plays the most important role. The stock exchange market acts like a barometer because it reflects the present situation of the economic field. However, one must also keep in mind that even the stock market is sometimes capable of generating false signals that are contradictory to the real-life situation (Andrieş, 2009, p.71). Researchers share different views regarding this topic (Masoud, 2013, p.2). Although it is the simplest and shortest way to analyze what is happening to the global economy.

According to a scientific article, the stock markets had already seen a negative impact from a number of lockdowns because of the international travel restrictions (Hatmanu *et al*, 2021, p.3). The stocks were falling throughout the year due to the fear of inflation and the likelihood of higher interest rates during the pandemic period (BBC News World, 2022).

The world economy was already going through a hard time. But, the Russian-Ukrainian war has brought more uncertainty to the stock market, which already had an unsteady beginning this year (Time, 2022). So, there is no getting around the fact that the Russian invasion of Ukraine has rattled global markets (Investopedia, 2022). Talking about the present-day situation, the stock market today is more volatile than ever before because of several factors, such as the sudden price increase of oil and gas, rapidly increasing inflation rates, etc.

Just as the global economy began its journey towards recovery from the COVID-19 pandemic, the Russian invasion brought in another new challenge. Although at first glance, Russia and Ukraine seem to have a comparatively smaller part of the world economy, they both account for a bigger part of global energy exports, which is also the reason why many European countries' reliance on Russia's oil and gas is a substantial issue (The Business Review, 2022).

According to a report by the International Monetary Fund (IMF), the world economy will grow at a slower pace because of Russia's invasion of Ukraine. It is estimated that economic growth, which was 6.1% last year, will fall to 3.6% this year (The VOA News, 2022).

There are several claims that the Russian and Ukrainian economies will shrink by a large percentage in comparison to last year. The IMF predicts the shrinkage of the Ukrainian economy by 35%, while the World Bank expects a 45% contraction (The VOA News, 2022; The World Bank, 2022). On the other hand, Russia's economy is believed to be already in "deep recession" due to the heavy sanctions by the West (The World Bank, 2022). The previously mentioned estimates confirm the war's long-term negative effects on global economic growth.

## 5. Conclusions

To summarize, the economy is going through a rough time as it has experienced many downfalls in the past few years due to various unprecedented events. Even before the war broke out, investors and policy-makers were facing numerous challenges (like lockdowns, the arrival of new COVID-19 strains, soaring inflation, monetary policy, and central bank frameworks) to aim for recovery (VoxEU, 2022). However, the Russian invasion aggravated the circumstances, making it more challenging for the economic recovery to take place.

Following the outbreak of the war, inflation rates rose rapidly (for example, in Russia, see figure 1). People suffered as unemployment rose, the economy suffered, and supply chain issues were exacerbated, resulting in higher inflation rates. It is important to note that recovery is a slow process and proper measures need to be taken to quicken the pace of economic growth.

As a matter of fact, the present crisis has been successful in creating tension among the countries, and it appears to be a provocation and a cause of concern for many European countries that are dependent on resources from Russia and Ukraine. The countries will feel the void due to the shortages of food, oil, and gas supplies till they find a better alternative.

The situation is also a lesson to be learned for the upcoming generations (and especially for policy-makers) to keep in mind the importance of global security and maintain good relations with neighboring countries. Because, practically speaking, in today's global era, it is unwise to think of surviving without a good geopolitical strategy. It is a modern weapon that countries need to start using, not only to maintain peace and harmony but also for the sake of long-term global growth prospects.

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## **Section III**

### **Economic and Social Studies**

# Adjusting and (Re)Adapting from Online to Face-To-Face Systems – A Case Study

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## Abstract

*The current study investigates several aspects connected to students’ academic behavioural adjustment and their capacity to (re)adapt during the transition stage from emergency remote teaching, due to the temporary shift caused by the Covid-19 pandemic to face-to-face teaching. We researched students’ intentions in terms of their long-term plans regarding their academic education and designed a questionnaire concerning the advantages of the two teaching systems they experienced: online vs. face-to-face. As indicated by students’ answers, the impact of the pandemic period is less powerful than anticipated by different scenarios, while the possibility of testing alternative forms of teaching proved beneficial.*

**Key words:** behavioural adjustment, ERT -emergency remote learning, adaptation, face-to-face learning,

**J.E.L. classification:** Z 13

## 1. Introduction

Abruptly, in 2019, during the Covid 19 pandemic, universities around the world were forced to shift from face-to-face to emergency remote education (ERT). Approximately two years later, in spring 2022, in Romania, after two years of online learning, the authorities decided that the academic systems had to reverse the initial jump from face-to-face to online by a sudden return to the initial system. This change came quite abruptly, and it aroused numerous justified protests from universities and students alike. Re-adapting and re-adjusting to the systems on the run became the new norm. The present study investigates how students managed to re-adapt during this hasty return from emergency remote learning to face-to-face learning. 53 students completed the questionnaire on their (un)successful (re)adaptation to face-to-face learning and their personal worries about this process.

In order to prevent a permanent abandonment of study, as a result of this shock and to decrease the fear of inadaptation, especially among first- and second-year students who, due to the social and medical circumstances, only experienced emergency remote learning, a study offering an insight into students’ adaptation, specifically focused on aspects concerning personal motivations and worries which influence their self-regulated learning, could help provide individualized support.

## 2. Literature review

Possessing the capacity to adjust one’s behaviour or a behavioural adjustment refers to an individual’s possibility to modify his/her behaviour in accordance with environmental challenges (Heckhausen and Schultz, 1995). It represents an important psychological coping resource which enables subtle mental mechanisms to become flexible and to find a state of equilibrium with external demands. An adequate adjustment of students to academic requirements directly influences their academic performance. Students’ adjustment can be indirectly influenced by the academic environment, social factors, educational and psychological factors.

Translated in everyday terms, the issue of adjustment is in tight correlation with one’s efforts to effectively and efficiently live, by developing the necessary skills and gaining control over one’s daily routine, successfully coping with life’s challenges, developing self-understanding and making accurate judgements about what happens and people around.

We can all agree that adaptation means behaviour as much as it means biology. In psychology adaptation is defined as a natural ability to constantly modify our behaviour in order to cope with changes around us. In Piaget’s view adaptation is an important process which influences our cognitive development, and it can be done in two ways: through assimilation and accommodation (Piaget, 1985). In our constant cognitive development adaptation is vital, as we are able to continuously adjust to changes affecting us and the world around us.

Students are perpetually faced with the challenge to adapt and adjust to academic life, as indicated by Baker and Siryk, this academic adjustment involves having clear academic goals, being able to concentrate on one’s academic achievement, making efforts to deal with the demands of the system and finding contentment in one’s academic life (Baker and Siryk, 1984). Under normal circumstances, students consider their academic life as stressful and intimidating and those who are overwhelmed by the changes they need to face are confronted with a considerable amount of distress and increase the churn rates, from here derives the pressure on universities to manage to increase their retention and graduation rates (Krause and Jennings, 2010).

The advantages of face-to-face learning include encouraging students to develop social interactions, which go hand in hand with developing a sense of security and a sense of inclusion and a sense of belonging to a group. A real-time help and explanations offered, most of the time, spontaneous and immediate correction of the errors can be done during face-to-face lessons. Other competing forms of entertainment, such as video games or social media or just the comfort of one’s home, taking a nap, which can be considered forms of massive distraction are totally excluded. Collaborative learning activities, which simulate a working environment in which students learn from each other or teach each other, can be better organized in a physical classroom environment. The physical environment also simulates better a professional working environment in the case of role-playing activities. The physical class environment is a more reliable tool in terms of putting a certain amount of pressure on students to become more responsible and to manage their time correctly, to develop useful professional skills, for example by forcing them not to postpone their duties.

The advantages of online learning are not negligible and include the possibility of enjoying the comfort of one’s home, or becoming a digital nomad, more autonomy, and more control of one’s schedule. It proves to be better in terms of time management and even timesaving, in the case of commuters, learning new technical skills and enhancing communication skills, developing a type of self-regulated autonomous form of learning through the development of self-regulatory mechanisms. As noticed by Chirobocea-Tudor, online education as tested during the pandemic period is a form of education which needs to be refined and improved and further used at a much larger extent than it was initially estimated (Chirobocea-Tudor, 2021).

### **3. Research methodology**

The survey was carried out using a specially designed Microsoft Forms Questionnaire, a number of 53 students (aged between 19 and 23 years old) participated to the survey, out of which 40 women and 13 men. They were enrolled in the academic year 2020-2021 on the Faculty of Economic Sciences, “Ovidius” University of Constanta, in the first year of study. The survey contained both open and closed answer questions and students were allowed to skip the questions they didn’t feel comfortable with. The questions were grouped under two main categories: questions concerning their long-term plans regarding their academic education and questions concerning the advantages of the two teaching systems they experienced: online vs. face-to-face. The answers are anonymous.

#### 4. Findings

The first question offered students the possibility to freely express the difficulties they expect to overcome during the readaptation process to traditional face-to-face teaching; 51 students out of 53 were willing to answer this question - 9 students didn't foresee any difficulties, while 42 indicated lack of time, less time for studying, more stress, more money spent on commuting, or on rent, losing their present job or even losing a personal relationship. When asked to hierarchize their worries, in the second question of our survey, being offered a limited number of options in a closed- question, top positions are occupied by the fear of failing the exams (64%) and a lack of time (34%). We would like to point out a positive aspect revealed by the answers to this question, even though the Covid-19 pandemic was a period dominated by depression, isolation lack or disruption of social relationships, affecting the entire population, only 1 student in our survey feared the possibility of inadaptation to the system and no student opted for the inability to establish connections with other fellow students.

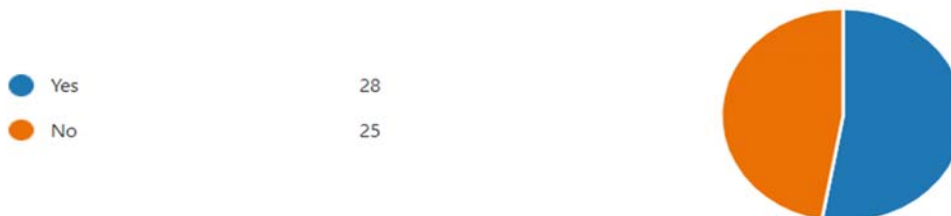
When asked about a motivation to work harder, 10 students out of 49 who offered free answers to this question, said : “ Nothing”, “-“, “ I don't know”, while other respondents indicated either internal or administrative factors, such as the amount of taxes, the inclusion of more practical activities in the curricula, better communication with the teaching staff, access to more free didactic materials, more interactive teaching methods, less learning and more relaxation, better urban environment, access to better jobs or better salaries.

In questions number 4 and 5 we aimed to investigate whether students consider that this transition from online to traditional systems affects their plans on a long-term basis, and if this affects their plans concerning completing their academic education. The answers are, as you can see from the figures below (Figure no. 1 and 2), quite biased, in the case of question 4, while in the case of question 5, in alignment with the difficulties and worries expressed in the previous questions, dropping school is an option 14% of the total number of respondents would take into consideration, in a slight increase compared to the official statistics.

Figure no. 1 Question 4 and statistical results

4. Does this transition to traditional systems affect your plans on a long term basis?

[Mai multe detalii](#)



Source: Question and chart processed by the author

Figure no. 2- Question 5 and statistical results

5. Have you thought about dropping school?

[Mai multe detalii](#)



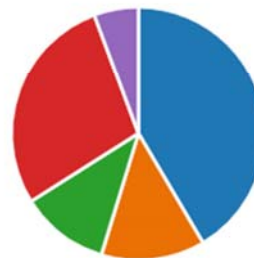
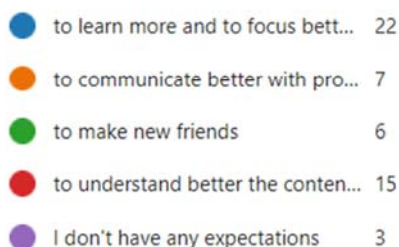
Source: Question and chart processed by the author

When asked to comment on positive aspects of online systems in the 6th question, 51 students described it in terms of: “more free time”, “more time for getting a job”, “more sleep” or “more studying”, “more comfortable”, “more time to spend with family members”, “multitasking”, “modern ways of thinking”, “more economical”, “faster and better organized”, “flexible”. A similar number of 51 students described the advantage of returning to campuses (Question no. 7) as: “A possibility to socialize”, “meeting a lot of new people”, “better connections with colleagues”, “adapting to the university environment”, “a better understanding of the courses”, they also noticed an “improving mode”, “making new friends”, “being able to get quicker the necessary information and help”. “The animated atmosphere”, “the location”, “getting to know professors personally”, “better teaching methods”, “more communication”, “more focused”, were other advantages indicated by students in their answers to the same question mentioned above.

We consider that a better understanding of students’ expectations from face-to-face systems can improve their process of readaptation and reduce school dropping figures. Therefore, in the 8<sup>th</sup> question students were invited to express their expectations from face-to-face systems, under the form of several choices they could opt for, 22 students indicated “to learn more and to focus better on my learning”, 15 opted for ‘to understand better the content of the courses, 7 to ‘communicate better with professors’, 6 ‘to make new friends’ and 3 chose ‘I don’t have any expectations’.

Figure no. 3- Question 8 and statistical results  
8. Expectations from face to face systems?

[Mai multe detalii](#)



Source: Question and chart processed by the author

The last question of our survey allowed students to freely indicate those aspects which they perceive as ‘bothering’ during the transition stage. 49 participants opted to answer this question, 11 of which said “nothing”, the others indicated: “a very fast and not enough prepared transition”, ‘leaving home’, ‘lack of time’, ‘being too tired’, ‘overcrowded area’, ‘pressure and high expectations from professors”, “stress and anxiety” and too much pressure from the authorities on the educational system.

## 5. Conclusions

Several conclusions can be drawn from the findings of our study. Positive aspects are revealed by students’ answers to questions 1 and 5: in the first case, as you can see in the Findings section, despite the fears of isolation which prevailed during the pandemic period, the majority of students are not affected by the fear of not being able to adapt or re-adapt to the changes they are abruptly confronted with. In the case of question 5 the percentage of students taking into consideration the option of dropping school is 14%, official estimations from the pre-pandemic period range from 9,1-11,4% (see Report Concerning Academic Education in Romania 2019-2020).

Seen retrospectively, the online systems impacted traditional forms of education in various ways. Apart from negative implications, they created new visions, expectations and teaching methods, while the use of blended forms of learning is widely reconsidered and seen as a more and more suitable future form of education, as it becomes obvious that both forms of education offer various advantages and disadvantages.

If the main advantages of face-to-face teaching reside from an improved communication with the teaching staff, with colleagues, receiving clarification and help in real time, improved mood and developing social skills, in the case of online teaching- the main advantages indicated by students range from: more autonomy, better time management, better use of personal resources and no need for relocation. It is relevant to mention that in our case a considerable amount of extra pressure was put by the sudden decision of the Romanian authorities during the second semester to relocate all academic courses from the online to face-to-face locations, this last-minute decision triggered a negative impact and put a supplementary burden on the academic environment.

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## Group Work Strategies in ESP Classes

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### Abstract

*This paper discusses several issues concerning classroom management and the importance of group work strategies in ESP classes, such as classroom space and seating arrangements, discipline and students' behavior, verbal and nonverbal communication, classroom routines and procedures, organizing the material, etc. The second part of the paper proposes a type of research to be implemented in the following academic year, with students majoring in Economic Sciences, based on the hypothesis that appropriate, flexible and modern group strategies implemented and continuously adjusted in ESP classes will enhance the students' learning, entailing an evident development of their ESP skills.*

**Key words:** group work strategies, ESP classroom, classroom arrangement, classroom discipline, nonverbal communication

**J.E.L. classification:** Z12

### 1. Introduction

According to the literature, classroom management can enhance student learning, acquisition or construction of knowledge, skills development, creating an inspiring environment for high quality teaching and learning in close to real-life situations. It relies on strategies that create and maintain an orderly learning environment. It is also connected to, and influenced by teacher's and students' motivation, discipline, attitudes, behavior. Thus, when it comes to ESP teaching, English language courses need contextualization, in accordance with the students' field of study, as the latter should be able to relate the taught ESP content to their prospective workplace (Nadrag, 2020, p. 446).

Both scholars and practitioners in the field agree that well-trained teachers must be able to use the best strategies and techniques, have good planning and organizing skills. They should know how to motivate and get students interested in a large array of topics, and prevent their lack of attention especially by resorting to group work activities connected to their field of study. Furthermore, it is widely professed that well-defined rules in the classroom can prevent many attitudinal, behavior-related difficulties. Classroom management includes thus elements of classroom discipline, and focuses on creating a peaceful, engaging, relaxed, comfortable, well-organized, learning environment.

### 2. Theoretical background

Definitions as well as the importance and roles of classroom management are shown in different books and articles. For example, Tony Wright mentions the key roles of establishing and maintaining order in the classroom; providing learning opportunities; creating a context of care. Jonathan Ryan Davis (2018) describes “The Dynamic Classroom Management Approach” (DCMA), its major four principles, and the ways of its integration into a methods course. The first principle mentioned by this scholar refers to the resilience and versatility that should characterize an efficient management style. The second principle relates to the learners' various environments and particularities, such as “culture, socioeconomic status, gender/sexuality, language background, and ability”. The principle professes for the establishment of competent and adequate pedagogy rooted in “course, unit, and lesson design, lesson implementation, and behavioral management”. As



far as the last principle is concerned, it professes for the engenderment “of a positive classroom culture and community rooted in solid relationships, high expectations, and a safe/nurturing environment”.

In their turn, Froyen and Iverson (1999) emphasize the key role played by school and classroom management and highlight their aims of engendering and boosting student self-control and independence via positive student performance and behavior. These scholars conclude that the concepts of, and the strategies related to school and classroom management are tightly connected to factors such as academic performance, teacher competence and teacher and student behavior, which should be envisaged in the design of classroom activities.

Johannes König and Charlotte Kramer (2015) discussed the amount of information that can be provided by using “a specific video-based measurement of teachers’ classroom management expertise”. Thus, these scholars applied “the general pedagogical knowledge test” that had been earlier designed in the *Teacher Education and Development Study—Mathematics* (TEDS-M). This test includes items such as knowledge of lesson structure, student motivation, classroom management, flexibility, adaptivity when tackling heterogeneous learning groups, student assessment. The scholars’ findings evidenced that, despite being positively interconnected, “classroom management expertise can be empirically separated from general pedagogical knowledge”. In addition, the pedagogical knowledge of classroom management – compared to that of ‘adaptivity’, ‘structure’, and ‘assessment’ – correlates in a higher manner with classroom management expertise. In its turn, the latter shows a greater penchant towards correlations with procedural pedagogical knowledge to the detriment of declarative pedagogical knowledge. The above-mentioned scholars also evidenced that expert teachers surpass both beginner teachers and advanced beginners, and that classroom management expertise – rather than general pedagogical knowledge – foresees in a stronger manner the instructional quality elements of classroom management (König and Kramer, 2015).

According to Doyle (1986), classroom management has two goals. It must establish a calm environment, so that the students can take part in meaningful learning, and it must contribute to developing students’ social and moral competence. The classroom environment ensures both a context for learning including the physical space, furniture, resources and teaching aids, and also the class atmosphere, participants’ attitudes, emotions, behavior, and the social dynamics of the learning experience.

As far as the composition of classroom management is concerned, one can notice items such as classroom space and seating arrangements, discipline and students’ behavior, verbal and nonverbal communication, classroom routines and procedures, organizing the material, and so on. Considering the student-centered approach, and the aim of preparing students both for real life situations and prospective jobs, the focus should fall on showing students how to learn by endowing them with efficient and adequate learning strategies. According to Daniels (1998), in order to learn in a successful manner, students should be given opportunities to participate actively in the learning process, they should be able to appropriately understand and analyze facts, to generalize, organize and adjust the received information in an accessible manner. Furthermore, the above-mentioned scholar explains that a positive learning context should be delineated by a clearly delineated physical arrangement (which involves, among others, the organization of classroom furniture and the location of teaching areas), having in view the students’ learning needs and the activities designed for the respective lessons; this facilitates classroom routines and procedures as it enables students to foresee and prepare for the activities designed to be carried out in every area, which encourages their active participation, contributes to the enhancement of their positive attitudes and discourages possible misbehavior (see Daniels, 1998).

Practice and experience have shown that in the teaching process, besides the various patterns of classroom arrangement, the teacher can resort to other strategies, in order to discourage, disapprove or stop student misbehavior, such as various forms of verbal intervention (e.g. calling on the student, private or public reminder, warning of consequences), teacher proximity, different hand signals, facial expressions which convey disapproval, confiscation of forbidden items (e.g. telephones, toys). Other non-verbal communication elements (i.e., voice tone, volume, pitch, timbre and pace, pauses, eye contact and movements, body language) also play an essential role in the teaching process.

In Garrett's view (2014), more serious classroom misbehavior should be counteracted by imposing an efficient consequence, which should be reasonably connected to the respective misbehavior. Nevertheless, the scholar explains that difference should be made between consequences – which are somewhat more protruding and should thus be implemented only in case of more severe misbehavior – and interventions (which can be employed with little or no interruption of a lesson). The aforementioned scholar professes for the need to envisage a hierarchy of consequences (ranging from warnings to sending the disruptive student to the principal) that will enable teachers to take different consistent yet adaptable measures, depending on the context and on the student.

Often, teachers have to manage a limited physical space where not all ideas and activities can be implemented. In this regard, Daniels (1998) explains that, when designing the lesson, teachers should take into account a wide array of elements, such as visibility (i.e., all students should be able to see all the displays and all the items projected, as well as the whiteboard/blackboard), accessibility (i.e., ensuring the students' access to high traffic areas and to all the materials they need), distractibility (i.e., removing the disturbing elements from the classroom and reducing as much as possible the occurrence of possible distractions, by adequate desk arrangement). An appropriate physical arrangement teaches students to observe physical boundaries (in particular such as those between students' and teacher's space, individual or group work areas), to acknowledge and respect – in general – other people's spaces and property, and to foresee the particular activities designed for the implementation in certain classroom areas, being thus more actively involved (with a mind-set in line with the foreseen activity) and preventing misbehavior (usually triggered when students are unprepared or when they inaccurately foresee the activities planned for the respective lesson).

Both scholars and practitioners in the field emphasize the fact that it is vital that classroom arrangement be envisaged by teachers as a flexible and adjustable element that can be modified whenever necessary, according to the students' needs and to the aims of the activities designed for each lesson. Desks, classroom library, various activity centers, group work areas, whole class meeting area can be adjusted or rearranged in a favorable manner whenever deemed appropriate, whenever the teacher notices any flaws in the existing physical arrangement (see Bennett and Blundle, 1983).

There are several well-known classroom arrangement patterns that have been tested and discussed by various scholars in the field, who also highlighted the main advantages and drawbacks of such arrangements. For instance, Bennett and Blundle (1983) consider that traditional rows improve the students' behavior especially when performing individual tasks, as this pattern underlines the idea that the teacher – situated in this case in front of the class – represents both the authority and the source of knowledge, facilitating his/ her movements around, and control over the class. The aforementioned scholars further explain that less distracted students, a better view of the students' facial expressions and gestures (which reveals whether they pay attention or whether they understand the teacher's explanations) and less space are other advantages of the traditional row pattern, according to the above-mentioned authors. Nevertheless, the same scholars explain that this arrangement type triggers some significant drawbacks, such as the likeliness of decreased engagement of the students sitting in the back rows, boredom, less efficiency in terms of classroom management (in case of more than two rows), the students' reluctance to sit in the front rows as some of them may thus feel exposed.

As far as the semicircle or the horseshoe pattern is concerned, Rosenfield et al. (1985) consider it as extremely efficient for classroom discussions, while Wannarka and Ruhl (2008: p.91) recommend it for interactive activities, such as brainstorming or questioning. Among the advantages triggered by this arrangement type, scholars highlight the fact that it is ideal for small spaces (as it facilitates the teacher's movements around the class), it helps teachers grasp students' attention, everybody can see very well the person situated in the center and talking to the class (which is ideal for class discussions or debated) or the items projected on the wall or on the whiteboard. The students' active participation and attentiveness is enhanced and maintained for a longer period and they do not need to move around the class too much when required to work together. Nevertheless, overcrowding, difficulty in addressing to all the students, cumbersome implementation of individual and small group work, distracted attention are

some of the disadvantages of the semicircle pattern outlined by teachers and scholars in the field.

In his turn, Harmer (1998) professes that pair and group patterns enhance the students' independence and equal participation (although it is also possible to encourage one student's domination when the others in the group are more silent or unwilling to cooperate in order to solve the assigned tasks). Facilitated teacher movements around the class, boosted cooperative learning, collaborative work and responsibility for one's actions and behaviors are several advantages of the pair or group work, emphasized by the scholars and practitioners in the field. However, one should also be aware of the disadvantages entailed by such classroom arrangements, such as distraction and off-task behavior, the teacher often spending too much time to redirect the students' attention to the tasks.

Having in view the advantages and the drawbacks of various types of classroom arrangements presented above, it is evident that there is no perfect solution and that the teacher should adjust these patterns based on the aims of the activities, on the classroom space and on the students' personality, behavior, level of abilities and learning needs.

### **3. Research methodology**

The research based on the theoretical elements discussed in the previous sections of this paper is designed to be conducted in the second semester of the academic year 2022-2023, on two groups of students majoring in International Business.

The research will test the following hypothesis:

Appropriate, flexible and modern group strategies implemented in ESP classes will enhance the students' learning, entailing an evident development of their ESP skills.

For the implementation of this research, the observation method and the experiment will be used, followed by a survey (focused on the students' attitudes towards the implementation of modern group strategies) applied to the experimental group.

The experiment will consist of several stages: the initial test, the teaching process, the final test and the analysis of the data provided by the test results and by the observation method. This analysis will afterwards be corroborated with the data furnished by the survey.

The main role of the initial test is to determine the students' ESP proficiency level so as to establish the two research groups, i.e., the experiment and the control groups, which should be similar in terms of the students' ESP skills, in order to ensure the validity of the results.

The teaching process will last four weeks and it will be focused on teaching the following units to both groups: "Organizations", "The career ladder", "Managers, executives and directors", "Business people and business leaders". Some of the teaching materials that will be employed in this stage will be based on "Business Vocabulary in Use" by Bill Mascull (Cambridge University Press, 2002), "Check Your English Vocabulary for Business and Administration" by Rawdon Wyatt (London: A&C Black, 2007) and Career Paths: Business English by John Taylor and Jeff Zetter (Newbury: Express Publishing, 2011). After deciding on the vocabulary, function, or grammatical elements upon which the activity will focus, pre-task and post-task activities will be designed; for complex activities, worksheets will also be furnished to students (see Nadrag, 2018, p. 320).

In order to test the validity of the research hypothesis, traditional group strategies will be used with the control group, with no change during the teaching process, while the experimental group will undergo student-centered and modern group strategies, that enhance direct interactions between students, focus on exploratory discussions, encourage students to engage in conversations, etc. Moreover, with the experimental group, the employed strategies will be adapted to the students' learning needs and will be continuously adjusted, depending on the students' reactions and participation during the teaching process.

During the teaching period, the observation method will provide data on the students' progress and attitudes towards the employed group strategies in each group involved within the experiment. These data will be corroborated with the final test results and with the information provided by the survey.

At the end of the teaching period, the students from both groups will sit for a final test aimed at assessing their ESP knowledge and skills acquired during the respective period. These results will be graphically represented and compared to the scores obtained by students in the initial test, in order to establish whether any progress has been made as far as their ESP skills are concerned. Moreover, the scores obtained by the students in the control group will be compared to those from the experimental group in order to determine if the implementation of modern group strategies has contributed in any way to the development of the students' ESP skills. At this interpretation stage, the information provided by the observation method will also be taken into consideration, as well as that furnished by the survey focused on the students' attitudes towards the use of modern and flexible group strategies.

#### 4. Findings

We expect that the students from the experimental group will obtain higher scores at the final test, compared to those from the control group. Moreover, we also predict (according to the data furnished by the observation method) that the students from the experimental group will involve more actively in, and will show more interest towards the ESP activities due to the modern group strategies employed.

We also suppose (from the information provided by the survey) that the students from the experimental group will consider the modern group strategies employed in the ESP class as more attractive, entertaining and stimulating.

Thus, we expect that the students' scores obtained at the initial and final tests, corroborated with the data provided by the observation method and the survey will validate the research hypothesis according to which modern and flexible group strategies implemented in ESP classes enhance the students' learning, entailing an evident development of their ESP skills.

#### 5. Conclusions

An efficient teaching process is underlain by the employment of adequate classroom management strategies that promote student-centered teaching and enhance the interactions between students and their involvement in conversations on various topics, depending on the content approached in the ESP/ EFL class. Enriched linguistic resources and increased confidence are some other benefits entailed by such strategies. Therefore, teachers should be encouraged to employ a wide array of student-centered strategies and even adjust them, depending on the taught content, on the teaching context and also on the students' English proficiency level, on their needs and also on their feedback.

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# Eco-Economy as a Concept of a New Model of National Economies Development

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## Abstract

*Strengthening of the globalization processes, international cooperation, scientific and technical progress, and implementation of innovative technologies intensifies differences between economic and environmental indicators. For this purpose, an eco-economy involves the responsible use of natural, economic, and human resources to protect and improve the environment. If the eco-economy is guided by the principle of environmental efficiency, the consequences of the deep economic, environmental, socio-political, and cultural-spiritual crises that are characteristic of our planet and our countries will be reduced. This article examines the concept of eco-economy initiatives taken by international organizations to green the economy, and the role and principles of eco-management.*

**Key words:** eco-economy, eco-management, economic development model, green technologies, initiatives, principles.

**J.E.L. classification:** H1, M2, Q00, Q001

## 1. Introduction

The practice of recent years has very clearly shown that the solution to the environmental problems of the economic development of an individual economic entity, the state, and the world community as a whole is possible only based on an integrated approach, using both state and economic levers to regulate production activities and the economy as a whole. In this sense, the need to search for new ways and approaches to solving environmental problems is becoming more and more obvious. The main such way in the world is generally recognized as the greening of the economy and the use of environmental management (Community Culture and the Environment, 2016).

In this context, the study aims to review the concept of eco-economy, initiatives are taken by international organizations to green national economies, as well as the role and principles of eco-management in this process.

## 2. Literature review

In their foreign and national studies and publications, Beder S., Capcelea A., McManners P., and other scientists established the foundation for the theory of the relationship between society and nature. The characteristics of the formation of environmental policy, the interdependence of economic and environmental problems, and the implementation of eco-innovations have been developed by UNIDO, UNEP, and Greening Economies in the Eastern Partnership Countries. Additionally, study on the next issue benefited greatly from reports from the GreenEcoNet project and the EU Switch to Green Flagship Initiative.

The theoretically undeveloped problem of the structure of the new eco-economy model of national economies' development, structural relationships, and interactions, as well as factors affecting its stability, remains in the center of scientists' attention. The study of eco-economic problems causes a number of managerial difficulties: improvement of the organization of management of the

sustainability of the eco-economic system, as well as the formation of mechanisms for its management. All of the above predetermined the choice of the article topic of research.

### 3. Research methodology

The research methods used in obtaining results consists of theoretical principles of the concept and process of eco-management, eco-economy, green-economy, and refer to: structured and unstructured observation, analysis and synthesis, historical and logical knowledge, qualitative analysis, systemic analysis, structural comparative, and analysis.

### 4. Findings

Over the past decade, the concept of eco-economy has become a strategic priority for many countries. The concept of the eco-economy and the proposed range of initiatives are increasingly being discussed internationally. In this regard, the Batumi Green Economy Initiative (BIG-E) constitutes „a pan-European strategic framework for the transition to an inclusive eco-economy. Among the initiatives under consideration are investments in innovation, the transfer of green technologies and products, and consumer incentives”. BIG-E also proposes a „grassroots commitment by 2030 to directly contribute to the achievement of the eco-economy goals” (BIG-E, 2020). Other important eco-economy initiatives are illustrated in Table 1.

The eco-economic perspective underpins a broader approach to the development of the economy as a whole, considers the protection of the environment, increasing the competitiveness and productivity of the resources available.

The European Commission has shaped the field of eco-economy by considering the following defining elements: innovation, efficient use of resources, promotion of sustainable production and consumption patterns, waste prevention and management, and water resources management.

The transition to an eco-economy is a medium and long-term process that requires political commitment from states wishing to change the model of economic development.

Table 1. Eco-economy initiatives

<i>N<sup>o</sup></i>	<i>Initiative name</i>	<i>Description of the initiative</i>
1	Green Growth Knowledge Platform (GGKP)	The GGKP is a global community of organizations and experts committed to the co-generation, management, and exchange of knowledge and data in the field of the eco-economy.
2	Partnership for Action for a Green Economy (PAGE)	PAGE was organized in 2013 to support countries that want to participate in the implementation of the green direction in the economy
3	Green Industry Platform (GIP)	It is an international platform for parties interested in promoting environmental principles in the industry. Initiated by UNIDO, UNEP involves national governments, the private sector, and NGOs.
4	WIPO GREEN ROSP - Marketplace for Sustainable Technologies (WIPO)	WIPO is an initiative of the World Intellectual Property Organization to promote the adoption and implementation of eco-technologies, especially in developing countries and countries with emerging economies. It aims to support and work in conjunction with the UNFCCC Technology Mechanism
5	Greening Economies in the Eastern Partnership Countries (EaP GREEN)	This program is implemented by the OECD in cooperation with UNECE, UNEP, and UNIDO and aims to assist the EU Eastern Partnership countries in their transition to a green economy.
6	SWITCH to Green Facility project	The EU project aims to develop and promote effective dialogue and cooperation for transformation towards an inclusive green economy between the EU and developing countries.

		The specific objective of the project is to support the development and implementation of the SWITCH initiative through technical advice on green economy issues, support for coordination, and communication activities.
7	GreenEcoNet platform	The GreenEcoNet project has developed the first European platform to support small and medium-sized enterprises (SMEs) in greening their businesses and helping them transition to a green economy

*Source:* Compiled by the author based on (EU4Environment, 2020; GIP, 2021; GreenEcoNet, 2021; Green Policy Platform, 2022; UN Environment Programme, 2022; WIPO GREEN, 2022; UNIDO, 2022; Switch2Green, 2022)

In this sense, this process is characterized by several different initiatives, namely (Beder, 2006, p. 30):

- raising public awareness about the introduction of a green approach to national policies (renewable energy sources, energy-efficient buildings, technologies, and processes with low greenhouse gas emissions);
- promotion of new indicators complementary to GDP (steps to introduce green GDP, ecological footprint);
- development of green investment markets (eg banking and green investment services).

Greening, promoted by the European Commission, involves extending the life of products or reducing the use of hazardous materials. When the European Commission launched a generic package called a “green economy”, the launch marked another important step in trying to realize the ambition for a “resource-efficient Europe”. The economic model, characterized by the principle of "economy - consume - throw away", is economically profitable to use in the production of products, to minimize waste and use of resources. The transition to an eco-economy will enhance competitiveness and contribute to economic growth, job creation, and environmental protection. It can provide consumers with more sustainable, innovative products, help them save money, and improve their quality of life.

The environmental, economic, and social aspects of the eco-economy go hand in hand. To design a product sustainably requires adopting a “life cycle rethink”, which means re-evaluating the different stages of its life cycle. After the industrial revolution, the amount of waste increased steadily. This is because economies have so far used a linear model, which assumes that resources are abundant, available, and cheap to obtain. Products must be designed in such a way that they can be repaired, reused, recycled, and then recycled. The European Union encourages the transition to greening the economy and stimulates private investment in this area.

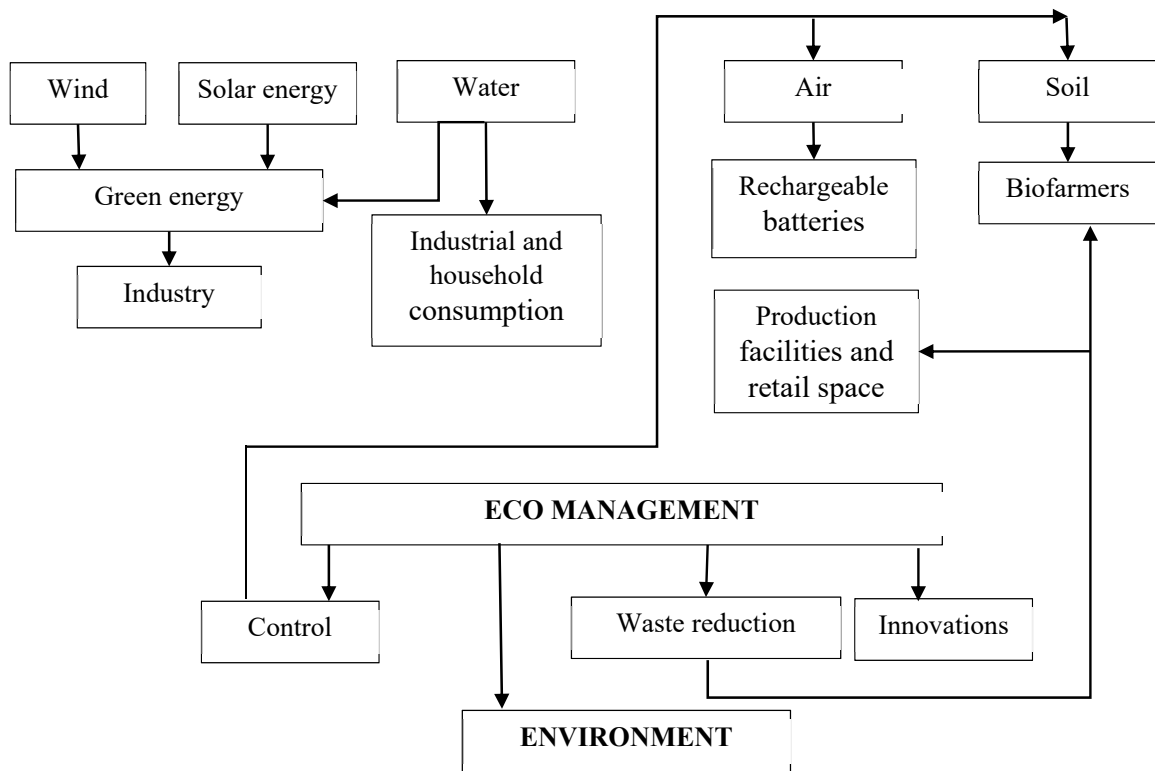
Resource management should track performance metrics and set goals such as management quality, innovation, managerial attitudes and decisions, technology performance, motivation, profitability, and public accountability.

Eco-management is part of the overall management system and includes the following elements: an adequate organizational structure, planning of activities, distribution of responsibilities, methods, and procedures used, processes and resources allocated for the development, implementation, implementation, analysis, and maintenance of a coherent environmental policy. Eco-management involves the responsible use of natural, economic, and human resources to protect and improve the environment. More efficient use of electricity and fuel, coupled with lower disposal costs through recycling measures, will result in lower operating costs. The experience of companies that have already implemented environmental management in their production shows that these companies have a competitive advantage (Mcmanners, 2020, p. 98). Eco-economy and eco-management resources are shown in Figure. 1.

Environmental management standards (such as the ISO 14000 series of standards and the European Environmental Management and Auditing System EMAS) provide a benchmark against which organizations and companies can measure their performance and provide a structured process that enables a viable environmental management system to be implemented.



Figure 1. Eco-economy and environmental management resources



Source: Developed by the author

Therefore, they require compliance with environmental management principles, which include the following (Capcelea, 2013, p. 64):

The principle of reliance on environmental awareness. Environmental consciousness is the most effective way to change human behavior, because among the most important characteristics of consciousness are the interests, values and motives of its actions. In this sense, it is necessary to have constant information, to create free access to environmental information, and to use for these purposes global and national messages and other information carriers. In addition, activities related to environmental education and lifelong learning are needed, from the school level to the professional level.

The principle of environmental motivation for human activities. Its essence lies in the application of mechanisms to motivate human activity aimed at solving environmental problems. Purely administrative constraint-based tools are less effective.

The preventive principle in solving problems. The entire environmental management process should be focused on preventive measures that could anticipate the emergence of problems or critical situations, usually characteristic of any management process. For the environment, this principle is even more important because restoring the quality of the environment is much more expensive than preventing its deterioration. In this sense, before making decisions on socio-economic development, it is necessary to assess the possible impacts, to take effective measures to prevent the degradation of the natural environment, and possible environmental and man-made disasters.

The principle of focusing on specific and strategic goals. Environmental management cannot be effective if it works with vague goals and is based on an unclear strategy. At the same time, environmental management objectives should include those components that reflect environmental concerns and are combined/integrated into the overall development and production goals.

The principle of consistency in problem-solving. This principle reflects the interaction between primary and secondary environmental problems, determining the sequence of actions of environmental management concerning the legitimacy of the functioning of ecological systems.

The principle of modernity. The cycles of environmental problems are different and, therefore, choosing the right time to solve an environmental problem with maximum efficiency means preventing its aggravation, the emergence of crises situations, and, accordingly, minimizing their consequences.

The principle of responsibility for violations or negative environmental consequences of the actions taken. In this sense, each individual or legal entity bears full legal responsibility for its destructive economic activities, and in the event of damage to the environment or human health, guarantees and ensures compensation for this damage.

The principle of compliance with the law provides that the organization and implementation of environmental protection should be based on existing environmental legislation, on existing environmental standards that establish legal norms for human activity.

The principle of international cooperation, according to which the promotion of international cooperation and global partnership to preserve, protect and restore the integrity of the Earth's ecosystem should be supported by the adoption by states of relevant international legal agreements and treaties.

It should be noted that all these principles of environmental management, including related areas (nature conservation, management, sustainable development), should work in a single system, in close interaction, replacing and complementing each other.

## 5. Conclusions

The concept of the eco-economy marks a new stage - a transition from a development model in which environmental protection is seen as an economic burden, to a model that uses environmental protection as one of the most important priorities for economic growth. Eco-economy should be considered as one of the main mechanisms for achieving the development of society and as a means of efficient use of resources and energy, the use of more advanced, low-carbon, and environmentally friendly technologies and significant minimization of environmental risks. Promotion of the eco-economy concept is achieved by integrating environmental management principles into national policy and strategy documents.

For the transition to an eco-economy, it is extremely important to pay attention to energy efficiency, reducing energy consumption, reducing pollution and carbon emissions, informing companies about eco-innovation, organizing training, access to finance, ensuring the availability of funds through development and the introduction of innovative tools to financially support eco - enterprises, etc.

The benefits of moving to an eco-economy can be significant by reducing the burden on the environment. In addition, the applied eco-economy strategies can have the effect of lowering costs and increasing the competitiveness of the industry through the net benefits that come from employment opportunities. Creating an eco-economy in Moldova requires fundamental changes in the value chain, from product design and production processes to new models, business projects and consumption patterns.

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## Economic Beliefs in the Works of Simion Mehedinți

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### Abstract

*Simion Mehedinți (1869-1962) is considered to be the founder of the Romanian modern geography, but he had remarkable contributions in other fields of activity as well: ethnography, history, science philosophy, pedagogy, and literature. The economic meanings of his thinking, though not explicit, are quite deep. The purpose of this paper is to analyze certain concepts that Mehedinți used from an economic perspective. He studied the biunique interaction between human and environment and granted man (population) a first rate role within geography. In a narrow sense, civilization means not only what and how much is produced, but also how it is produced. Culture, as the sum of all spiritual accomplishments, is the specific view of a people on the moral universe and it emerges as the result of the same cause: labor, the decisive element that sets man and animal apart.*

**Key words:** labor, ethnopedagogy, civilization, culture, racism, anti-Semitism

**J.E.L. classification:** B31

### 1. Introduction

Simion Mehedinți was born on the 18<sup>th</sup> of October 1896 in Soveja, Vrancea County, in a family of 11 children. He went to primary school in his native town and in Vidra, and then he attended high school in Roman and Bucharest. After passing his Baccalaureate, he was admitted to the University of Bucharest, where he studied at the Faculty of Letters and had Titu Maiorescu as his professor. In 1892 he presented his bachelor thesis titled *Ideile lui Jean-Jacques Rousseau asupra educației (Jean-Jacques Rousseau's Ideas on Education)*, which he would publish later on. A year later he received a scholarship and went to Paris to study geography, then to Berlin, where he completed his formation as an ethnographer. In 1899 he got a PhD in geography at the University of Leipzig and in 1900 he was appointed professor of geography at the Faculty of Letters within the University of Bucharest. He became the director of the magazine *Convorbiri literare* (Literary Discussions) and a member of the Romanian Academy in 1915. Because of the war he delivered his reception speech five years later. Its title was *Caracterizarea etnografică a unui popor prin munca și uneltele sale (The Ethnographic Description of a People through its Work and Tools)*.

Apart from his scientific contributions, he was also a leader and promoter of the geography movement in Romania. He got involved in the Romanian Royal Geography Society, he took part in numerous congresses organized by geography teachers, he established an organization titled *Soveja* (in 1927) meant to organize trips around the country, and he became a member of *Societatea turiștilor români (The Organization of the Romanian Tourists)*, which was established on the 24th of January 1903 under the patronage of King Ferdinand (\*\* 1943, p. 195).

As ministry of education, Mehedinți initiated a policy to reform the Romanian education system. He issued two essential laws: *Legea efortiilor școlare* and *Legea școlilor pregătitoare și a seminariilor normale (The Law of Preparatory Schools and Ordinary Seminaries)*. For four decades he published a number of textbooks for the elementary school, the secondary school and the high school students. He provided details on how the Romanian education should be organized in a series of papers such as *Îndărăt spre școală (Back to School)* (1907), *Către noua generație (Towards the New Generation)* (1912), *Altă creștere-Școala muncii (A Different Growth-The School of Labor)* (1919), *Școala poporului (The School of the People)* (1923), *Școala română și*

*capitalul biologic al poporului român (The Romanian School and the Biological Capital of the Romanian People)* (1927), *Profesorul, temelia tuturor reformelor școlare (The Teacher, the Base of All Education Reforms)* (1929) and *Trilogii (Știința, Școala. Viața) (Trilogies (Science. School. Life))* (1940). He died at the age of 93, on the 14<sup>th</sup> of December 1962.

## 2. Theoretical background

Ever since they were published, the works of Simion Mehedinți have raised great interest. His writings in the fields of geography and pedagogy were the topic of many studies and scientific papers. Constantin Brătescu’s research titled *Geograful Simion Mehedinți (Simion Mehedinți the Geographer)* was published in *Revista geografică română (The Romanian Geography Magazine)* in 1939. In 1967, Vintilă Mihăilescu edited the volume titled *Simion Mehedinți-Opere alese Simion Mehedinți-Selected Works* which includes five extensive pieces of research dedicated to the scholar’s life and geography works. Marginalized during the communist regime as being a supporter of legionary nationalism, his works came back to attention after 1990, when they were published again alongside research by different authors such as Gheorghică Geană (*Un sistem operațional de filozofie a culturii (An Operational System of the Philosophy of Culture)* (1999) or Dumitru Muster: *Educația creștină în gândirea lui Simion Mehedinți (The Christian Education in Simion Mehedinți’s Thought)* (1995), *Vocația pedagogică a savantului encicloped Simion Mehedinți (The Educational Vocation of the Encyclopedian Scholar Simion Mehedinți)* (1968) and *Simion Mehedinți- pedagog (Simion Mehedinți-Educator)* (1992). There are other papers that are worth mentioning, signed by Emil Băldescu (*Simion Mehedinți, gânditor social-politic și pedagog (Simion Mehedinți, Socio-Political Thinker and Educator)* (1969), Victor Tufescu (*Simion Mehedinți. Viața și opera (Simion Mehedinți. Life and Work)* (1994), Luminița Drăghicescu (*Simion Mehedinți-teoretician al educației (Simion Mehedinți-Theoretician in Education)* (2009) and Costică Neagu (*Simion Mehedinți-pedagog de vocație (Simion Mehedinți-Educator by Calling)* (2004). A landmark among the papers dedicated to Simion Mehedinți is the one published on the 150<sup>th</sup> anniversary of the scholar’s birth, written by Marius Ciprian Neacșu (*Simion Mehedinți și geopolitica românească (Simion Mehedinți and the Romanian Geopolitics)*).

## 3. Research methodology

In our research we used the method of primary analysis and we interpreted Simion Mehedinți’s original writings from the perspective of the economic theory. We also used the method of indirect research by looking into the specialized literature (monographies, studies, dictionaires, encyclopedias). The research we did is descriptive and observational as it analyzes the implications of individual mentality regarding work. The research method we used is of a qualitative nature, useful in exploring and clasifying the author’s statements about the economic psycho-ethnopedagogy of labor.

## 4. Findings

### 4.1. The Apology and psychopedagogy of labor

Considered by Marx “a physical necessity of human life” in his *Capital*, labor is an important concept that a scholar such as Simion Mehedinți could not have overlooked. Even though he did not train to become an economist, Simion Mehedinți always focused on man and his interaction with his environment. Man has transformed the environment with his tools, which, alongside nature, are the “true distinctive sign for homo as a species” (Mehedinți, 1999, p. 85)

He noticed the essential role of the labor division between men and women as a factor of economic and social progress (“when the division of labor started, man took over the cursed part”) (Mehedinți, 2009, p. 96). He is also familiar with the scientific and practical modern concepts such as Taylorism and Fordism.

He saw *Taylorism* as the ideal method to transform the manual laborer into an accomplished craftsman (Mehedinți, 2009, p. 272). Also, Mehedinți considered it as a factor able to potentiate civilization as it leads to an accelerated growth in labor productivity through perfecting the tools and the labor based on a more and more scientific technique.

Simion Mehedinți considered that the principles of *Fordism* had to be applied in the field of agriculture as well by using certain improved tools (Mehedinți, 2010a, p. 205). Fordism was an innovative system to organize work based on dividing it into simple operations (no less than 7882 simple operations in a Ford plant) and the effect was the possibility to introduce mechanization and automation on a large scale, as well as to use less qualified workers. (Mehedinți, 1999, p. 97)

In the inter-war period there was an interest in the pedagogy of labor by analyzing the Romanian people’s capacity and manner to work. As far as the education of the young was concerned, Mehedinți considered labor as the supreme moral value, without which the civilization of a people was not possible. The developed countries are those that understood the educational value of labor; the Swedish, the Norwegian, the Danes, the English made physical education a serious concern of the government (Mehedinți, 2009, p. 263).

Simion Mehedinți developed some ideas about the importance of labor more than a century ago, but they are still quite valid nowadays: “The suffering during the war and the exceptional hardships that Romania is undergoing have awakened, I think, in many hearts, the belief that our people will only be able to fulfill its destiny by deliberately entering the School of labor. For a country completely surrounded by unfriendly neighbors and so full of foreign elements, there is no other open way but the speedy mobilization of all energies, beginning with the rural one” (Mehedinți, 2009, p. 13).

Therefore, statesmen and educators must not hesitate, not even for a moment, and must look for other solutions where there is only one that is sure, proven once and again by all that has happened to man since Paleolithic. Instead of many laws, he believed many schools of direct labor were needed to train the young. And for grown-ups, instead of officially preaching to them, which in most cases is in vain, it was way better to teach them how to work wisely. (Mehedinți, 2009, p. 4). In the foreword to the seventh edition of *Altă creștere-Școala muncii (A Different Growth-The School of Labor)*, Mehedinți stated that it is not the book that teaches man, but labor. However, he did not underestimate the role of pedagogy or education in the progress of the nation. The true factor of progress is the acquisition of some solid practical skills, coupled with a correct moral attitude. Intense labor, based on education, science and morals has deep and wide consequences towards raising the level of culture and civilization. The Romanian people will not be able to overcome hardships unless they work more and better (more efficiently) than those who are their enemies “and in this way they will morally outrank them” (Mehedinți, 2009, p. 37). The educational importance of labor resides in the fact that it attracts the child towards lucrative and practical activities “in such a way that for the rest of his life he will not be lazy anymore” (Mehedinți, 2009, p. 269).

Simion Mehedinți considered that each and every child has different features according to the ethnic environment he lives in, that he acquires from his mother a certain “spiritual wealth” that fits a certain “pattern of thinking” based upon the acquisitions of several generations; the child is a being that is “imbued with ethnic tradition”. Therefore, the ethnopedagogical method is to be used in education since it is not enough to adopt an imported educational model (English, German or American) in order to solve the problems of the educational system. Moreover, Mehedinți believed that the hardest task for a government is to train the trainers, that is those who teach the young generations.

Simion Mehedinți considered that the purpose of the university as an institution was to offer scientific training to those young people who wanted to have a superior culture, because culture is “the highest manifestation of life within all the peoples in all ages” (Mehedinți, 2011, p. 326); the result is new national values in science and the emergence of a new generation that would insure “the autonomy of our thought” (Mehedinți, 2011, p. 340).

Education has got a twofold ethnographic dimension. Firstly, through the methods it uses (the national nature of the Romanian pedagogy, which must be based rather on intuition than on erudition, by adapting the teaching methods to the ethnographic material). Secondly, through its purpose: the individual is to become a typical representative of the ethnic group they belong to.

In Simion Mehedinți’s view, national pedagogy must start from three fundamental principles:

1. The government’s fundamental problem is population;
2. The growth of the population has to be based upon the “health of the soul”;
3. The educational technique is the main instrument for the government to insure that the individual can adapt to the environment and can integrate himself into social life.

In the foreword of the fifth edition to his writing *Altă creștere-Școala muncii (A Different Growth.-The School of Labor)*, Simion Mehedinți identified and integrated six fundamental ideas (Mehedinți, 2009, p.23-27):

1. Labor is the only factor that insures the healthy development of a people; however, some statements deriving from his analysis may seem empirical and debatable, though they contain a large amount of Romanian Christian folk wisdom: the children of the poor are a “better sort” than the children of the rich; he who gathers a larger wealth and shows refinement “goes to hell without a doubt”; the poor is healthier than the rich;
2. The value of the children within a family is generally proportional to their number;
3. The value of the parents is proportional to the number of children they have (bachelors die sooner than the married ones, and those without children cannot be accomplished educators); the author believed that “the most powerful educator will be the one who has in their soul a richer source of love, that is the woman” because she best combines the two fundamental educational factors, labor and love; consequently, a moral matriarchy must be established and the woman must conduct education (Mehedinți, 2009, p. 120);
4. The value of a people is proportional to its number of “normal” families (that is families with lots of children);
5. The value of a school is proportional to the number of talents it discovers and issues to society;
6. The value of a country is proportional to the degree of scientific education of the masses.

Known as “Maiorescu’s man” (Ornea, 1967, p. 182), selected by him to carry on his ideas, Simion Mehedinți was a supporter of traditionalism and he constantly praised the writers who searched for inspiration in the Romanian rural universe (Ornea, 1967, p. 220) and a supporter of cultural regionalism that he considered to be “the proof of a more and more vivid Romanian consciousness”, as opposed to political regionalism which was “a menace to the life of the country”. (Ornea, 1980, p. 112-113)

#### 4.2. Civilization and culture

Simion Mehedinți is one of the most representative Romanian scholars of the first half of the 20<sup>th</sup> century. He is considered to have been the founder of the Romanian modern geography. He was a disciple of the German geopolitician Friedrich Ratzel who was his doctoral advisor, but Mehedinți added elements of human geography to it as a science, thus turning it into anthropogeography. Referring to Ratzel, Simion Mehedinți claimed that the value of a scientist is not to be found in the written works he leaves behind for posterity, but rather in the thoughts and discussions his scientific discourse generates in time (Mehedinți, 1967, p. 189).

He added to the phenomenology of geography by using certain concepts such as civilization, or *hilotechnics* in his words, as the assembly of all technical discoveries that insure material adaptation to a certain space, or culture or *psychotechnics*, as he called it, as the assembly of all intellectual, ethical and esthetical creations that insure a spiritual adaptation of the individual to a certain social environment. (Mehedinți, 1999, p. 85 and p. 119)

There are two essential works in which Simion Mehedinți expressed his view as a theoretician of culture: *Caracterizarea etnografică a unui popor prin munca și uneltele sale (The Ethnographic Description of a People through its Work and Tools)* (1920) and *Coordonate etnografice: civilizația și cultura (Ethnographical Coordinates: Civilization and Culture)* (1928). Civilization and culture are two main categories of a science that studies the life and progress of peoples perceived as ethnic mosaics, and that is ethnography. Analyzing the ethnical composition, the influence of the environment on the economic and social organization and on cultural behavior, there can be discovered some practical and pedagogical solutions to the problems a nation faces at a given point in history. Mehedinți’s dichotomy *hilotechnics-psychotechnics* can be traced to the

double aspect of labor: physical labor and intellectual labor. In his opinion, civilization has three components: food, clothing, and shelter. So has culture: science, art, and religion/morals. Civilization can be assessed by the number and complexity of the tools that social groups have at hand in the process of adaptation to the geographic environment, by the “density of the population and the biological quality of individuals” (Mehedinți, 1999, p. 281)

As far as the evolution of a people is concerned, Simion Mehedinți grants the major role to culture, and not to civilization. Civilization is universal, but culture is national. (Mehedinți, 2011, p. 400). Civilization can be absorbed by anyone, but culture builds up over generations, and is only based on certain innate abilities, so that there are individuals or whole nations that can be left outside the sphere of culture. In this context, Mehedinți used a discriminating and therefore questionable phrase-“race fatality” (Mehedinți, 2011, 379-380). Moreover, Mehedinți believed that “hygiene of the race” was necessary, but his arguments in this respect give way to a lot of controversy, especially ideological controversy. The school of labor as he called it is not only a pedagogical issue, but it becomes a state issue given the fact that in a society such as the Romanian society (as it was back then, but also as it is nowadays) labor is “cursed” by the “injustice” that comes along. And since the final goal of education is to shape character by superimposing genetically inherited abilities with abilities acquired through education and experience, Mehedinți made a hierarchy in terms of how valuable Romanian characters are, and divided them into three distinct categories (Mehedinți, 2009, p. 213-215):

- a. the feeble-minded (“the feeble, crippled, degenerated, and generally speaking the unbalanced ones [...]; the imbecile, the half-witted and all the souls lacking the harmony of health”, that Mehedinți called “infra-men”;
- b. normal people who work with their hands or their mind;
- c. personalities (“super-men”).

The condition to improve the situation is “preemptive work” for the infra-men and a “scrupulous” work schedule for the rest of the population. The main role in this belongs to the statesman but, as political genius occurs far more rarely than scientific or artistic genius, there must be an institution to compensate the lack of political genius of the government and to illustrate the “assembly of intellectual and moral values of the nation”: THE ACADEMY.

Actual work is the only way to acquire a solid education and a safe character. This is how Mehedinți explained the origins of the legionary movement in Romania (“a national, religious and pedagogical movement”) which, through applying the school of actual work, proved that they understood the educational role of work by that the “new man” assumed it as “physical suffering” after the healthy tiredness generated by lucrative activities (Mehedinți, 1995, p. 103-104). One of the undisputed merits of the Romanian legionary movement was their effort to rebuild the life of the Romanian people upon the sacred fundament of the Christian Orthodox religious belief (Mehedinți, 1995, p. 201).

Alongside this “different growth” based upon work, there is also the need for a “racial hygiene” policy to eliminate “several ethnic toxins”: the gypsies and the Jews. Mehedinți expressed a series of theoretical considerations on this topic, which places him in the reprehensible world of racism and antisemitism, together with other Romanian intellectuals of those times. One of the explanations might be that he had studied in Germany in the period when fascist ideas were on the rise.

As far as the gypsies are concerned, Mehedinți believed that the gypsy population was parasitic in Europe (*paria*) and was a threat because they resisted vaccination and other hygiene measures and they were therefore a constant source of infectious diseases (Mehedinți, 1995, p. 201-202). He noticed that the representatives of this population ignored social morals and he gave as an example the fact that, linguistically speaking, they were responsible for spreading curse words in our country, since they were the descendants of the bondmen that had been humiliated and beaten by their masters... (Mehedinți, 2009, p. 52). Mehedinți quoted Miguel de Unamuno, who analyzed the role of the gypsies (*gitanos*) in shaping the Spanish character and considered the lack of religious tolerance and the horrors of the Spanish civil war as influences of the gypsies (Mehedinți, 1995, p. 52).



As far as the Jews are concerned, their claim to be “the chosen people” becomes an insult to mankind. Mehedinți believed that their infiltration to Romania during the 19<sup>th</sup> and 20<sup>th</sup> centuries was “the most serious incident in the life of the Romanian people” because then was formed “the largest allogene mass” that has ever settled on Romanian soil. Together with the action of the Mongolic elements (Hungarians, Bulgarians, and Russians) and the gypsy elements, the Jewish influence threatened the very stability in Romania.

In the chapter *Orientare către viitor (Heading for the Future)* of the book *Creștinismul românesc (Romanian Christianity)*, Mehedinți developed upon the bad influence of the triad *machinism-racism-communism*. The industrial revolution was the starting point of an economic progress that under the conditions of the growth of population increased the need for raw materials and new markets (colonies), which led to the European population migration to all the continents. The would-be inferiority of the colored races as opposed to the white race, enacted by Joseph Arthur de Gobineau’s racist theory, helped justify establishing slavery and slave trade, conquering new territories and massacring and pillaging the local populations.

The exacerbation of the role of money led to an international offensive of Judaism based on economic instruments (anonymous companies, international trusts and concerns, unfair trade practices such as dumping) (Mehedinți, 1995, p. 193), but also on paralyzing the moral instinct of the nations by corrupting the superimposed walk of life (Mehedinți, 1995, p. 102).

Furthermore, communism, as an antithesis of capitalism, is seen by Mehedinți as an “abscess” of the history of mankind (Mehedinți, 1995, p. 194) that generates anarchy and wars (he made an analogy between Spain and Romania, where the agitators were communist Jews and Russian nihilists).

## 5. Conclusions

Simion Mehedinți perfectly understood the historic meaning of mankind’s economic progress and he noticed that the peoples which remain at the pastoral and agricultural stage and do not move on to the industrial stage, which do not perceive the world as a global market with a unique price set by “the one who produces the cheapest and transports the fastest”, which do not anticipate the economic domination replacing the military one will become the victim of “historic fatality, rising from the physical laws of the planet and from the struggle of mankind to achieve progress”. (Mehedinți, 2010a, p. 205-206)

The disappearing of a nation can be caused either by a deficit or an excess of culture, or by an improper social organization that would prevent the growth of the population, which in turn would generate an “economic void” speculated by those outside the country “who come in with the capital, the labor and then the arms” (Mehedinți, 2010b, p. 165). The current international situation certifies that Mehedinți’s views are both far-sighted and perennial.

A true patriot, Simion Mehedinți proved to have been a nationalist economic visionary when he stated that the country was at a turning point of its historic destiny and that there was a need to build a generation with a “highly economic and cultural offensive” that was to use “all the national sources of energy” to solve “the issue of the population, which was the fundamental issue for Romania”. Even though it possessed rich resources (grain, oil, methane, coal, metals, salt, forests, vineyards, fishing ponds) that would guarantee its economic autonomy, Romania was unable to have a modern life without a “dense population”. This challenge could not be completed “without the help of intense ploughing and the help of industry”, economic activities that could not unfold “without a deep scientific training and without a serious growth of the entire young generation” (Mehedinți, 2010a, p. 206-208)

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## Dimitrie Cantemir’s Economic Perspectives

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### Abstract

*Dimitrie Cantemir (1673-1723), one of the most erudite scholars of his times, was a historian, a philosopher, a geographer, a theologian and a musicologist. A world-class encyclopedian scientist, Dimitrie Cantemir was the first great Romanian intellectual to have been acknowledged as a member of the European culture. The purpose of this paper is to point out the economic ideas that emerge from his writings, as well as the patriotic layer of his views on economic issues. The specific historical conditions and his background as a humanist made Cantemir focus on the issue of creating an independent centralized nation by creating a national market imposed by the logic of economic progress.*

**Key words:** mercantilism, boyars, peasants, land property, Orient  
**J.E.L. classification:** B31

### 1. Introduction

Dimitrie Cantemir was born on the 26<sup>th</sup> of October 1673. His father, Constantin Cantemir, ruler of Moldavia, provided his son with a solid education for the first years of his life by bringing the Crete born Greek monk Ieremia Cacavelas from Wallachia as his tutor. With him, young Dimitrie Cantemir studied literature and philosophy and learned Latin and Ancient Greek. At the age of 16 he was sent by his father as a hostage to Constantinople, as a sign of devotion to the Sultan, according to the customs back then.

Raised in Phanar (Fener) for 20 years, Cantemir got acquainted both with the Muslim cultural and artistic world and with the Western cultural and diplomatic world in the capital of the empire. He delved into works of philosophy, theology, history, geography and even musicology (he even wrote a theory book on Turkish music). When he was elected a member of the Royal Academy of Berlin in 1714, he became the “first oriental member of a scientific occidental society” (Djuvara, p. 115). Once he learned to appreciate the values of the Muslim civilization, young Cantemir wrote a paper on the East that would come to be appreciated in the West as well.

Dimitrie Cantemir was the ruler (voivode or prince) of Moldavia for a very brief period of time, for only 35 weeks, the first time in 1693, for 3 weeks, and the second time, between 1710-1711, for 8 months. As ruler of Moldavia, he opposed the Turkish domination and was a fierce enemy of the boyars, whom he considered guilty for the increased oppression of the peasants. Even though he was under the protection of the Sultan, he betrayed him and joined the Russians in the Russian-Turkish War; after the Russian and Moldavian armies were defeated at Stăniliești, on the 11<sup>th</sup> of July 1711, he exiled himself to Russia, together with several boyars and peasants, where he became the secret advisor of the Tsar (1721) and where he wrote most of his works, for example *Istoria ieroglică* (A Hieroglyphic History), a novel and a pamphlet (roman à clef) with philosophical implications (Zub, 1974, p. 61). Dimitrie Cantemir died in Russia of diabetes on the 21<sup>st</sup> of August 1723.

In his writings, Dimitrie Cantemir was inclined towards studying our national past and he painted a detailed and complex picture of the life and customs of the Romanian people and showed how political life (as *l’art de gouverner* – the art of governing – all the issues relating to the administration of the country), the religious life and the private life were back in those times.

A polyglot scholar (he also spoke Latin, Greek, Turkish, Arabic, Persian, Slavic, Italian, and Russian), Cantemir was the author of an extensive philosophical, literary and historical work. Among his most important pieces of writing are: *Divanul sau Gâlceava înțeleptului cu lumea sau Giudețul sufletului cu trupul* (The Trial or the Quarrel between the Wise Man and the World or the the Haggle between Body and Soul) (1698), *Icoana de nezugrăvit a științei sacrosante* (The Unpaintable Picture of Sacrosanct Science) (1700), *Compendiul sistemului de logica* (Compendium of the Logic System) (1701), *Istoria ieroglifică* (A Hieroglyphic History) (1705), *Istoria creșterii și descreșterii Imperiului otoman* (History of the Growth and Decay of the Ottoman Empire) (1714-1716), *Descrierea stării Moldaviei: în vechime și azi* (Description of Moldavia’s Situation: in the Past and Nowadays) (1716), *Viața lui Constantin Cantemir* (The Life of Constantin Cantemir) (1716-1718), *Hronicul vechimei a romano-moldo-vlahilor* (Chronicle of the Antiquity of the Romano-Moldavo-Wallachians) (1723).

## 2. Theoretical background

Dimitrie Cantemir’s life and work were written about in many specialized papers and studies. These are so numerous and they cover so many topics that we can say they represent a new science: *cantemirology*. Some that are worth mentioning are: *Dimitrie Cantemir. Viața și opera* (Dimitrie Cantemir. Life and Work) (1958) written by P. P. Panaitescu, *Filozofia lui Dimitrie Cantemir* (Dimitrie Cantemir’s Philosophy) (1964) written by Dan Bădărău, *Dimitrie Cantemir* (1972) by Constantin Măciucă, as well as Victor Țvircun *Dimitrie Cantemir. Repere biografice* (Dimitrie Cantemir, Biographical Details) (2017) and *File din istoria vieții și activității politice a lui Dimitrie Cantemir* (Pages in the History of the Life and Political Activity of Dimitrie Cantemir) (2009). The Romanian historian who went to live in France Ștefan Lemny published the volume *Cantemireștii. Aventura europeană a unei familii princiare europene în secolul al XVIII-lea* (The Cantemirs. The European Adventure of a European Royal Family in the 18<sup>th</sup> Century) (2013), as well as the biographical study *Dimitrie Cantemir. Un principe roman în zorile Luminilor europene* (Dimitrie Cantemir. A Romanian Prince at the Dawn of European Enlightenment) (2019). A series of highly valuable studies were published in the volumes *300 de ani de la nașterea lui Dimitrie Cantemir* (300 Years Since Dimitrie Cantemir’s Birth) (1974), *Dimitrie Cantemir. Punte a cunoașterii între Orient și Occident* (Dimitrie Cantemir. A Bridge of Knowledge between the East and the West) (2016) and *Cantemiriana. Noi contribuții* (The Cantemirain. New Contributions) (2021).

## 3. Research methodology

Through the process of research into Cantemir’s works, we identified the author’s theoretical contributions to certain economic concepts. We systematically went over his works and gathered information to improve our understanding of the topic we chose. We made a qualitative analysis of the topic by further studying the specialized literature and by revising various articles written throughout the time.

Our article aims at identifying Cantemir’s ideological profile and at placing his ideas within a certain current of economic thought. And our principle method of research was content analysis, which allowed us to look into the concepts and considerations used by Cantemir in his writings and explore them in the context of the 17<sup>th</sup> and 18<sup>th</sup> centuries.

## 4. Findings. *Descrierea Moldovei* (Description of Moldavia) - Economic Considerations

Even though he did not write any purely economics paper, there are economic ideas in everything he wrote. From this very perspective, his greatest work was *Descrierea stării Moldovei: în vechime și azi* (Description of Moldavia’s Situation: in the Past and Nowadays), published in Latin in Russia in 1716, then in German in 1771, and finally in Romanian in 1825.

P. P. Panaitescu considered this paper to have been “the first scientific paper of a Romanian” (Panaitescu, 1958, p. 148). It is a geographical monography which contains historical, sociological and ethnographical elements and which is divided into three parts: the first part is geographical, the second one political, and the third one is about the Orthodox religion, the organization of the

church and the Moldavian language. The author synthetically presented the traditional Romanian type of government (Cantemir, 2017, p. 1239-1241): the organization of the country, the attributes and powers of the prince, the ways to get the power and to pass it on, the swearing into office ceremonies, the relations with the Ottoman Empire, the dignitaries, the assembly / council of the boyars, the social classes. He wanted an authoritarian rule of the prince to exist in Moldavia, a monarchic absolutist type.

Various economic aspects are discussed in chapters 13 through 17 of the second part of the book. His economic concepts and ideas form a well defined, coherent whole, a “mercantilism-like” theoretical corpus (Constantinescu (coord.), 1974, p. 91) on which was based his political activity as a ruler. From an economic perspective, when analyzing the current situation and the history of Moldavia, he issued some considerations regarding the origins of the large-scale boyars’ land property, the economic, social and judicial relations between boyars and peasants, the payment of tribute to the boyars and to the Ottoman Empire (Constantinescu, Postolache, Nicolae-Văleanu, Bulborea, 1982, p. 13-15).

Cantemir went back in time in the history of land property in the Romanian Principalities and noticed the fact that the ruler had the supreme right of property upon the entire land in the country, a right that came with his status as head of the feudal hierarchy and head of the state, Dimitrie Cantemir showed that the Moldavia that Dragoș re-established was the “exclusive patrimony of the prince” and Dragoș provided the people with “villages and lands in order to be able to live up to the rank he had received”; the documents of the old Moldavian families prove the origins of the properties they owned: “the gift and generosity of the prince” (Cantemir, 2017, p. 1459). Moreover, the boyars had the benefit of the ruler’s clemency and were exempt from paying tribute (Cantemir, 2017, p. 1461).

There was no free, capitalist-like property. In the Romanian Principalities there were three main forms of land property: 1. the individual property of the free peasants (known as *moșneni* or *răzeși*) 2. the property for which some annual taxes were paid to the state (in villages and towns), and 3. the uninhabited property of the state. Towards the end of the Middle Ages the social gap between the peasants who were serfs (called *rumâni* or *vecini*) and the privileged classes (boyars, *mazili*, *călărași*, *curteni*) became deeper. Dimitrie Cantemir presented the preferential treatment of the privileged classes before the law and directly condemned the abusive behavior of the boyars towards the peasants. The land property of the boyars expanded as the free peasants (*răzeși*) were forced by poverty into selling their inherited properties (Cantemir, 2017, p. 1505-1507).

The process of the free peasants turning into serfs was favored by the autocratic regime: “there is no measuring of how much they worked; the land owner decides how many days they should work, as he pleases” (Cantemir, 2017, p. 1507); in case an entire village is sold, the prince decides how much tribute is to be paid, and there is no limit to it” (Cantemir, 2017, p. 1509).

The people of Moldavia were either townspeople (they lived in small or large towns), or peasants, who lived in villages. The townspeople were mostly craftsmen. Cantemir considered that the people of Moldavia “were born proud or lazy” and were convinced that “any form of trade was undignified” and for this reason there were so few Romanian citizens that were wealthy (Cantemir, 2017, p. 1503). Most of the profit from trade went to foreign traders (Turks, Jews, Armenians and Greeks). Jews were forced to pay a higher annual tribute, they were allowed to practice only trade and usury, and they could build synagogues anywhere they pleased as long as they were made of wood and not stone. Turks lived on trade, but they were not allowed to buy land or houses or to build places of worship (Cantemir, 2017, p. 1503). Since foreigners had no right to buy land and houses in Moldavia, their money was spent outside the country (except for a small amount, used to pay the tribute to the Ottomans and the local taxes). To limit the “flow” of money abroad (in a pure mercantilist tradition), Dimitrie Cantemir suggested that the only way was to insure the independence of the country based on three fundamental premises: the historical continuity of the Romanian people, its unity as a people and its unity of language, and the common economic interests of its inhabitants.

The Moldavian peasants “were very lazy and did not take to labor”. Even though they possessed crops, beehives, cattle and horses, most of them did not bother to amass supplies, especially since they were often plundered by the Tartars (Cantemir, 2017, p. 1511).

In describing the customs and the behavior patterns of the Moldavians, Dimitrie Cantemir was objective and pointed out that, on the one hand he had to show patriotism and love for his people, but on the other hand he had to emphasize negative aspects as well. Dimitrie Cantemir made a real SWOT analysis of the Moldavian character, and he identified the following:

- a. The orthodox religion and hospitality are their main traits of character;
- b. They are troublesome and haughty;
- c. They are funny and cheerful: “they easily forget enmities, just as they easily forget friendships”;
- d. They do not become “savage” when drunk, but they do not overdo it either, even though they do like long parties from 6 in the evening until 3 in the morning;
- e. They handle the sword well, but they avoid using the rifle, whose handling requires “neither art, nor warrior courage”
- f. They consider fighting against the Turks and the Tartars a Christian duty, and robbing the Turk or the Tartar is simply reclaiming what was theirs and not acquiring things that did not belong to them”;
- g. They oscillate between exaltation when things are good and discouragement when the going gets tough;
- h. They do not like to study (they say that the learned one “got stupid because of all the learning”);
- i. Noble women are good-looking, but less beautiful than ordinary ones, who are “unvirtuous and often behave shamelessly”; if married and widowed women have to cover their heads, virgin women have to walk bear headed “since a bear head is a sign of virginity”;
- j. They believe in destiny, which makes them brave in battle (Cantemir, 2017, p. 1509-1523).

Among the small boyars who serve the Prince there was a special one, called the “Room Master”, who was in charge with guarding the Prince’s personal treasury, “which was separate from the money of the province” (Cantemir, 2017, p. 1391). We notice that this position reminds us of cameralism, given the fact that there had been a differentiating of income taxes: part of the money was for the Prince, and part of it for the state (Cantemir, 2017, p. 1461) and “the Prince could not be compelled to give anything from his treasury to the public one” (Cantemir, 2017, p. 1463-1465). The seven most important boyars, “the councilors” were in charge with the public treasury.

In Cantemir’s opinion, alongside the anachronic and spoliator character of agrarian relations and certain negative aspects of the Moldavian mentality, another essential cause that prevented the economic development of the country was the Ottoman domination. In *Istoria ieroglică* (A Hieroglyphic History), the Ottoman Empire is the “city of greed”, and Constantinople is the “city of enrichment”. Paying the annual tribute and other obligations to the Sultan affected more and more the lower class of the Moldavian population and prevented economic development. Dimitrie Cantemir wrote a vast paper on the history of the Ottoman Empire and pointed out the fact that its decadence was an opportunity for the peoples it controlled to get their independence.

## 5. Conclusions

If we analyze them as a whole, Dimitrie Cantemir’s considerations on the unity and independence of the Romanians, on the need to reinforce the centralized feudal state (by imposing the hereditary principle in electing the Prince, in order to eliminate the grave consequences of the fight for power), on doing away with the Ottoman domination in order to stop the wealth of the country which was so needed by agriculture, crafts and trade from going abroad, come together as an ensemble that can be read as a mercantilist perspective. Putting it into practice was both a purpose and a condition for Romania’s economic progress (Constantinescu, Postolache, Nicolae-Văleanu, Bulborea, 1982, p. 13).

Beside chrematistics, mercantilism also focuses on the establishment and consolidation of the centralized state. A Humanist and an erudite scholar, preoccupied first and foremost by correctly integrating our history into the universal history, Dimitrie Cantemir noticed the link between the Phanariot regime, the Ottoman domination and the decrease of the absolute rights of the Romanian rulers. He showed great political and economic patriotism when analyzing Moldavia’s economic relations and noticed that they could become better only by the country becoming economically independent from the Ottoman Empire. Once this domination was gone, Cantemir the Humanist was confident that Moldavia would recede from economic medievalism and change the philosophy of life of the Moldavians (and subsequently their economic mentality that was not so favorable to the European mercantilist spirit, based on the need for accumulation and profit).

Cantemir was considered “a traveler among worlds” (Neumann, Heinen, 2010, p. 242), who made a scientific and critical contrast between the Ottoman Empire and the West. Dimitrie Cantemir is the perfect example to illustrate the fact that when a Romanian scholar aspired for universality, their background as historians or their interest for history prevailed. From this point of view Mihail Kogălniceanu considered Dimitrie Cantemir “one of the three great old historians” in Romania, alongside Grigore Ureche and Miron Costin (Zub, 1974, p. 245). Mihail Manoilescu mentioned him as a member of the “spiritual family” of the “Moldavian phenomenon” when he exclaimed with satisfaction: “Moldavia has given us so many great men!” (Manoilescu, 1993, p. 110).

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## Features of the COVID-19 Crisis – Reflections of Economic and Financial Indicators

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### Abstract

*Recently, the world economy has been under strong pressure from several major events, with the COVID-19 crisis being one of them. Usually, the economic crises are specific to the financial environment, but the COVID-19 crisis is exogenous to the financial system, being induced by the political decision taken by the states of the world to quarantine the economy because of the pandemic. The article aims to highlight the main features that define the COVID-19 pandemic crisis, in economic and financial terms, analysing the development of specific indicators during the crisis, at the level of several countries, both developed and emerging. The financial sector has played a double role: on the one hand as the channel of transmission to the real economy of the reaction to the initial shock, and on the other hand, as a factor in shaping the initial conditions that have increased the sensitivity of the economy to shock.*

**Key words:** global crisis, political decisions, stock market indices, global economy, deep uncertainty

**J.E.L. classification:** E61, E66, F60, G01, G19

### 1. Introduction

The last few years have been marked by a succession of major crises and events, with the COVID-19 crisis being one of the worst in the world. Unlike other crises, more or less recent, specific to the financial environment, and intrinsically related to it, the COVID-19 crisis is not endogenous to the financial system but was induced by the political decision taken by authorities of countries worldwide to quarantine the economy because of the pandemic. The forced and deliberate shutdown of the global economy (the lockdown) automatically and immediately caused an economic crisis, extended in financial terms, and this phenomenon, with its particularities and generated effects, takes the form of a global crisis - the COVID-19 crisis.

The article aims to highlight the main features that define the COVID-19 pandemic crisis, starting from a brief description of the COVID-19 pandemic, compared to other epidemics that marked the history of the last century and continuing with a general description of the COVID-19 crisis. Achieving the proposed objective is based on the analysis of the evolution of the economic and financial indicators, at the level of several countries, both in the category of developed and emerging, during the manifestation of this crisis.

### 2. Theoretical background

Throughout history, the world has faced epidemics and diseases that have devastated it. The COVID-19 pandemic has certain characteristics that differentiate it from epidemics in the last century (see Table 1). The economic and financial environment in which today's economies operate is very different, globalized, with complex and interdependent relations between countries, which makes a global epidemic more likely and destructive. (Rungcharoenkitkul, 2021).



Less than a month after statements by the Chinese authorities about the first cases of pneumonia of unknown origin, later called COVID-19 (December 31, 2019), economic forecasters began to slightly change their predictions based on locally produced effects in China. Since the end of February, however, the situation has become a worldwide concern, with the number of cases registered in European countries and the USA increasing (Busch, 2020).

The main feature that distinguishes it from previous epidemics is the quarantine measure on a global scale, introduced by policymakers.

The duration of the economic constraints is closely linked to the evolution of the pandemic, and this is uncertain and very non-linear: fine-grained adjustments in public policy could have an impact on the spread of COVID-19 cases, either contributing to its stabilization or failing. . As Table 1 shows, the January-March, April and October episodes are very different, as the situation has deteriorated rapidly, despite strong political responses.

*Table no. 1 Comparative features of some epidemics of the last century*

<b>Epidemics</b>	<b>Containment measures</b>	<b>Financial effects</b>	<b>Economic effects</b>	<b>Context</b>
<i>Influenza pandemic (1918)</i>	Physical distancing	Minor	Minor	First World War; high share of manufacturing in GDP in advanced economies
<i>SARS (2003)</i>	Physical distancing	Minor	Minor	Chinese growth accelerating
<i>COVID-19, January-March 2020</i>	Local lockdowns (Wuhan, China; Lombardy, Italy)	Market selloff	Supply chain disruptions	Globalised economies; Integrated supply/credit chains; High share of services in GDP; High leverage in parts of the real sector
<i>COVID-19, April 2020</i>	Global lockdown	Tightening financial conditions	Supply chain disruptions; Sudden stop in demand	
<i>COVID-19, October 2020</i>	Global lockdown eased	Stable financial markets, but banks under pressure	Constraints on the balance sheets of households and companies	

*Source: Rungcharoenkitkul (2021), p.4*

The COVID-19 crisis is unprecedented due to its rapid spread, the global quarantine measure, and, implicitly, the complex effects generated since its inception, but also the uncertainty about the time horizon in which it manifests itself.

Although the period of development remains questionable, the characteristics of the pandemic crisis can be identified in the two stages covered so far, with the conventional delimitation being May 2020.

The initial phase, the beginning, considered the period February-April 2020, is one of deep uncertainty related to the evolution and gravity of the situation, to which the authorities reacted through measures to close the activities (economic, social, cultural, etc.) – the lockdown stage.

At first, uncertainty severely affected the functioning of markets, both commodity markets (especially oil) and financial markets (foreign exchange market and financial assets market). It is noteworthy that the authorities responded promptly with swift and significant action. The central banks were the first to react by countering financial panic, followed by other interventions by political authorities, actions to limit the spread of the virus (sanitary), and measures to support economic activities. Monetary and fiscal measures, which played a key role in stabilizing the financial system, were complemented by decisive actions related to the regulatory/supervisory framework, to increase the resilience of the financial system in the face of this strong and unexpected pressure.

The second phase of the crisis, that of the gradual reopening of some activities and adaptation to the new situation, is ongoing from mid-May 2020, given that at one point it overlaps with another global crisis that has been fuelled by the pandemic crisis – the global energy crisis.

Beyond the onset of the crisis, the most serious challenge is the long-term economic and financial impact of the pandemic because it depends in particular on the ability of decision-makers to support the resumption and recovery of economic activity, while limiting risks on the health of the population. In addition, the global energy crisis of the summer of 2021, amid a host of factors, including the COVID-19 pandemic, is increasing uncertainty about the economic recovery.

### **3. Research methodology**

In order to highlight features of the COVID-19 crisis, we look at some representative economic and financial indicators, giving a picture of their developments during 2019-2021. There are considered Purchasing Managers Index, as the main indicators of economic activity at the global level, GDP growth, and GDP growth forecasts, output losses indicator, stock market indices, and long-term government bonds yield. Data are extracted from the IMF database, and also from IMF World Economic Outlook.

## **4. Results**

### **4.1. Economic developments**

The COVID-19 crisis has several features that set it apart from recent ones, especially the global financial crisis.

Not being caused by the accumulation of financial imbalances, as was the case with the global financial crisis, but also with other crises after the 1980s, the COVID-19 crisis is exogenous to the financial system. It is the result of a politically induced recession through the measures taken by the authorities.

The financial crisis of 2007-2008 began with a severe shock to the financial markets and later to the real economy by disturbing the confidence and tightening lending conditions for households and businesses (Criste and Lupu, 2017). Instead, the current crisis has shifted from the real economy to the financial sector, triggered by the severe isolation measures imposed, which have hampered the normal functioning of the economy. As mentioned in the Annual Economic Report 2020 of the Bank for International Settlements (BIS, 2020), non-financial companies were the first victims of the crisis, with the effects amplifying and extending into the real economy.

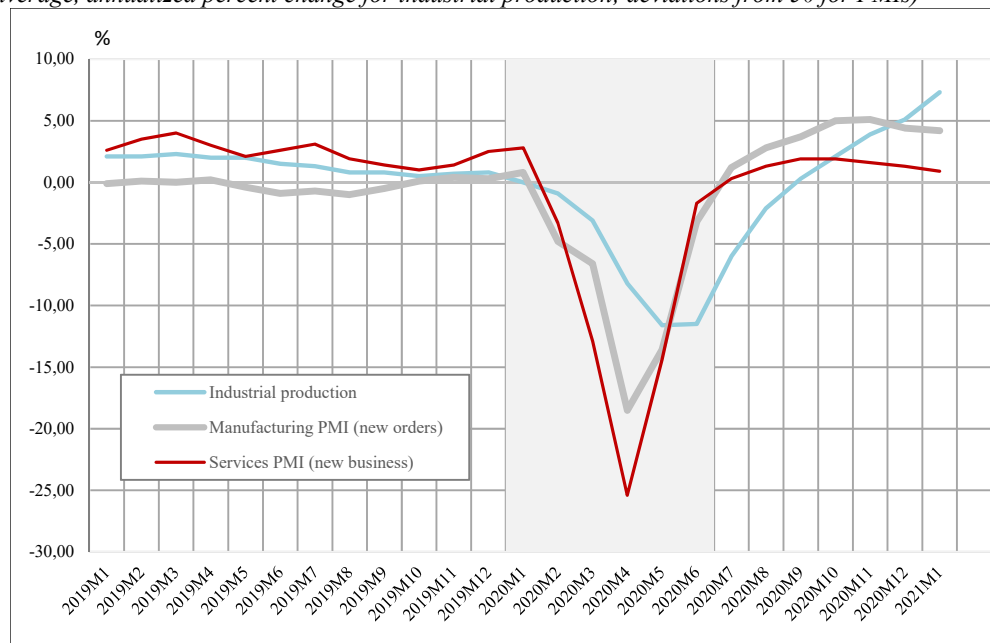
The sudden stop of global economic activity in March 2020 meant a collapse, sharper than during the Great Depression, and deeper than in the case of the global financial crisis (Borio, 2020).

Within a few weeks, the stage of moderate expansion that had been going on for several years in most economic regions came to an abrupt halt and turned into a deep, large-scale recession of economic activity and demand. The PMI (Purchasing Managers Index) indicators, often considered to be key indicators of economic activity, calculated globally, have fallen dramatically, as shown in the chart below (Figure no.1).

The policy of closing some business activities, including the travel restriction to mitigate the spread of the virus, has disrupted the supply chain - which has indirectly blocked global economic growth. Recent estimates (Ahmed & Sarkodie, 2021) show that since the outbreak of the COVID-19 crisis, the world economy and commodity markets have declined much more than during the global financial crisis.

Another feature of the COVID-19 crisis concerns the degree of uncertainty and unpredictability concerning the development of factors outside the economic field. Uncertainty is a feature specific to any economic and financial crisis. However, in the case of a pandemic crisis, it has a much deeper meaning, given the existence of unpredictable factors outward the economy, whose influence and action can determine a wide range of scenarios. This feature can also be seen in the fact that the time horizon in which the crisis is unfolding remains unknown.

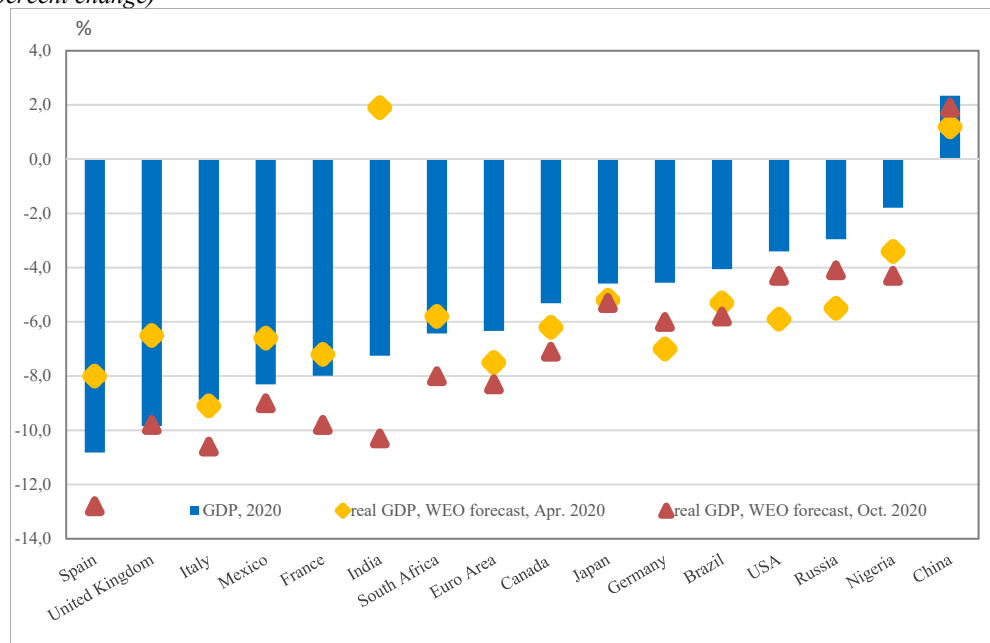
Figure no. 1. The dynamic of the global activity during the COVID-19 crisis (three-month moving average, annualized percent change for industrial production; deviations from 50 for PMIs)



Source: IMF (2021a)

Although statistics show an improvement in economic activity compared to 2020, the pace of global GDP growth remains in the negative zone and the future remains uncertain (see Figure no. 2). In June 2020, in the IMF's baseline scenario, the decline in economic activity for 2020 was forecasted at -4.9%, but according to the latest information (IMF, 2021b), the pace of global GDP growth is -3.1 %.

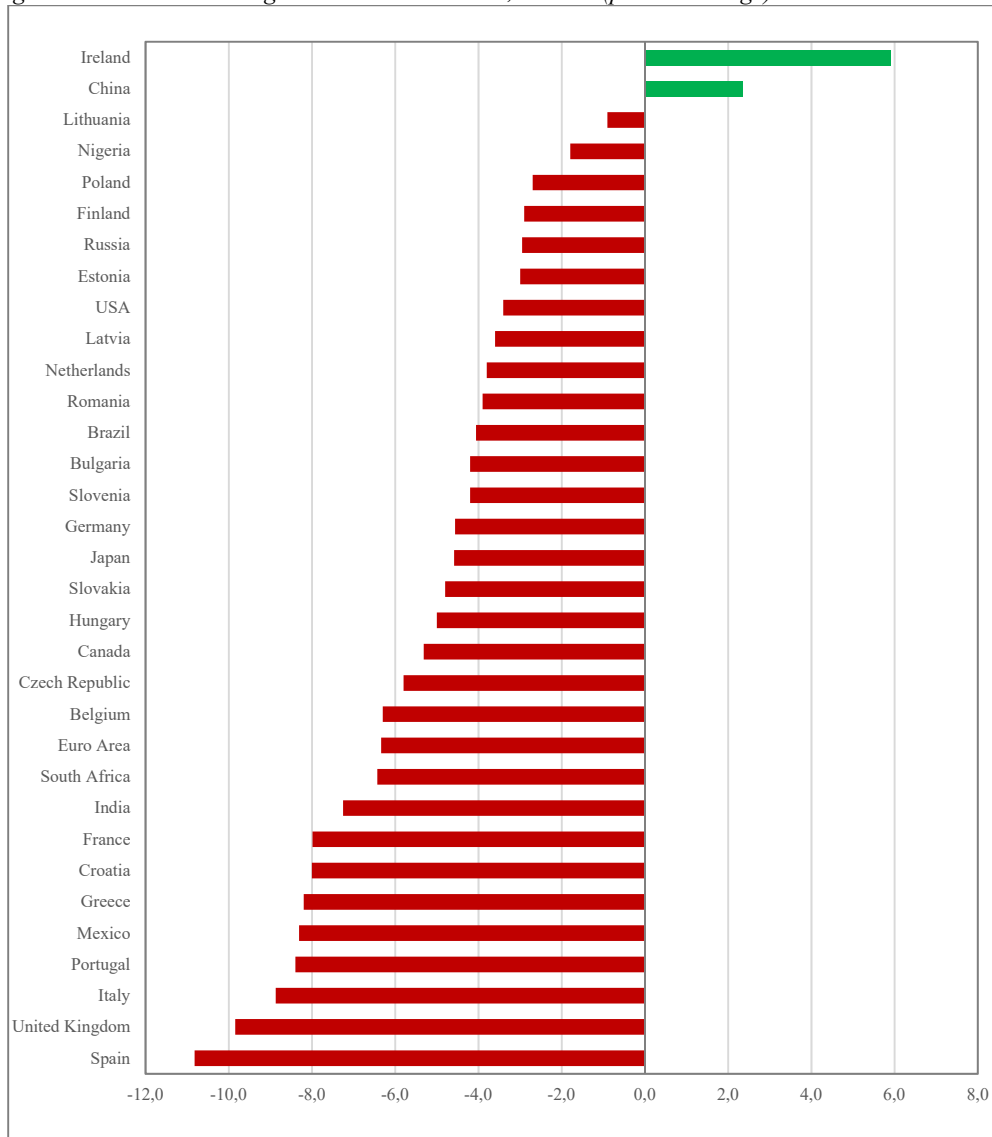
Figure no. 2. The dynamic of economic activity during 2020. Real and projected GDP growths (annual percent change)



Source: based on IMF data from IMF (2021a, 2020a, 2020b, and 2021b)

The pandemic crisis is a global crisis because it has afflicted all regions and states of the world, unlike the financial crisis of 2007-2008 which, although it is called global, did not directly affect all countries. Its economic impact is highly differentiated between countries, reflected not only by the real pace of economic growth in 2020 (see Figure no. 3) but also by the estimated losses in terms of production, as shown in Figure no. 4.

Figure no. 3. Annual GDP growth across countries, in 2020 (percent change)

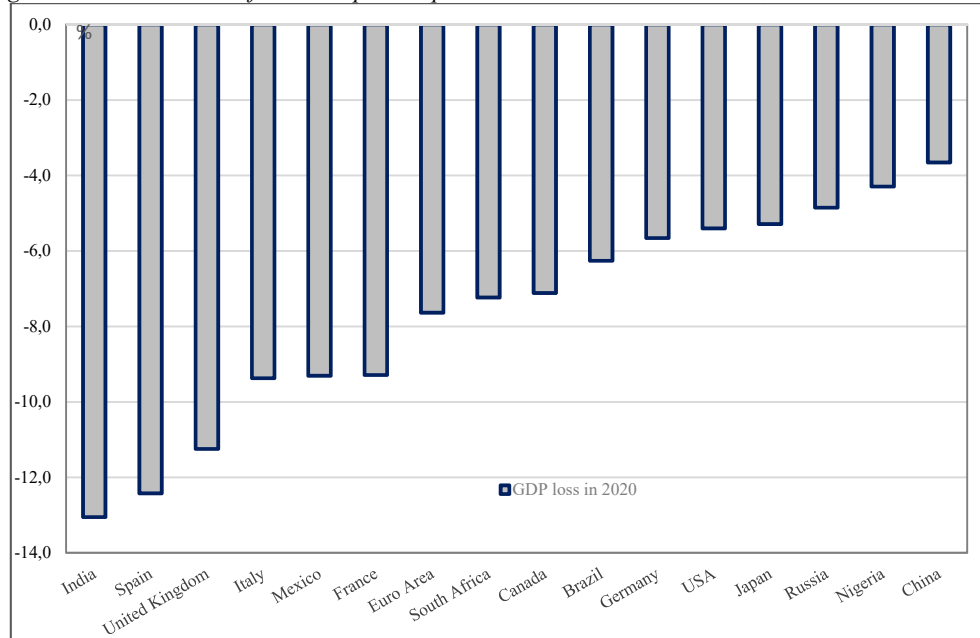


Source: IMF data 2021

The variation range of production losses is quite high, from -13% (in the case of India) to almost -4% (in China), if we consider only a few countries (see Figure no. 4). This heterogeneity partly reflects a different efficiency both in addressing the pandemic (for example, Korea and China have managed to control the spread of the virus in 2020, without resorting to prolonged and widespread shutdowns) and in responding to policy measures, and the importance given to economic and health objectives. Countries are also different in their economic and social structure (dependence on tourism and service industries, population density, etc.), which makes them more or less vulnerable to the pandemic.

Moreover, the exposure to financial factors, and the vulnerable elements in the structure of the economy, are also different between countries. Countries with emerging economies are usually more vulnerable (Criste and Lupu, 2021), being affected on several levels in terms of abrupt cessation of activities - domestic economic activity, capital flows, and exports of products or remittances from abroad.

Figure no. 4. Estimation of unaccomplished production in 2020, as GDP loss, across countries



Source: based on IMF data, 2021.

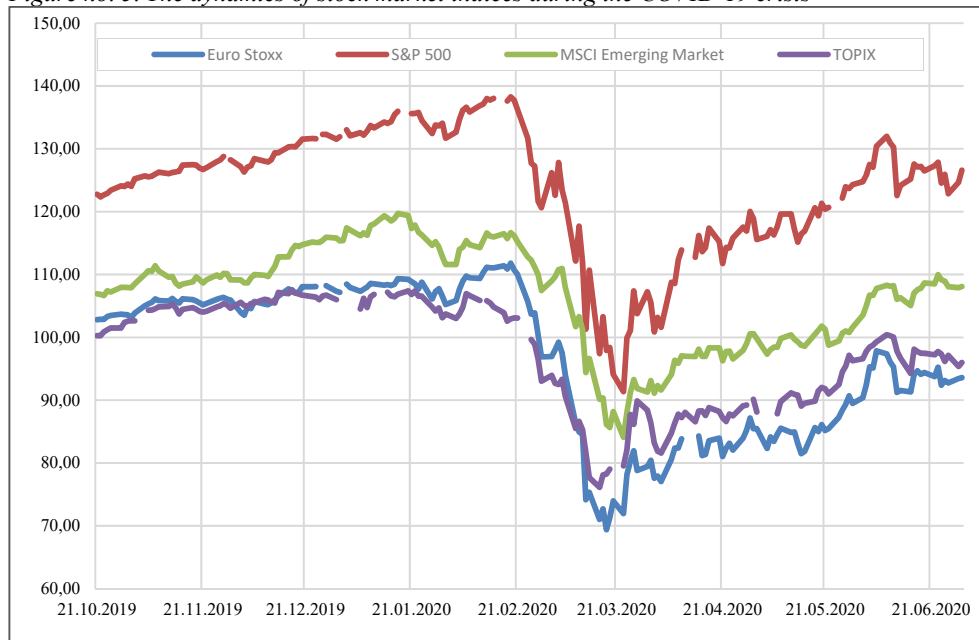
Guerrieri et al. (2020) draw attention to the fact that this crisis, which started with the temporary cessation of many activities in the service sector (tourism, travel, entertainment, etc., even “non-COVID” medical services, etc.), has led to very large differences between economic sectors, and the unusual combination of demand-side and supply-side shocks is likely to have major long-term implications for the structure of the economy and growth. Such consequences will be challenges for economic policies.

#### 4.2. Financial developments

Although not at the root of the shock, the financial sector has played a dual role: on the one hand as a channel of transmission to the real economy of the reaction to the initial shock, and on the other hand as a factor in shaping the initial conditions that have increased sensitivity of the economy to shock.

Global financial markets have reacted very quickly. If stock prices had reached an all-time high by the end of January, with the February 2020 announcements concerning the rapid spread of the virus in Europe, the stock market reacted quickly, with a sharp drop in stock prices, reflected by the dynamics of stock market indices (see Figure no. 5).

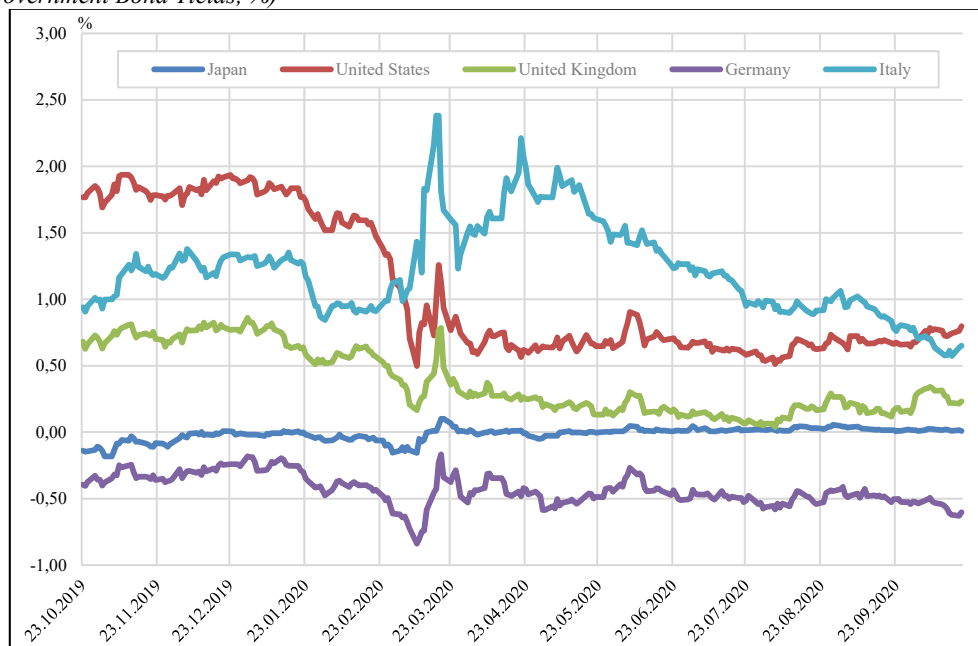
Figure no. 5. The dynamics of stock market indices during the COVID-19 crisis



Source: based on IMF data (IMF, 2021b).

In March 2020, the variation margin in the value of securities issued by corporations widened dramatically in developed countries. The markets for commercial securities, asset-backed securities, and mortgage-backed securities have frozen in many countries, and fluctuations have increased for several types of assets. The long-term bond market has been shocked by a sharp rise in 10-year government bond yields in some developed countries (Figure no. 6).

Figure no. 6. The dynamic of the long-term government bond yield, during the COVID-19 crisis (10-Year Government Bond Yields, %)



Source: based on IMF data (IMF, 2021a).

It is known that the degree of the financial development influences the economic and financial stability of a system (Criste and Lupu, 2021). In emerging countries, characterized by a lower degree of financial development, the shock of COVID-19 has triggered a sudden capital phenomenon affecting public and private external financing. The withdrawal of capital has led to a sharp of currencies' depreciation in these states and a further tightening of financial conditions. Massive and rapid sales in local currency bond markets have led to sharp increases in sovereign bond yields in several emerging countries, but the strong intervention of central banks of these countries has helped to correct such trends in the coming months.

As Borio (2020) pointed out, the financial system was quite robust at the time of the current crisis, with the world economy expanding. Moreover, the rapid and firm intervention of central banks in the first phase largely neutralized the turmoil in the financial markets, and their communication with the market restored confidence that the situation was under control. In addition to stabilizing the markets, the measures taken by the monetary authorities aimed to maintain the flow of credit to companies, households, and even public entities.

It is noteworthy that in the early stages of the crisis, despite sharp currency depreciation and massive capital outflows, central banks in emerging economies reduced monetary policy interest rates. However, the decision was motivated on the one hand by the existence of sufficient room for monetary easing, and on the other hand by the sudden easing of monetary policy by the Fed and other central banks in developed economies, which improved conditions, thus, easing the appreciation pressure on the US dollar, a risk factor for emerging economies.

Equally important was the role of financial factors in shaping the initial conditions. After accumulating gradually, partly because of persistently very low-interest rates, a specific phenomenon in the wake of the global financial crisis, the financial fragility has exacerbated the impact of the shock on economic activity. The vulnerabilities accumulated in the banking system in the post-crisis period refer to both the aggressive assumption of risks, a predominant behaviour in the financial markets, and the very high level of non-bank financial leverage (BIS, 2020). Credit risk was underestimated not only in advanced economies, but also in emerging ones, and liquidity was "fragile", given the popularity of illiquid investments with short-term financing, investment funds, etc. Following the global financial crisis, corporate debt has risen in many countries with advanced and emerging economies, while household debt has risen mainly in countries that have been less affected by the global financial crisis. In addition, sovereign debt has risen in several advanced economies, but especially in emerging economies, partly because of the political response to the global financial crisis. These factors have left their mark on the economy's initial response to the shock.

The above-mentioned characteristics, which reflect the economic and financial effects of the COVID-19 crisis, have required firm, rapid and major interventions by macroeconomic policy decision-makers. Berger & Demirgüç-Kunt (2021) emphasize that the long-term prudential policies pursued by the US authorities since the time of the global financial crisis have prepared the US banking system for a future crisis. This remark is also valid in other countries, most of which have such an approach.

Therefore, although measures to stop the pandemic have led to a deterioration in the macroeconomic environment, and an increase in financial risks for banks, the macroprudential mechanism developed in recent years and the proactive conduct of macroprudential policy, as well as the experience of the global financial crisis, which through its springs has been an exercise in increasing the resilience of the financial system to future shocks and crises, have helped reduce risk in the financial sector at the global level.

## 5. Conclusions

The COVID-19 crisis is unprecedented due to its rapid spread, the global quarantine measure and, implicitly, the complex effects generated since its inception, but also the uncertainty about the time horizon in which it manifests itself.

The initial stage, from February to April 2020, is one of deep uncertainty related to the evolution and gravity of the situation, to which the authorities reacted through measures to close the activities (economic, social, cultural, etc.) lockdown. Uncertainty has severely affected the

functioning of markets, both commodity exchanges (especially oil) and financial markets (foreign exchange market and financial assets market).

The analysis highlights several features of the COVID-19 crisis:

- it is exogenous to the financial system, not being determined by the accumulation of financial imbalances, but by the blocking of the economy through the measures adopted by the authorities, which were reflected in the financial area;
- it has a high degree of uncertainty, generated by the unpredictability of the factors that sustain it, outside the economic environment, and therefore the time horizon in which the crisis unfolds remains unknown;
- it is a global crisis because it has covered all regions and states of the world, but its economic impact is very differentiated between countries, depending on the financial openness and the vulnerable elements in the structure of the economy;
- it bears the seeds of major long-term changes in the structure of the economy and economic growth, as a result of the production of very large differences between the fields of activity.

The financial sector played a dual role in the manifestation of the COVID-19 crisis: on the one hand, it was a channel of transmission to the real economy of the reaction to the initial shock, and on the other hand, it was a factor in shaping the initial conditions increased sensitivity of the economy to shock.

The most serious challenge is the long-term economic and financial impact of the pandemic because it depends in particular on the ability of decision-makers to support the resumption and recovery of economic activity, especially in the face of the global energy crisis and geopolitical tensions. war products in Ukraine prolong uncertainty about the future of the global economy.

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## Assessing European Social Fund efficiency in Romania, A Linear Regression Model

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### Abstract

*As a part of European funding in Romania, the European Social Fund (ESF) has always to be subject of efficient spending. Assessing its efficiency is about how financed budgets are correlated with program's associated indicators for each call of proposal. The managing authority is establishing a set of rules that should allow European Commission as the donor and the general public as last instance beneficiary that funds are spend within selected and reimbursed budgets in an efficient manner. Efficiency in ESF funded projects can be assessed by using a linear regression model to describe applicants behaviours, to conclude about spending budgets and to propose further improvements is possible, as conclusions of this paper shows. Conclusions may be subject of further developments by interested researchers and also by other interested parties in current sound financial implementation of ESF in Romania: managing authority personnel, external public auditors, internal auditors, beneficiaries' financial managers.*

**Key words:** efficiency, linear regression, budget, indicators, performance audit

**J.E.L. classification:** C58, E17, F37

### 1. Introduction

European Social Fund (ESF), funded in Romania by the two financed programs in the programming periods 2007 – 2013 and 2014 – 2020 training and related labour market services for tens of thousands individuals, spending hundreds of millions Euros under the rules set up by the managing authority of those programs. Services were delivered mostly by grants implemented by private and public applicants participating at managing authority calls for proposals. Within these calls, applicants proposed budgets, activities and indicators, describing how the public European money will be spend for best results, as managing authority requests. After an assumed evaluation of applicants' proposals, the managing authority concluded financing contracts with applicant entities, and money was paid while services were provided.

Even if the evaluation has been done simultaneously all over the country, for hundreds of applications, nobody thought about discrepancies in budgets and indicators, all focusing in verifying the description of the eligible activities and expenditures proposed by applicants, efficiency aspects seemed completely forgotten.

This paper's aim is to test linear regression on such call for proposal data, drafting conclusions on how efficiency was affected by the managing authority on focusing just on eligibility criteria applied to activities and expenditures, not to relationship that should exist between budgets and indicators, as described in Romanian and European law, what it should have been a subject of testing in performance audit missions to.

The linear regression is tested on a 2010 call for proposals data, on 318 pairs of values, budget and indicators (number of unemployed – Ind1). Even if data is obsolete, the conclusions are current now, because nothing changes in the last decades in managing authority approach towards considering eligibility in ESF financed interventions in Romania.

## 2. Regulations and literature review

Efficiency in public spending is widely regulated by European Parliament and by Romanian Government as well (Law 672/2002 and Government Decision 1086/2016), as a part of the performance definition, efficiency being described as "principle of efficiency which concerns the best relationship between the resources employed, the activities undertaken and the achievement of objectives" (art. 33 Regulation EU 1046 2018/1046). The same regulation states that "the use of appropriations shall focus on performance and for that purpose: (a) objectives for programmes and activities shall be established *ex ante*; (b) progress in the achievement of objectives shall be monitored with performance indicators; ... Specific, measurable, attainable, relevant and time-bound objectives as referred to ... and relevant, accepted, credible, easy and robust indicators shall be defined where relevant." The Romanian Law describes also efficiency as an action of maximization of one activity results related to the used means (art.2 m, Law 672/2002). A similar definition explains efficiency by the way of maximizing results in the National methodology of organizing public internal audit (art. 3.2.4.b Government Decision 1086/2016).

INTOSAI uses its own definition in the appropriate audit guidance GUID 3910 (page no. 7) correspondent to ISSAI 3000, the 'principle of efficiency means getting the most from the available resources. It is concerned with the relationship between resources employed and outputs delivered in terms of quantity, quality and timing'.

The Romanian Court of Accounts, in its Audit performance guidelines explains to auditors that efficiency should be seen as:"the report between obtained results and resources used to obtain these results cost ".

As a conclusion of all regulations' definition, efficiency is described by a report between two values: budgets and result indicators, so, the most appropriate indicator for efficiency could be the unit cost, as divided into variable unit costs multiplied with the number of units (the indicator) and constant fixed costs.

Performance audit of public funding is not only mentioned for programs and national budgets, but it should be also implemented, in the case of EU funding in Romania by the means of audit missions carried out by European Court of Auditors, Romanian Court of Accounts and Internal Audit as well. There is no information about performance audit of EU financed projects conducted by internal public audit.

Audit missions are important and some papers (Caranica and Domnişor 2022) are enhancing the increasing need for performance audit. Others, more applied to performance in ESF implementation

Efficiency in ESF contracts is already studied and some researches results are presented even for modelling efficiency. Some articles were reflecting performance related concerns, investigating qualitative aspects and concluding about: projects internal control environment for performance (Dănescu and Dogar, 2012), management accounting instruments for performance (Dogar, 2012), internal control under the perspective of COSO's convergences with the projects internal controls in some cases of ESF financed projects in Romania (Dănescu et al., 2013). Some articles presented quantitative methods to assist in assessing performance such as: employing public resources related to number of trainees (Dogar and Kelemen, 2010), use of quantitative methods for sound financial management decisions in Romanian ESF implementation (Dogar and Mare, 2014 a), and also a "what if" analysis for sound financial decisions in Romanian ESF grants evaluation (Dogar and Mare, 2014 b).

## 3. Research methodology

Within this paper, the liner regression model (Cooke, 1985) was used in order to test the connection that should exist in ESF implementation between budget, as the dependent variable, and the most important indicator, number of unemployed, as independent variable, identifying so, by means of linear regression functions, the indicator that model the most the efficiency, as the coefficient of the independent variable, together with the fixed cost of the projects' budgets submitted and reimbursed within the ESF considerate call for proposals.

Data of a call for proposals that took place in 2010 was used to test linear regression as quantitative method in simulating efficiency, as a relation between budget (as a dependent variable) and number of unemployed persons receiving services (Ind1). A total of 318 financed projects data was observed, and some filters were applied and justified to remove the outliers and then to determine valid a statistical regression function of the paper’s model. It was determined, for a smaller group of the total population, a linear regression functions:

$$\text{Budget (Ind1)} = A \times \text{Ind1} + C \quad (1)$$

In this function the value of A is seen as the unit cost of Ind1 and the value of C as fixed costs of a budget.

Conclusions were drafted relating the size of the studied group to the all population observed, interpreting constant value of the regression function, and also reviewing the rationale of successive outliers’ removal.

The research can be further extended to the services provided within the budgets, as for instance counselling for labour market accession and training. A broader conclusion can be reached if correlating Budget (Ind1) function with the one modelling the dependency between budget and projects’ services.

All calculation is in Romanian Leu, having a parity of about 4.37 Leu per Euro at that time. Statistically dedicated software has been used for calculations.

#### 4. Findings

For ESF sound financial management purposes, projects, as appropriations, should be financed only for programs whose achievement should be monitored with the use of SMART performance indicators. This is why in a first step of this paper research a report has been made between budget and the number of unemployed beneficiaries of the same project. The distribution of statistical cloud revealed that there was o clear concentration of projects in the same area, but also an important number of points outside of the area, especially in the area of less indicator (unemployed) and bigger budgets. A linear regression for Budget (Ind1) was tested using the least squares method by eliminating outliers from bigger budgets and less indicators until the number of pairs the regression was statistically valid (probability less than 5%), the number of pairs being so determined is 248 (Table 1).

Table no. 1 Statistical determination of 248 pairs of data for Budget (Ind1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IND1	260.7846	130.6362	1.996266	0.047
C	1849901	27117.3	68.21848	0
R-squared	0.015941	Mean dependent var		1884037
Adjusted R-squared	0.011941	S.D. dependent var		333435.6
S.E. of regression	331438.8	Akaike info criterion		28.26831
Sum squared resid	2.70E+13	Schwarz criterion		28.29664
Log likelihood	-3503.27	F-statistic		3.985079
Durbin-Watson stat	1.843766	Prob(F-statistic)		0.047007

Source: own processing of data source

It was so determined a linear function which with o probability of more than 95% describes the formation of budgets correlated to call for proposal target group, the unemployed.

$$\text{Budget (Ind1)} = 260.7846 \times \text{Ind1} + 1849901 \quad (2)$$

As it can be easily observed, this function has a limited representativeness of only 78%. For a broader representativeness, the simulation was restarted for the entire population of 318 pairs, by considering now as outliers also those in the area of very efficient projects (Less budget with more indicator), and also some of those in the area of very inefficient projects (more budget with less indicator). It was so found that 284 pairs of data could be used to determine a linear regression for this population (Table 2)

Table no. 2 Statistical determination of 284 pairs of data for Budget (Ind1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IND1	426.1067	216.1125	1.971689	0.0496
C	1850594	28254.76	65.49671	0
R-squared	0.013598	Mean dependent var		1891652
Adjusted R-squared	0.0101	S.D. dependent var		323471.1
S.E. of regression	321833.4	Akaike info criterion		28.20847
Sum squared resid	2.92E+13	Schwarz criterion		28.23417
Log likelihood	-4003.6	F-statistic		3.887557
Durbin-Watson stat	1.79367	Prob(F-statistic)		0.049622

Source: own processing of data source

The linear function describing with a more representativeness of 89.3% the formation of the budgets in correlation with target group is in this second approach:

$$\text{Budget (Ind1)} = 426.1067x \text{ Ind1} + 1850594 \quad (3)$$

Comparing the two functions above it can be observed that the most representative function send to a more inefficient behaviour in spending, the unit cost in the second function in bigger with up to 60% compared to the first function, that could model a more efficient, but less representative behaviour. A unit cost of services delivered to one average single unemployed for this population is 18009.74 Lei.

A conclusion on this call for proposal is incomplete in the absence of testing the reality of what happened with the expected level of efficiency the donor imposed by programming documents. By dividing the total value of the amount dedicated to improve the unemployed situation to the expected number of unemployed recipients of services, a value of 13045.92 Lei can be determined as the accepted unit value of all services delivered to one unemployed through dedicated section of ESF. Comparing this with the value resulted for the population function (3) was determined, it is clear that even with a very good representativeness function (3) doesn't respond to financial program's efficiency expectations. In this respect, to identify the population behaviour against program efficiency, a further removal of outliers is needed, until reaching the necessary statistical probability. The population of 162 pairs is meeting the described requirement, data being processed for this as described in the table bellow (Table 3).

Table no. 3 Statistical determination of 162 pairs of data for Budget (Ind1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IND1	637.7524	291.2451	2.189744	0.03
C	1796809	49665.72	36.17805	0
R-squared	0.029097	Mean dependent var		1889283
Adjusted R-squared	0.023028	S.D. dependent var		336597.6
S.E. of regression	332699.3	Akaike info criterion		28.28013
Sum squared resid	1.77E+13	Schwarz criterion		28.31825
Log likelihood	-2288.69	F-statistic		4.79498
Durbin-Watson stat	1.733684	Prob(F-statistic)		0.029991

Source: own processing of data source

The function describing the less representative population behaviour of just 50.94% of total population is listed below:

$$\text{Buget (Ind1)} = 637,7524 x \text{ Ind1} + 1796809 \quad (4)$$

A comparison of the last two functions allows formulating a set of observations leading to the papers conclusions

Table no. 4 Comparison of data determined for 284 and 162 pairs for Budget (Ind1)

Scenarios	Efficiency (unit cost) Leu/person	Variable unit cost Leu/person	Fixed costs (C) Lei	Probability		R <sup>2</sup>
				F-statistic	Prob (F- statistic)	adjusted R <sup>2</sup>
Function 3 (284 pairs)	19631.98	426.1067	1850594	3.887557	0.049622	0.013598 0.0101
Function 4 (162 pairs)	13045.92	637.7524	1796809	4.79498	0.029991	0.029097 0.023028

Source: own processing of data source

The model with the biggest representativeness is proposing unit costs for Ind1 with more than 50% of the expected (observation no.1).

The variable unit cost increases with the decrease of number of pairs (observation no. 2).

The fixed costs have values of about 90% of the projects values (observation no. 3).

The values of R<sup>2</sup> and adjusted R<sup>2</sup> are very small for both functions.

## 5. Conclusions

Removing outliers of about 10% of the number of pairs, a linear regression can be statistically defined to correlate budgets with financing program indicator, the unemployed, meaning that in about 90% of the proposed budgets, a link between sums and indicators can be recognized, so the budgets were, in some extent based on the number of people receiving services, even if the value of services was overvalued with about 50% as the value expected (conclusion no. 1).

As the variable unit cost increases with the decrease of number of pairs, a more clear rule on efficiency stated by the managing authority could induce more elasticity to budgets, making those more dependent of the indicators (conclusion no. 2).

The fixed costs part of the proposed and financed budgets is about 90%, so limited variable costs of only 10%, statistically validated for about 90% of the entire population means that budgets wear a large component that is being hardly explained in correlation with program indicators, financing applicants' needs, not necessary related to the financing program aim, caused by managing authority approach more on eligibility of activities and expenditures and less in indicators and unit costs.

The overall papers conclusion is that efficiency of an ESF call for proposal can be model in some extent, taking into consideration the small values of R<sup>2</sup> and adjusted R<sup>2</sup>, with the use of a liner regression function. Adjustments made to total population by removing outliers can provide change of function coefficients and usefully observations and so justified conclusions for the ESF implementation improvement can be drafted.

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# An Analysis of the Economic and Social Factors Affecting Real Convergence in Romania

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## Abstract

*It is essential that a high level of real convergence is achieved before joining the euro area, as major differences can lead to difficulties in managing the business cycles, in the absence of an independent monetary policy.*

*Therefore, each country should ensure a sufficient level of GDP per capita before the accession. But what can be considered sufficient? Looking back, most euro candidates had a GDP per capita level of 70%-80% of the EU level when adopting the euro currency.*

*Although Romania has made significant progress lately, the following still need to be achieved: labor market reforms, massive infrastructure investments, reducing the regional gaps, increasing innovation investments, and growing budget revenues.*

*The purpose of this paper is to identify the economic and social factors that influence real convergence in Romania, as we believe that working towards increasing real convergence will create the right framework for improving nominal convergence performance.*

**Key words:** real convergence, GDP per capita, linear regression, innovation, euro confidence.

**J.E.L. classification:** F15, F36, O4.

## 1. Introduction

For a country to be allowed to join the euro area, it needs to meet the nominal criteria set out in the Maastricht Treaty, with reference to price stability, government budgetary position, exchange rate and long-term interest rate. However, the same treaty also refers to the sustainability of the degree of convergence, meaning the ability to maintain the criteria necessary for accession in the long term.

Unlike the nominal convergence requirements, there is no guidance procedure regarding the real convergence criteria. But the lessons learned from the eurozone have highlighted the importance of real convergence, without which the transition process cannot be effective. Therefore, it is essential to achieve a high level of income per capita convergence prior to the accession, as major differences can potentially cause disruptions in managing the business cycles, in the absence of an independent monetary policy.

All things considered, in this paper we aim to study the way and the amplitude with which certain economic and social factors influence the value of GDP per capita in Romania. We strongly believe that sustainable efforts towards increasing real convergence will create the right framework for improving the nominal convergence performance and increase our chances to adopt the euro currency in the foreseeable future.

Gross domestic product (GDP) is a macroeconomic indicator used to measure the performance of a country's economy. It tracks the market value of goods and services over a period, and its main components are consumption, investment, net exports, and government spending.

GDP per capita is obtained by dividing the value of the GDP by the number of inhabitants and reflects the relative performance of countries. The European Commission uses the value of this indicator expressed in standard purchasing power (PPS) to eliminate price differences in various countries and to facilitate comparison between states. GDP per capita (PPS) is used as a performance

indicator in cross-country comparisons. An increase in its value indicates economic growth and national progress.

The purpose of this study is to analyze the effect of the independent variables on GDP per capita expressed in purchasing power standards in Romania, using data from 2011 to 2020. When choosing the independent variables we considered the conclusions of other studies, and the convergence performance in Romania.

In the model, we used GDP per capita (PPS) as a dependent variable and the following independent variables: tertiary education (X1, percentage of total population), population (X2, millions of citizens), corruption perception index (X3, score), GDP (X4, million euro), at-risk-of-poverty rate (X5, of total population), confidence in euro (X6, %), and total number of registered patents (X7).

The literature abounds with studies that test the interconnection between different independent variables, such as GDP, GDP growth rate, inflation, youth unemployment rate, inflation, surface area of a country, government type and GDP per capita.

## 2. Theoretical background

Upreti (2015) analyzes the factors influencing GDP growth and demonstrates, using the Least Squares (LS) method, that the exports volume and the production of natural resources have had a significant positive impact on the dependent variable. The same relationship could also be observed in the case of life expectancy and the level of investment.

In his study, Barro (1996) shows that the main factors influencing the growth rate of GDP per capita for one hundred states, analyzed between the 1960-1990 period are: compliance with the law, reduction of government spending, increase of life expectancy and to the number of compulsory education years, lower inflation, and increased trade. However, political freedom was found to have a very little, insignificant influence.

In the case of developing countries, there are other meaningful factors that must be taken into consideration when building a statistical model, in addition to variables such as consumption and exports that indubitably have a high influence on GDP growth. These include but are not limited to rising oil prices, power outages, corruption, political instability, and war (Kira, 2013).

Popa (2012) analyzes the impact of social influences on GDP per capita, using the following independent variables: population at risk of poverty, unemployment rate, life expectancy, and the average time spent in school. Increased life expectancy and education have shown to positively impact the level of GDP per capita, while unemployment rate and the population at risk of poverty have a negative influence.

Mamo's (2012) uses inflation, investment, population, and the level of initial GDP as independent variables in his study. The conclusion shows that rising inflation is a significant negative factor towards GDP per capita, while growing investments significantly affect GDP per capita in a positive manner. Population was shown to have a positive influence, while the initial level of GDP exhibited a negative influence, however neither of these factors were statistically significant.

GDP per capita and post-secondary education (X<sub>1</sub>): Marquez-Ramos and Mourelle (2019) show that both secondary and tertiary education have an impact on economic growth. Barro and Sala-i-Martin (1995) show that higher education has the greatest effect on economic growth compared to the primary and secondary levels of education. According to Krueger and Lindahl (2001), highly educated countries display a negative relationship between education and economic growth. The same conclusion is reached in our study, with a negative relationship between the level of tertiary education and GDP per capita.

GDP per capita and population (X<sub>2</sub>): Starting from the formula  $GDP \text{ per capita} = (GDP / \text{population})$ , we expect an inversely proportional relationship between the two variables, meaning that an increase in the country's population will lead to a decrease in the value of GDP per capita. The same conclusion was reached in the following studies: Ilter (2017), Kim, Hewings & Nam (2014) and Hong (1994).

GDP per capita and the perceived corruption index (X<sub>3</sub>): this independent variable refers to a country's level of institutional transparency through the perceived corruption index. Unsurprisingly, multi-national corporations prefer to invest and expand into countries with a high level of



transparency. This implies a fair justice system, freedom of speech, freedom of the press, a system of checks and balances between governing bodies, and low corruption. Grundler & Potrafke (2019), Ugur (2014), Campos et al. all (2010) demonstrate a negative relationship between corruption and economic growth.

According to the 2020 Eurobarometer questionnaire answered by 7,700 companies, out of which 300 were from Romania, 88% of the Romanian participants mentioned corruption as a major problem in the Romanian business environment, the highest percentage in the European Union. Also, 97% consider that acts of corruption are extremely widespread in the country, the majority (51%) being cases of bribery. For most companies, poor infrastructure (93%) and high tax rates (82%) are major issues, along with excessive bureaucracy (89%) and institutional nepotism (84%).

GDP per capita and GDP ( $X_4$ ): Considering the GDP per capita formula, we anticipate that there will be a positive correlation between the two variables. Ilter (2017) demonstrates the same positive relationship highlighted throughout this study.

GDP per capita and at-risk-of-poverty population rate ( $X_5$ ): The relationship between GDP per capita and the rate of population close to the poverty line is significant, but contrary to expectations, it is not negative. An increase in GDP per capita does not necessarily result in a decrease in population that is near the poverty line, due to wealth inequality, depending on how the growth is distributed between the poor and the rich.

GDP per capita and confidence in the euro ( $X_6$ ): To outline an effective strategy for adopting the euro, we have decided to introduce a parameter that summarizes the confidence of the population in the euro currency. The values were extracted from the Flash Eurobarometer reports from 2011-2020. If a statistically significant relationship is found between  $X_6$  and the dependent variable, we can conclude that GDP per capita is indeed influenced by the population's confidence in the euro currency and could possibly represent the starting point for future research.

GDP per capita and total number of patents ( $X_7$ ): Fagerberg (1987) states that there is a close correlation between the level of economic growth and the level of technological development. This is measured by a country's expenditures towards Research and Development and the number of patents it files for. Bere et al. (2014), considers that investing in Research and Development not only brings economic benefits, by stimulating high productivity and competitiveness, but also has a social impact, through engaging human capital in innovative activities that generate added value over time. Balash et. al (2020) confirms the hypothesis that there is an interdependence between the growth rate of GDP per capita and the increase in the amounts allocated to technological innovations.

### 3. Research methodology

The research was based on quantitative data, as well as qualitative data. The qualitative data was analyzed and then summarized in the literature review section, while the quantitative data was organized in Excel and uploaded in EViews, where we were able to efficiently manage the data, performed econometric and statistical analysis and produced high quality graphs and tables.

The data was recorded in Romania between 2011 and 2020. When choosing the independent variables, we considered both the existing studies and the variables relevant to the chosen topic. Our chosen dependent variable is GDP per capita (PPS).

The independent variables that we selected were tertiary education (percentage of total population), population of the country (millions of citizens), corruption perception index (score obtained: maximum 100, minimum 0), GDP (million euros), poverty risk rate (% of the total population), confidence in the euro (%), total number of patents.

For the variables: GDP per capita, tertiary education, population, GDP, at-risk-of-poverty rate, data was obtained using Eurostat. Regarding the total number of patents, the statistics are taken from the website [www.epo.org](http://www.epo.org). The Corruption Perceptions Index was obtained using [transparency.org](http://transparency.org), and data on confidence in the euro were extracted from Flash Eurobarometer reports published by the European Commission.

One of the most popular modelling techniques is linear regression, using the least squares method. Through multiple regression (Pearson, 1908), we can highlight the relationship between a dependent variable, also called an endogenous variable, and the chosen independent variables, known as exogenous variables. With the help of linear regression, we can demonstrate the impact of

independent variables on the dependent variable.

The general linear model is considered to be the foundation for the multiple regression technique and can be expressed with the following equation:

$$Y = \alpha \times X + \varepsilon$$

Where Y is the dependent variable, X represents the vector of the independent variables,  $\alpha$  represents the vector of the coefficients, and  $\varepsilon$  includes the random events and represents the residue of the regression.

The model in our study can be mathematically rendered using the following equation:

$$Y = C_1 + C_2 \times X_1 + C_3 \times X_2 + C_4 \times X_3 + C_5 \times X_4 + C_6 \times X_5 + C_7 \times X_6 + C_8 \times X_7 + \varepsilon$$

Where Y = GDP per capita (PPS), X1 = tertiary education, X2 = population, X3 = corruption perception index, X4 = GDP, X5 = Poverty risk rate, X6 = Confidence in the euro, X7 = Total number of patents.

To be able to use the values obtained from statistical modeling in making predictions, a series of hypothesis are required to be tested in advance: H1-The residuals should follow a normal distribution, H2-Multicollinearity, H3-Homoskedasticity, H4-Errors independence, H5-Model validation, H6-Model justification, and H7-Regression coefficients significance.

#### 4. Findings

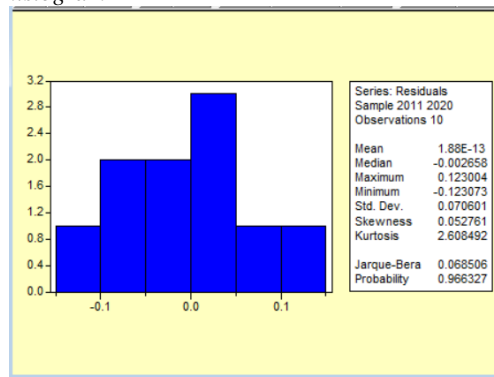
We used EViews to perform econometric and statistical analysis required to test our hypothesis.

- H1: The residuals should follow a normal distribution

If the assumption of normality is violated, the properties of estimators constructed on the basis of the least squares method have only asymptotic properties, i.e., they require large samples or data sets. We can use the following methods to test this hypothesis: analysis of skewness and kurtosis value, apply the Jarque-Bera Test, and analysis of the probability of the Jarque-Bera test for a 5% confidence level.

The Histogram of the Residual can be used to check whether the variance is normally distributed. For the selected data, the histogram is shown below.

Figure no. 1. The residue histogram



Source: (Own computation in EViews)

To check the normality of the errors, the degree of symmetry or asymmetry (skewness) and their flattening (kurtosis) has been analyzed. To have a normal distribution, the skewness must be equal to zero and the kurtosis equal to three.

$H_a$ : skewness = 0 and kurtosis = 3, distribution is normal

$H_b$ : skewness  $\neq$  0, and kurtosis  $\neq$  3, distribution is not normal

In our model, the skewness value is close to 0, and the kurtosis value is close to 3, indicating a normal distribution.

With the help of the Jarque-Bera Test, we can assess whether a distribution is normally distributed. This test is based on the simultaneous verification of the asymmetry and vaulting properties of the residue series. The test measures the difference between the asymmetry coefficient and the kurtosis of the analyzed distribution and the normal distribution values.

$$JB=n \left[ \frac{S^2}{6} + \frac{(K-3)^2}{24} \right]$$

To determine the value of Jarque Bera, we can either use the previous formula or the value calculated in EViews 0.068506. The critical JB table value, for a probability of 5% and 10 values, is 2,535. The calculated JB value is less than the table value, therefore we do not have enough reasons to reject the null hypothesis  $H_0$ , hence the distribution is normal.

- H2: Multicollinearity

The higher the intensity of the link between the vectors, the higher the degree of collinearity (of the values recorded for the explanatory variables). If two or more explanatory variables used in the multiple regression model are perfectly correlated, then the parameter estimators will not be able to be estimated using the LS method (least squares method) (Jula, 2015).

The existence of a linear relationship between two or more exogenous variables chosen for the regression model (i.e., the existence of multicollinearity) leads to the impossibility of correctly estimating the regression parameters, to larger confidence intervals and a high risk of null acceptance of the null hypothesis.

The multicollinearity hypothesis can be verified using the Klein criterion. From the correlation matrix, we select the largest  $r_{x/x_{ji}}$  and if  $R^2 < r_{x/x_{ji}}$ , then we can detect collinearity. In our study, the most powerful correlation exists between the variables X2 and X4 (0.979916). The  $R^2$  value we got by applying the OLS method is 0.999896 and is higher than the one previously mentioned. Therefore, the hypothesis is confirmed, the multicollinearity does not affect the estimates in this case.

Table no. 1 Variables correlation

	X1	X2	X3	X4	X5	X6	X7
X1	1.000000	-0.960153	0.653675	0.947730	0.369941	0.376395	0.755986
X2	-0.960153	1.000000	-0.548301	-0.979916	-0.125334	-0.296718	-0.845240
X3	0.653675	-0.548301	1.000000	0.460299	0.556668	0.700038	0.583569
X4	0.947730	-0.979916	0.460299	1.000000	0.110474	0.187030	0.784874
X5	0.369941	-0.125334	0.556668	0.110474	1.000000	0.598117	-0.137401
X6	0.376395	-0.296718	0.700038	0.187030	0.598117	1.000000	0.323801
X7	0.755986	-0.845240	0.583569	0.784874	-0.137401	0.323801	1.000000

Source: (Own computation in EViews)

- H3: Homoskedasticity

Homoskedasticity assumes that there is a constant variance of errors calculated based on conditional distributions. Errors are homoscedastic if their variances are equal and constant. The homoscedasticity hypothesis assumes that the variance of the errors is constant. If the hypothesis of homoskedasticity is violated, the efficiency of estimating the parameters of the regression model will decrease. For OLS predictions to be effective, residues need to be tested for homoscedasticity. The Breusch – Pagan - Godfrey test hypotheses are:

$$H_0: V(\epsilon_i) = \sigma^2, \text{ the errors are homoscedastic}$$

$$H_1: V(\epsilon_i) \neq \sigma^2, \text{ the errors are heteroskedastic}$$

Figure no. 2 Breusch – Pagan – Godfrey test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

Null hypothesis: Homoskedasticity

F-statistic	14.91191	Prob. F(7,2)	0.0643
Obs*R-squared	9.812001	Prob. Chi-Square(7)	0.1995
Scaled explained SS	0.315651	Prob. Chi-Square(7)	0.9999

Source: (Own computation in EViews)

We can observe that all the probabilities have higher values than the chosen significance level (the alpha level), therefore we did not find enough reasons to reject the null hypothesis (homoscedasticity).

- H4: Errors independence hypothesis

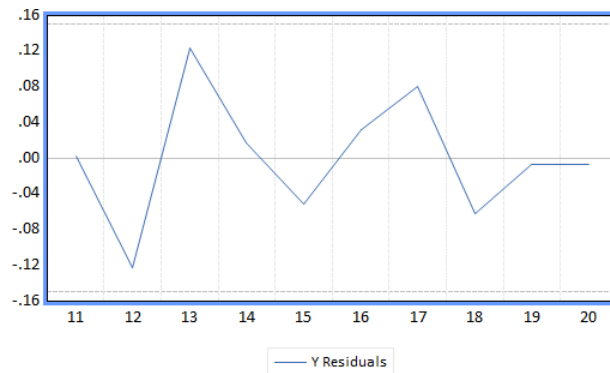
One of the four classical assumptions of the linear regression model is that elements of the disturbance vector are considered uncorrelated. Several statistical procedures can be used to detect the autocorrelation of residuals variables, including: the graphical method, the Durbin Watson test

and the Breusch Godfrey test. The presence of autocorrelation may occur due to the failure to include one or more important explanatory variables in the regression model or if the regression model is not correctly specified.

If the figure has certain regularities, then we can say that at the level of the series the phenomenon of collinearity is manifested.

By graphical representation, the correlation is not obvious. Therefore, we will also apply the two tests previously mentioned.

Figure no. 3 Durbin Watson statistic



Source: (Own computation in EViews)

The Durbin Watson Test tracks the serial correlation of errors and can only be applied if the regression model has a free term, and the explanatory variables are not random. If the errors are not correlated, the value of DW will be around 2. If the value  $DW = 0$ , then there is a maximum positive autocorrelation of the errors, and if the value  $DW = 4$ , then there is a maximum negative autocorrelation of the errors. This test applies only to the identification of first-order autocorrelation. The main disadvantage of this test is that it cannot identify the seasonality phenomenon.

The DW test values generated by EViews tell us directly which hypothesis will be accepted. Note that the value returned by EViews (2.79) is close to the value 2, for which  $\rho=0$ . Thus, we can accept the lack of first-order autocorrelation of errors.

We will also test the non-correlation hypothesis by applying the Breusch-Godfrey test:

Figure no. 4 Breusch-Godfrey test

Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 1 lag			
F-statistic	83.10527	Prob. F(1,1)	0.0696
Obs*R-squared	9.881101	Prob. Chi-Square(1)	0.0017

Source: (Own computation in EViews)

The most important section of the test output is the first part, which presents the F-Statistic test and the probability associated with it. The null hypothesis is that there is no serial correlation of the regression equation errors. If the associated probability is lower than the alpha level chosen (5%), then the null hypothesis is rejected, so the non-existence of the serial correlation is rejected. Otherwise, the null hypothesis is accepted, (there is no serial correlation). According to the results obtained from the data of this regression, the probability (0.0696) is higher than the relevance level, meaning there is no serial correlation of the errors.

- H5: Model validation testing. The Fisher exact test

The Fisher test is a test of statistical significance, used mainly for small samples. The test hypotheses are:

$H_a$ : all parameters corresponding to the explanatory variables are null. Under this assumption no explanatory variable can explain the evolution of the endogenous variable.

$H_b$ : there is at least one explanatory variable that can explain the variation of the explained variable.

Using the formula:

$$F = \frac{R^2}{1-R^2} \times \frac{n-k-1}{k}$$

We can determine the calculated F value, or we can use the value returned by EViews in the LS method. The statistical value of F returned by EViews is 2753,678, with a probability of 0.000363. The table value for F resulted using the FINV function in Excel is  $F_{tab} = 8.94$ .

Comparing the calculated F value (F-statistically) with table value for F, we observe that  $F_{calculated} > F_{tab}$ , so we accept the H1 hypothesis: there is at least one explanatory variable that can explain the variation of the endogenous variable. The Prob (F-statistic) = 0.000363, lower than the chosen significance level of 0.05, therefore the constructed regression model is valid with a probability of at most 99.99% ( $100 - 0,000363 = 99.999637$ ) and can be further used to analyze the dependence between the specified variables.

- H6: Model justification

We observe that the connection between the variables is strong (Pearson's coefficient), and to demonstrate the extent to which the regression model explains the dependence between the variables, we calculate the R-squared coefficient of determination.

The coefficient of determination  $R^2$  (0.999896) measures the success of the regression in predicting the values of the dependent variable.

$$R^2 = 1 - \frac{\sum_{t=1}^n u_t^2}{\sum_{t=1}^n (Y_t - \bar{Y})^2}$$

R-squared shows that 99.9896% of GDP per capita is explained by the influence of the 7 factors, the difference of 0.01% being explained by other factors that were not included in the model.

Corrected coefficient  $R_{adj}^2$  ( $\bar{R}^2$ ) (0.999533): while the R-squared indicator never decreases with the introduction of additional independent variables, the adjusted R-squared indicator penalizes the introduction of new variables that do not have the power to explain the model.

$$\bar{R}^2 = 1 - \frac{n-1}{n-k-1} (1 - R^2)$$

If Adjusted R-squared (0.999533) had been significantly smaller than R-squared, we could have concluded that important explanatory variables are missing, and the dependent variable cannot be fully measured in their absence, but in our case the difference is very small.

Akaike informational criterion: (-0.968916) is often used for model selection. The lower the AIC value, the better the model. Schwartz criterion: (-0.726848) comes as an alternative to AIC and sanctions the introduction of new coefficients.

$$AIC = \frac{1}{n} \left( \frac{\sum u_t^2}{n} \right) + \frac{2(k+1)}{n}; SC = \frac{1}{n} \left( \sum_{t=1}^n u_t^2 \right) \ln(n) \frac{2(k+1)}{n}$$

Low values of the Akaike and Schwartz criteria show a good specification of the model.

- H7: Significance of the regression coefficients

Using the EViews program, we can obtain a statistical image, with the help of which we can observe the connections between the variables. For the equation:

$$Y = C_1 + C_2 \times X_1 + C_3 \times X_2 + C_4 \times X_3 + C_5 \times X_4 + C_6 \times X_5 + C_7 \times X_6 + C_8 \times X_7 + \varepsilon$$

We got the following E-views output:

Figure no. 5 LS method output

Dependent Variable: Y  
Method: Least Squares  
Date: 02/28/22 Time: 17:24  
Sample: 2011 2020  
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	768.2368	43.25640	17.76007	0.0032
X1	-6.064080	0.592832	-10.22900	0.0094
X2	-34.44324	1.999518	-17.22577	0.0034
X3	-0.253172	0.033456	-7.567285	0.0170
X4	5.72E-05	1.04E-05	5.477880	0.0317
X5	2.801335	0.240069	11.66889	0.0073
X6	-0.181396	0.014565	-12.45465	0.0064
X7	0.227592	0.017329	13.13329	0.0057
R-squared	0.999896	Mean dependent var	60.40000	
Adjusted R-squared	0.999533	S.D. dependent var	6.931410	
S.E. of regression	0.149767	Akaike info criterion	-0.968916	
Sum squared resid	0.044860	Schwarz criterion	-0.726848	
Log likelihood	12.84458	Hannan-Quinn criter.	-1.234464	
F-statistic	2753.678	Durbin-Watson stat	2.795696	
Prob(F-statistic)	0.000363			

Source: (Own computation in EViews)

The Prob column in the figure below shows the probabilities calculated by EViews for the model coefficients:

Table no. 2 Variables coefficients and probabilities

Variable	Coefficient	t-Statistic	Prob.	Significance test result
C	768.23	17.76	0.0032	Statistically significant
X1	-6.06	-10.22	0.0094	Statistically significant
X2	-34.44	-17.22	0.0034	Statistically significant
X3	-0.25	-7.56	0.0170	Statistically significant
X4	$5,72 \times 10^{-5}$	5.47	0.0317	Statistically significant
X5	2.8	11.66	0.0073	Statistically significant
X6	-0.18	-12.45	0.0064	Statistically significant
X7	0.22	13.13	0.0057	Statistically significant

Source: (Own computation in EViews)

To test the significance of the parameters, we analyzed the values of the t test for each coefficient, and the associated probability value.

The hypotheses are:

$$\begin{cases} H_0: C(i) = 0 \\ H_1: C(i) \neq 0 \end{cases}, \text{ where } i = 1,8$$

Then we set a significance level  $\alpha = 0.05$  for which  $t\text{-Table} = 3.182$  is determined, using the TINV function in Excel.

Decision for bilateral test:

- for t-Statistic  $\in (-3,182, 3,182)$ , we accept the null hypothesis, the parameter does not differ significantly from 0.

- for t-Statistic  $\in (-\infty; -3.182) \cup (3.182; +\infty)$ , we reject the null hypothesis and accept the alternative hypothesis, which means that the parameter is statistically significant.

Since all coefficients significantly differ from 0, we can move on to the interpretation of how the dependent variables influence the dependent variable.

## 5. Conclusions

Based on t-Statistic values, we can see that the variables that influence GDP per capita in Romania the most, between 2011-2020, are: X2 (population), X7 (total number of patents), X6 (confidence in the euro), X5 (at-risk-of-poverty rate), X1 (tertiary education), X3 (Corruption Perceptions Index), X4 (GDP).

The free term C (1) has the value of 768.22368 and is significant at an alpha level of 5%. However, it has no economic significance and cannot be interpreted correctly from this point of view.

The coefficient C (2), i.e., the coefficient of tertiary education, has a significant negative relationship (p value is 0.0094), with the value of -6.064080, which means that, as the percentage of tertiary education increases by one unit, the value of GDP per capita will decrease by 6.06 units. This relationship can indicate that economic growth is not only influenced by the number of years of schooling, but also by the quality of the education system.

The coefficient C (3), i.e., the population coefficient, has a significant negative relationship (p value 0.0034), with the value of -34.44324, which means that, as the population grows by one unit (million people), the value of GDP per capita will decrease by 34.44 units. Given the GDP per capita formula, this relationship was one that could have been easily anticipated.

The coefficient C (4), i.e., the coefficient of the corruption perception index, has a significant negative relation (p value 0,017) with the value of -0,253127, which means that, when the score of the corruption perception index increases by one unit, the value of GDP per capita decreases by 0.25 units.

The C (5) coefficient, i.e., the GDP coefficient, has a significant positive impact (p value 0,0317) with a value of 0,0000572, which means that as GDP grows by one unit, the value of GDP per capita increases by  $5,72 \cdot 10^{-5}$  units.

The coefficient C (6), i.e., the coefficient of the at-risk-of-poverty rate, has a significant positive ratio (p value 0.0073) and a value of 2.801335, meaning that when the at-risk-of-poverty rate increases by one unit, the value of GDP per capita increases by 2.80 units.

Coefficient C (7), i.e., the confidence ratio in euro, has a significant negative ratio (p value 0.0064) with the value of -0.181396, which means that, at a 1% increase in the percentage of the population wishing to adopt the euro, the GDP per capita decreases by 0.18 units.

The coefficient C (8), i.e., the innovation coefficient, expressed by the total number of patent applications, has a significant positive relationship (p value 0.0057), with a value of 0.227592, meaning that when the total number of patents increases by one unit, GDP per capita increases by 0.22 units.

The limitations of the chosen model may be related to the lack of a larger number of observations (for GDP per capita we could have chosen quarterly values, but for most independent parameters the values are annual) and the subjectivity of choosing the number of independent variables. In the case of corruption, public confidence in the euro and the level of innovation potential, we have chosen a representative indicator, but there is a variety of variables one can choose from.

The adoption of the euro currency by a country with a rigid, unreformed economy could lead to more disadvantages than advantages. Joining the European Union does not automatically imply we are entitled to join the euro area, we must earn it first. The euro does not bring stability and growth alone, the candidate countries must sustainably fulfill the Maastricht criteria, and this often translates to the need to ensure a high level of real convergence. This can be obtained by improving the economic performance, but also by investigating what other factors are of great influence and focusing efforts on them.

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## Choosing the Appropriate Regression from Nine Different Mathematical Models

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### Abstract

*Choosing the most appropriate mathematical model for establishing a simple regression between two variables which represent two economic indicators or from other scientific fields is an approach that involves many and often quite difficult actions.*

*In the article we rigorously presented the stages to be followed in order to obtain the defining parameters for nine models: linear, power (double logarithmic), exponential, logarithmic, three hyperbolic models (the third is also a Törnqvist-type model) and two exponential-hyperbolic models.*

*The final stage in establishing the most appropriate model is less discussed in the paper. Thus, the simple regression for which the model has the highest Pearson correlation coefficient is chosen as optimal in the article.*

**Key words:** simple regressions, power model, exponential model, logarithmic model, hyperbolic model

**J.E.L. classification:** C02, C24, C40, C50

### 1. Introduction

An important desideratum in conducting research in the economic field, as well as in many other scientific fields, is defined by the question "which mathematical model is the most appropriate to describe the connection between two indicators"?

Selecting the optimal regression from as many mathematical models as possible will result in a viable link between the two indicators.

The main objective of the paper is to describe, as concisely as possible and also as completely as possible, the way in which the parameters that define nine different mathematical models are obtained.

Starting from the linear model, described in detail in many papers in the literature, all the other eight power, exponential, logarithmic and hyperbolic models can be linearized if appropriate logarithmic operations and variable changes are applied.

After linearization, the mathematical relations of the linear model will be used through the substitutions corresponding to each model.

Another objective of the paper is the effective selection of the model that generates the optimal simple regression.

This objective is achieved by associating the nine correlation coefficients and marking the model that has the highest coefficient.

### 2. Literature review

The article is based upon the linear model for achieving a simple correlation.

The complete theoretical presentation of this model can be found in many works, both nationally and internationally.

Of these, we mention here, in chronological order, just as an example, the following works: (Schatteles, 1971), (Bărbat, 1972) (Moineagu, 1974), (Țarcă, 1979), (Trebici *et al*, 1985), (Jaba, 1986), (Gromîco, 1990), (Pecican, 1994), (Baron *et al*, 1996), (Biji *et al*, 2000), (Gherasim, 2021) and so on.

The other simple correlations used in the article are based upon power, exponential, logarithmic, hyperbolic models and combinations thereof.

In the literature these models are often only briefly mentioned and rarely presented completely, both theoretically and applied.

Also by way of example, we mention here only a few works in which curvilinear models are presented: (Schatteles, 1971, pp.127-128), (Moineagu, 1974, pp.40-43), (Țarcă, 1979, pp.61-62), (Jaba 1986, pp.205-206), (Gromîco, 1990, pp.140-143), (Pecican, 1994, pp.64-65), (Baron *et al*, 1996, pp.168-169), (Biji *et al*, 2000, pp.314-318) and so forth.

### 3. Research methodology

To establish a simple regression  $y = f(x)$  between an independent variable  $x$  and a dependent variable  $y$  are considered given a sufficiently large number  $n$  of value pairs of two economic-social indicators or in other fields:  $(x_k, y_k)_{k=1, \dots, n}$ ,  $30 \leq n \in \mathbf{N}$ .

By graphically representing these pairs in a two-dimensional space, a point cloud is obtained  $\{P_k(x_k, y_k)\}_{k=1, \dots, n}$ .

Throughout the article we used nine mathematical models for the type and shape of the regression function  $f$ :

(1) $y = a \cdot x + b$			, linear model	} (1)
(2) $y = b \cdot x^a$	$\xrightarrow{\log} \hat{y} = a \cdot \hat{x} + \hat{b}$		, power (double logarithmic) model	
(3) $y = b \cdot e^{a \cdot x}$	$\xrightarrow{\log} \hat{y} = a \cdot x + \hat{b}$		, exponential model	
(4) $y = a \cdot \ln x + b$	$\rightarrow y = a \cdot \hat{x} + b$	, $(\ln x \rightarrow \hat{x})$	, logarithmic model	
(5) $y = \frac{a}{x} + b$	$\rightarrow y = a \cdot X + b$	, $\left(\frac{1}{x} \rightarrow X\right)$	, hyperbolic model type 1	
(6) $y = \frac{1}{a \cdot x + b}$	$\rightarrow Y = a \cdot x + b$	, $\left(\frac{1}{y} \rightarrow Y\right)$	, hyperbolic model type 2	
(7) $y = \frac{x}{b \cdot x + a}$	$\rightarrow Y = a \cdot X + b$	, $\left(\frac{1}{x} \rightarrow X\right), \left(\frac{1}{y} \rightarrow Y\right)$	, hyperbolic model type 3	
(8) $y = b \cdot e^{\frac{a}{x}}$	$\xrightarrow{\log} \hat{y} = a \cdot X + \hat{b}$	, $\left(\frac{1}{x} \rightarrow X\right)$	, exponential-hyperbolic model type 1	
(9) $y = e^{\frac{1}{a \cdot x + b}}$	$\xrightarrow{\log} Y = a \cdot x + b$	, $\left(\frac{1}{\hat{y}} \rightarrow Y\right)$	, exponential-hyperbolic model type 2	

where:  $\ln w = \hat{w}$ ,  $\forall w$ .

Model (7) is also a Törnqvist model  $\left(y = \frac{\alpha \cdot x}{x + \beta}\right)$ , where:  $\alpha = \frac{1}{b}$  and  $\beta = \frac{a}{b}$ .

Model (1) is linear and the other eight models become linear by logarithmic and variable changes presented in parentheses.

In order to determine the parameters that define the nine models,  $a_{(M)}$ ,  $b_{(M)}$ ,  $M = \overline{1,9}$  it is necessary to go through several stages.

In a first stage, relative to the coordinates  $x_k, y_k$ , logarithms, inverses, products and their amounts must be calculated:

$$\begin{aligned}
 S_x &= \sum_{k=1}^n x_k, & S_y &= \sum_{k=1}^n y_k, & S_{xx} &= \sum_{k=1}^n (x_k \cdot x_k), & S_{xy} &= \sum_{k=1}^n (x_k \cdot y_k), & S_{\hat{x}} &= \sum_{k=1}^n \ln x_k \\
 S_{\hat{y}} &= \sum_{k=1}^n \ln y_k, & S_{\hat{xx}} &= \sum_{k=1}^n (\ln x_k \cdot \ln x_k), & S_{x\hat{y}} &= \sum_{k=1}^n (x_k \cdot \ln y_k), & S_{\hat{xy}} &= \sum_{k=1}^n (y_k \cdot \ln x_k) \\
 S_{\hat{xy}} &= \sum_{k=1}^n (\ln x_k \cdot \ln y_k), & S_{\frac{1}{x}} &= \sum_{k=1}^n \frac{1}{x_k}, & S_{\frac{1}{y}} &= \sum_{k=1}^n \frac{1}{y_k}, & S_{\frac{y}{x}} &= \sum_{k=1}^n \frac{y_k}{x_k}, & S_{\frac{x}{y}} &= \sum_{k=1}^n \frac{x_k}{y_k} \\
 S_{\frac{1}{xx}} &= \sum_{k=1}^n \frac{1}{x_k \cdot x_k}, & S_{\frac{1}{xy}} &= \sum_{k=1}^n \frac{1}{x_k \cdot y_k}, & S_{\frac{1}{\hat{y}}} &= \sum_{k=1}^n \frac{1}{\hat{y}_k}, & S_{\frac{x}{\hat{y}}} &= \sum_{k=1}^n \frac{x_k}{\hat{y}_k}, & S_{\frac{\hat{y}}{x}} &= \sum_{k=1}^n \frac{\hat{y}_k}{x_k}
 \end{aligned} \tag{2}$$

The relations by which the two parameters of the linear model are calculated are described in many works of which we give as an example: (Schatteles, 1971, pp.120-126), (Țarcă, 1979, pp.11-25), (Jaba, 1986, pp.207-209), (Gromíco, 1990, pp.135-137) and so on.

For the other eight models linearized by the actions presented above (logarithmic and variable changes) the parameters  $a_{(M)}$  and  $b_{(M)}$  are deduced from the relations of the linear model:

$$\begin{aligned}
 a_{(1)} &= \frac{n \cdot S_{xy} - S_x \cdot S_y}{n \cdot S_{xx} - S_x \cdot S_x}, & b_{(1)} &= \frac{S_{xx} \cdot S_y - S_x \cdot S_{xy}}{n \cdot S_{xx} - S_x \cdot S_x} \\
 a_{(2)} &= \frac{n \cdot S_{\hat{xy}} - S_{\hat{x}} \cdot S_{\hat{y}}}{n \cdot S_{\hat{xx}} - S_{\hat{x}} \cdot S_{\hat{x}}}, & \hat{b}_{(2)} &= \frac{S_{\hat{xx}} \cdot S_{\hat{y}} - S_{\hat{x}} \cdot S_{\hat{xy}}}{n \cdot S_{\hat{xx}} - S_{\hat{x}} \cdot S_{\hat{x}}}, & b_{(2)} &= e^{\hat{b}_{(2)}} \\
 a_{(3)} &= \frac{n \cdot S_{xy} - S_x \cdot S_{\hat{y}}}{n \cdot S_{xx} - S_x \cdot S_x}, & \hat{b}_{(3)} &= \frac{S_{xx} \cdot S_{\hat{y}} - S_x \cdot S_{x\hat{y}}}{n \cdot S_{xx} - S_x \cdot S_x}, & b_{(3)} &= e^{\hat{b}_{(3)}} \\
 a_{(4)} &= \frac{n \cdot S_{\hat{xy}} - S_{\hat{x}} \cdot S_y}{n \cdot S_{\hat{xx}} - S_{\hat{x}} \cdot S_{\hat{x}}}, & b_{(4)} &= \frac{S_{\hat{xx}} \cdot S_y - S_{\hat{x}} \cdot S_{\hat{xy}}}{n \cdot S_{\hat{xx}} - S_{\hat{x}} \cdot S_{\hat{x}}} \\
 a_{(5)} &= \frac{n \cdot S_{\frac{y}{x}} - S_{\frac{1}{x}} \cdot S_y}{n \cdot S_{\frac{1}{xx}} - S_{\frac{1}{x}} \cdot S_{\frac{1}{x}}}, & b_{(5)} &= \frac{S_{\frac{1}{xx}} \cdot S_y - S_{\frac{1}{x}} \cdot S_{\frac{y}{x}}}{n \cdot S_{\frac{1}{xx}} - S_{\frac{1}{x}} \cdot S_{\frac{1}{x}}} \\
 a_{(6)} &= \frac{n \cdot S_{\frac{x}{y}} - S_x \cdot S_{\frac{1}{y}}}{n \cdot S_{xx} - S_x \cdot S_x}, & b_{(6)} &= \frac{S_{xx} \cdot S_{\frac{1}{y}} - S_x \cdot S_{\frac{x}{y}}}{n \cdot S_{xx} - S_x \cdot S_x} \\
 a_{(7)} &= \frac{n \cdot S_{\frac{1}{xy}} - S_{\frac{1}{x}} \cdot S_{\frac{1}{y}}}{n \cdot S_{\frac{1}{xx}} - S_{\frac{1}{x}} \cdot S_{\frac{1}{x}}}, & b_{(7)} &= \frac{S_{\frac{1}{xx}} \cdot S_{\frac{1}{y}} - S_{\frac{1}{x}} \cdot S_{\frac{1}{xy}}}{n \cdot S_{\frac{1}{xx}} - S_{\frac{1}{x}} \cdot S_{\frac{1}{x}}} \\
 a_{(8)} &= \frac{n \cdot S_{\frac{\hat{y}}{x}} - S_{\frac{1}{x}} \cdot S_{\hat{y}}}{n \cdot S_{\frac{1}{xx}} - S_{\frac{1}{x}} \cdot S_{\frac{1}{x}}}, & \hat{b}_{(8)} &= \frac{S_{\frac{1}{xx}} \cdot S_{\hat{y}} - S_{\frac{1}{x}} \cdot S_{\frac{\hat{y}}{x}}}{n \cdot S_{\frac{1}{xx}} - S_{\frac{1}{x}} \cdot S_{\frac{1}{x}}}, & b_{(8)} &= e^{\hat{b}_{(8)}} \\
 a_{(9)} &= \frac{n \cdot S_{\frac{x}{\hat{y}}} - S_x \cdot S_{\frac{1}{\hat{y}}}}{n \cdot S_{xx} - S_x \cdot S_x}, & b_{(9)} &= \frac{S_{xx} \cdot S_{\frac{1}{\hat{y}}} - S_x \cdot S_{\frac{x}{\hat{y}}}}{n \cdot S_{xx} - S_x \cdot S_x}
 \end{aligned} \tag{3}$$

To determine which of the nine models is more appropriate, we will associate the Pearson correlation coefficient with each model. (Baron *et al*, 1996, p.173), (Biji *et al*, 2000, pp.306-307) and so forth.

$$R_{(M)} = \sqrt{1 - \frac{S_{up}}{S_{down}}} = \sqrt{1 - \frac{\sum_{k=1}^n (y_k - y_{(x_k)}^{(M)})^2}{\sum_{k=1}^n (y_k - \bar{y})^2}} \in [0,1], \quad M = \overline{1,9}, \quad \text{where: } \bar{y} = \frac{S_y}{n} = \frac{\sum_{k=1}^n y_k}{n} \tag{4}$$

The value of M indicates one of the nine mathematical models presented at the beginning of the paragraph in the relations (1).

For a model in which, under the radical, the sum from the numerator is greater than the sum from the denominator ( $S_{up} > S_{down} > 0$ ), we will consider that particular model totally inadequate and we will give the value 0 to the correlation coefficient of the respective model.

The model with the highest correlation coefficient, closer to the value 1, is considered to be the optimal model.

#### 4. Findings

In order to clarify how the mathematical relations in the previous paragraph are used, we will present a hypothetical case study and its solution.

In this respect, we generated nine groups of value pairs on the computer (nine clouds, each composed of 30 points):  $P_k^{(a)}(x_k, y_k^{(a)})$ ,  $P_k^{(b)}(x_k, y_k^{(b)})$ , ...,  $P_k^{(i)}(x_k, y_k^{(i)})$ ,  $k = \overline{1, n}$ ,  $n = 30$ .

For each point cloud  $P_k^{(L)}(x_k, y_k^{(L)})$ ,  $L \in \{a, b, c, d, e, f, g, h, i\}$  the model that generates the optimal regression is desired to be determined.

For all nine groups, the values of the independent variable x are the same.

The computer-generated values are shown in tabular form below:

Table no. 1. Coordinates of the nine groups of points

k	$x_k$	$y_k^{(a)}$	$y_k^{(b)}$	$y_k^{(c)}$	$y_k^{(d)}$	$y_k^{(e)}$	$y_k^{(f)}$	$y_k^{(g)}$	$y_k^{(h)}$	$y_k^{(i)}$
–	(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	10	79	13	4	119	313	1654	300	2183	33412
2	14	118	28	7	151	276	1073	367	772	1950
3	18	184	74	37	203	282	819	445	456	385
4	22	205	76	24	204	250	635	468	302	135
5	26	247	102	32	222	244	527	503	235	65
6	30	281	121	34	231	231	444	525	189	38
7	34	328	155	51	250	233	393	556	169	25
8	38	371	187	66	264	232	352	579	154	18
9	42	397	203	67	260	215	302	582	127	14
10	46	426	224	74	258	202	262	586	106	11
11	50	488	279	118	289	222	260	622	120	9
12	54	557	343	174	325	249	268	662	142	7.6
13	58	559	341	169	295	209	213	635	99	6.6
14	62	608	387	218	310	217	207	653	104	5.9
15	66	656	433	276	324	223	201	670	108	5.3
16	70	701	478	341	335	227	195	683	110	4.8
17	74	719	497	392	319	204	162	668	85	4.4
18	78	757	537	480	322	202	151	672	81	4.1
19	82	815	598	607	345	219	161	696	97	3.8
20	86	864	651	749	359	227	162	711	104	3.6
21	90	889	681	898	348	211	140	701	87	3.4
22	94	927	725	1095	351	209	132	703	83	3.2
23	98	945	750	1316	333	186	104	686	60	3.1
24	102	987	800	1616	339	188	101	692	61	3
25	106	1047	869	1999	363	207	116	716	80	2.8
26	110	1117	948	2472	397	237	142	749	109	2.7
27	114	1145	987	3002	388	224	126	741	96	2.6
28	118	1142	996	3621	349	181	79	701	52	2.6
29	122	1203	1070	4450	373	202	96	725	72	2.5
30	126	1275	1155	5469	408	233	125	759	103	2.4
$\Sigma$	2040	20037	14708	29858	9034	6755	9602	18756	6546	36136.4

Source: computer generated data

We aim to determine for each of the nine groups of values (point clouds)  $(x_k, y_k^{(L)})$ ,  $L \in \{a, b, c, d, e, f, g, h, i\}$  which model is more appropriate  $y^{(L)} = f^{(L)}(x)$ , where the function  $f$  is chosen from the nine mathematical models presented at the beginning of the previous paragraph.

During the first stage, the 123 sums of the values of the coordinates from the previous table, the logarithms thereof, of the inverses and of the products between them are calculated:

$$\begin{aligned} S_x &= 2040, S_y^{(a)} = 20037, \dots, S_y^{(i)} = 36136.4, S_{xx} = 174680, S_{xy^{(a)}} = 1723970, \dots, \\ S_{xy^{(i)}} &= 383269.6, S_{\bar{x}} = 121.13, S_{\bar{y}^{(a)}} = 189.2, \dots, S_{\bar{y}^{(i)}} = 74.68, \dots, S_{\bar{xx}} = 502.56, \dots, \\ S_{\frac{1}{x}} &= 0.691, S_{\frac{1}{y^{(a)}}} = 0.0745, \dots, S_{\frac{y^{(a)}}{x}} = 290.53, \dots, S_{\frac{x}{y^{(a)}}} = 3.1065, \dots, \\ S_{\frac{1}{\bar{y}^{(a)}}} &= 4.827, \dots, S_{\frac{x}{\bar{y}^{(a)}}} = 308.8, \dots, S_{\frac{1}{xy^{(a)}}} = 0.00327, \dots, S_{\frac{\bar{y}^{(i)}}{x}} = 3.059. \end{aligned}$$

All these amounts were calculated according to the corresponding relations (2).

During the next stage, the parameters are calculated according to relations (3)  $a_{(M)}$  and  $b_{(M)}$  which define the nine models.

For the first point cloud  $P_k^{(a)}(x_k, y_k^{(a)})$  ( $L=a, k=\overline{1,30}$ ), the nine models are:

$a_{(1)} = 10.052, b_{(1)} = -15.606$	$\rightarrow$	$y_{(1)}^{(a)} = 10 \cdot x - 15.6$	$R_{(1)}^{(a)} = 0.9991$
$a_{(2)} = 1.055, b_{(2)} = 7.751$	$\rightarrow$	$y_{(2)}^{(a)} = 7.8 \cdot x^{1.1}$	$R_{(2)}^{(a)} = 0.9990$
$a_{(3)} = 0.019, b_{(3)} = 147.58$	$\rightarrow$	$y_{(3)}^{(a)} = 148 \cdot e^{0.02 \cdot x}$	$R_{(3)}^{(a)} = 0.914$
$a_{(4)} = 493.33, b_{(4)} = -1323.94$	$\rightarrow$	$y_{(4)}^{(a)} = 493 \cdot \ln x - 1324$	$R_{(4)}^{(a)} = 0.951$
$a_{(5)} = -13346.4, b_{(5)} = 975.16$	$\rightarrow$	$y_{(5)}^{(a)} = 975 - \frac{13346}{x}$	$R_{(5)}^{(a)} = 0.791$
$a_{(6)} = -0.0000545, b_{(6)} = -0.000273$	$\rightarrow$	$y_{(6)}^{(a)} = -\frac{1}{0.00005 \cdot x + 0.0003} = -\frac{20000}{x + 6}$	$R_{(6)}^{(a)} = 0$
$a_{(7)} = 0.122, b_{(7)} = -0.000316$	$\rightarrow$	$y_{(7)}^{(a)} = \frac{x}{0.122 - 0.0003 \cdot x}$	$R_{(7)}^{(a)} = 0.949$
$a_{(8)} = -32.475, b_{(8)} = 1157.83$	$\rightarrow$	$y_{(8)}^{(a)} = 1158 \cdot e^{\frac{32.5}{x}}$	$R_{(8)}^{(a)} = 0.901$
$a_{(9)} = -0.000539, b_{(9)} = 0.1976$	$\rightarrow$	$y_{(9)}^{(a)} = e^{\frac{1}{0.2 - 0.0005 \cdot x}} = e^{\frac{2000}{400 - x}}$	$R_{(9)}^{(a)} = 0.560$

Since  $\max_{M=1,9} R_{(M)}^{(a)} = R_{(1)}^{(a)} = 0.9991$ , for the first cloud the linear model that is marked above is appropriate.

For the second and third clouds ( $L=b$  and  $L=c$ ), the most appropriate are the power model and the exponential model.

$P_k^{(b)}(x_k, y_k^{(b)}), L=b$	$P_k^{(c)}(x_k, y_k^{(c)}), L=c$
$y_{(1)}^{(b)} = 9.7 \cdot x - 171$	$y_{(1)}^{(c)} = 33.6 \cdot x - 1288$
$y_{(2)}^{(b)} = 0.46 \cdot x^{1.62}$	$y_{(2)}^{(c)} = 0.004 \cdot x^{2.8}$
$y_{(3)}^{(b)} = 44 \cdot e^{0.03 \cdot x}$	$y_{(3)}^{(c)} = 6.65 \cdot e^{0.054 \cdot x}$
$y_{(4)}^{(b)} = 460 \cdot \ln x - 1366$	$y_{(4)}^{(c)} = 1387 \cdot \ln x - 4605$
$y_{(5)}^{(b)} = 764 - \frac{11886}{x}$	$y_{(5)}^{(c)} = 1709 - \frac{31012}{x}$
$y_{(6)}^{(b)} = -\frac{100000}{83 \cdot x + 27}$	$y_{(6)}^{(c)} = -\frac{100000}{24 \cdot x + 27}$
$y_{(7)}^{(b)} = \frac{1000 \cdot x}{653 - 8 \cdot x}$	$y_{(7)}^{(c)} = \frac{100 \cdot x}{224 - 3 \cdot x}$
$y_{(8)}^{(b)} = 1054 \cdot e^{\frac{51}{x}}$	$y_{(8)}^{(c)} = 1639 \cdot e^{\frac{78.6}{x}}$
$y_{(9)}^{(b)} = e^{\frac{1}{0.26 - 0.0012 \cdot x}} = e^{\frac{2500}{650 - 3 \cdot x}}$	$y_{(9)}^{(c)} = e^{\frac{10000}{4000 - 27 \cdot x}}$

The appropriate models for the two cases ( $L=b$  and  $L=c$ ), were chosen because  $\max_{M=1,9} R_{(M)}^{(b)} = R_{(2)}^{(b)} = 0.997$  and  $\max_{M=1,9} R_{(M)}^{(c)} = R_{(3)}^{(c)} = 0.988$ .

For the other six groups of value pairs (the cases  $L \in \{d, e, f, g, h, i\}$ ) the optimal regressions are obtained by similar calculations and they are, in order, a logarithmic model, three hyperbolic models of type 1, 2 and 3 and two exponentially-hyperbolic models of type 1 and 2.

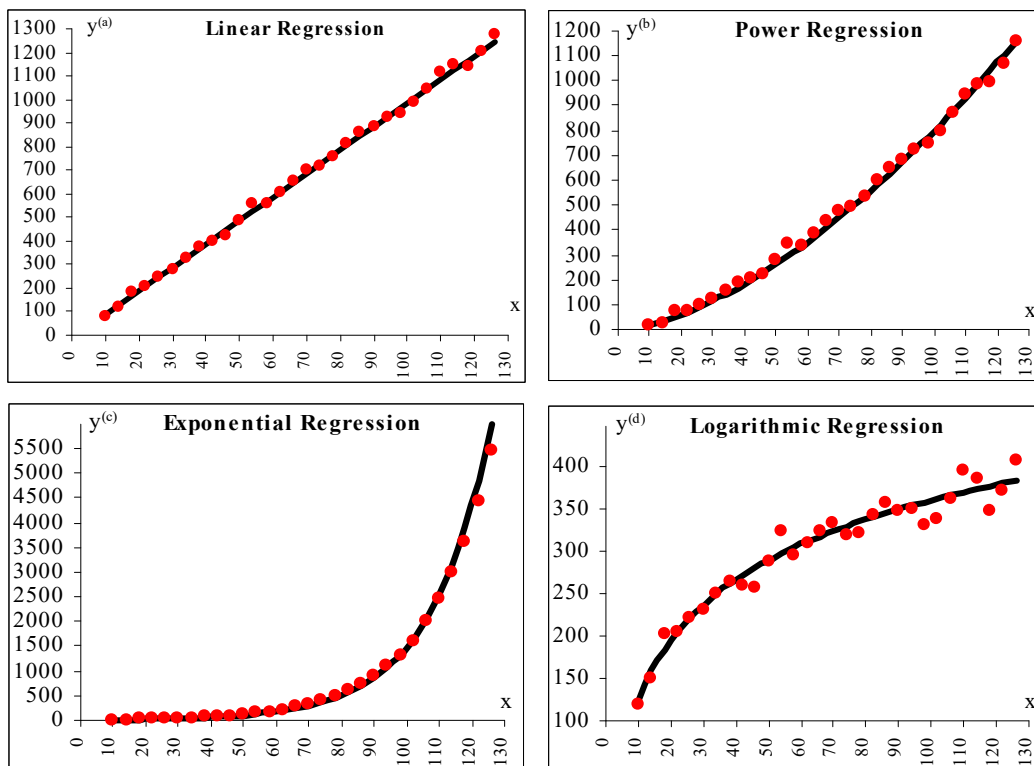
At the end of the paragraph we should mention that the nine groups with value pairs (point clouds) had as appropriate regressions nine models of different shapes:

$y^{(a)} = 10 \cdot x - 15.6$	linear model	$y^{(b)} = 0.46 \cdot x^{1.62}$	power model
$y^{(c)} = 6.65 \cdot e^{0.054 \cdot x}$	exponential model	$y^{(d)} = 103 \cdot \ln x - 113$	logarithmic model
$y^{(e)} = 198 + \frac{1168}{x}$	hyperbolic model (type 1)		
$y^{(f)} = -\frac{100000}{8 \cdot x - 27}$	hyperbolic model (type 2)		
$y^{(g)} = \frac{1000 \cdot x}{1.2 \cdot x + 21}$	hyperbolic model (type 3).		
$y^{(h)} = 57 \cdot e^{\frac{36.6}{x}}$	hyperbolic exponential model (type 1)		
$y^{(i)} = e^{\frac{10000}{90 \cdot x + 69}}$	hyperbolic exponential model (type 2).		

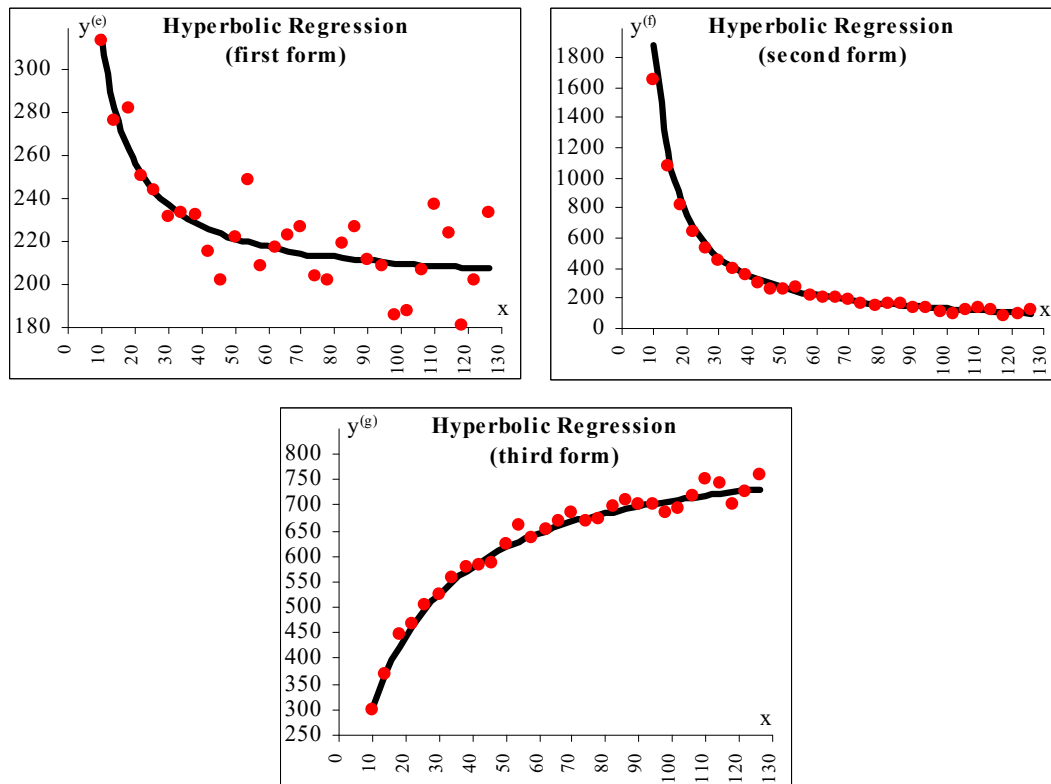
## 5. Conclusions

In order to establish the validity and credibility of the method for obtaining the nine simple regressions, we represented each point cloud and the calculated optimal regression in nine different graphs.

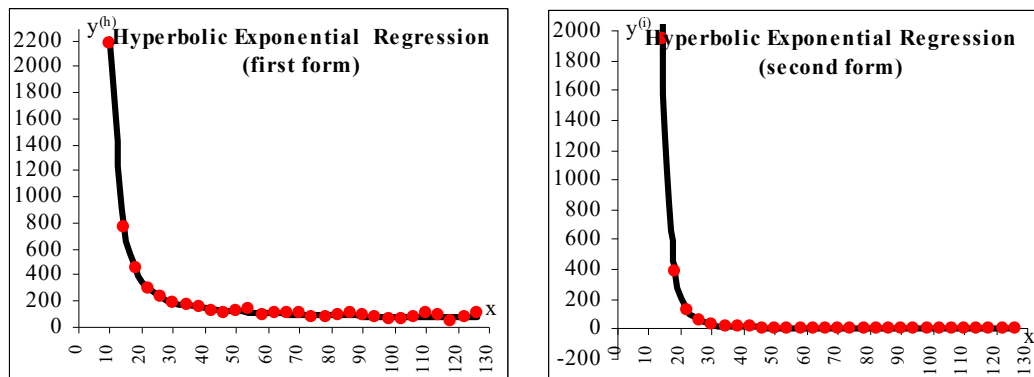
*Graph no. 1. The graphical representation of regressions: linear, power, exponential and logarithmic regressions*



Graph no. 2. The graphical representation of the three forms of hyperbolic regressions



Graph no. 3. The graphical representation of exponential-hyperbolic regressions



Source: all nine graphics are made by the author

The previous graphs clearly show that the method used is valid. We believe that the technique applied throughout the paper can become a valuable tool available to all researchers both in the economic and social field and in other scientific fields.

In this regard, we hope that in the near future we will publish a paper with the logical scheme and the pseudo-code for the method applied in this paper, which are elements that will be the basis for the achievement of an application by the specialists in the field of IT.

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## The Evolution of Inland Navigable Waterways and Maritime Ports in Romania

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### Abstract

*The larger context of our research is the impact of the Romanian transportation infrastructure development on the nation's economy. In this paper we focus on presenting the inland waterways, canals and maritime transportation infrastructure, the volume of goods transported and some economic implications. The scope of the present study is to analyze data regarding the volume of goods transported on the inland waterways and maritime transportation infrastructure. The considered time-frame for this paper is from 1990 to 2019 and the data was collected from sources such as annual reports of Governmental Agencies, Eurostat and the National Institute of Statistics. We found that there is severe lack of reported data or even data inconsistency between authorities. As economic policy implications we mention the need for investments in maintenance, development, and modernization of infrastructure to stimulate the positive trend in volumes of goods transported.*

**Key words:** Romania; transport infrastructure; economic development; transport policies, investments

**J.E.L. classification:** F63; F68; L92

### 1. Introduction

The wider context of our research is extended over all sectors of the transport infrastructure, road, railway, air and water in Romania after 1990, highlighting the economic implications of the transport infrastructure development. In this paper we shall focus on Romanian inland navigable waterways and maritime ports.

The transport of goods on inland waterways represents one of the three main terrestrial means of transportation and due to the large cargo capacity of vessels compared to coaches, trucks or lorries, it is considered as an alternative that could reduce gas emissions, pollution and road congestions (ECA, 2019).

The motivation for this topic comes from the fact that Romania has been going through a period of massive change in the past decades, from political orientation to economic models and consequently shifting trends in the society. The transportation infrastructure influences the economy and the economy has a direct impact on the general wellbeing of the population hence it influences society's every day activity, way of life, habits, even traditions and culture, so we believe our research is important both from the economic and social point of view.

Romania has changed its political orientation in 1989 after the Communist Revolution and it naturally opened its borders to the global market. This left Romania to operate on a transport infrastructure that was previously built with a different vision. Many large infrastructure projects had the role of generating jobs for as many people as possible and as consequence, in 1990, Romania had one of the most extensive transport infrastructure in Europe. In the years to come, the country was struggling with instability, unfortunately having to deal with corruption which has been shown to hinder the economic development process (Cieslik & Goczek, 2017, pp.323-335). In 2007 Romania became member of the European Union and immediately after, it started benefiting from Cohesion Funds that were intended to help the development of the country in a direction that was more inclusive with the European vision and strategy.

The aim of this paper is to analyze the evolution of the inland navigable waterways and maritime transport infrastructure over the period of 1990 to 2019 (the beginning of the COVID-19 pandemic) with some focus to the years after 2007 when foreign investments were absorbed by the national economy.

This paper is structured as follows. After framing the current topic in our overall research, we present a short review of the specific literature, we briefly describe the inland navigable waterways and ports in Romania and we show the data gathered and the methodology used in order to draw conclusions and make some suggestions for the future.

## **2. Literature review**

Previous research has extensively debated the topic of transportation infrastructure development and its impact on the economy and the economic growth (Rothengatter, 2017, pp.124-133; Fedderke et. al., 2006, pp.1037-1059; Meersman & Nazemzadeh, 2017, pp.316-324).

A well thought network and good quality transport infrastructure can provide benefits in two main directions. Socially, people are granted access to jobs, medical aid through access to hospitals, clinics or doctors' private practices, some people are offered access to education and others can simply spend their spare time in a more pleasurable environment, etc. (Pradhan et. al. 2021; Churchill et. al., 2021, pp.1-12; Medeiros et. al., 2020). Enhanced mobility has been shown to improve the general wellbeing of society but on the other hand a good quality transport infrastructure stimulates business, the flow of goods and economic competitiveness overall (Purwanto et. al., 2016, pp. 2877–2888).

There are clear benefits from infrastructure investments and their impact on macroeconomic results (i.e., Gross Domestic Product per capita) but the environmental factor is always in debate as well (Erdogan, 2020). Is it good or bad for the environment to have a larger transport infrastructure? Some argue that larger networks relieve traffic of congestions, hence decreasing pollution, other argue that it stimulates increasing numbers of means of transportation, but it is clearly a subject to be debated in the future.

As Romania became a member of the European Union it attracted foreign direct investments and as is stated by Wang (2020) this led not only to more economical relations with neighboring countries but also to social connection. Even so, as mentioned earlier, the Romanian authorities and staff in the administration have proven to be corrupt, unreliable and unpredictable so after exhibiting various development plans before 2007, they failed to implement them later and they managed to achieve one of the lowest Cohesion Funds absorption rate in the European Union (Popescu & Fistung, 2014, pp 304-312).

## **3. Research methodology**

The present article is a descriptive study of the Romanian transportation infrastructure, aiming to present the inland waterways, canals and maritime transportation infrastructure and to provide evidence of the implications on the nation's economy. With this purpose, our focus was to analyze the data regarding the volume of goods transported on the inland waterways and maritime transportation infrastructure between 1989 and 2019 gathered from annual reports of Governmental Agencies, Eurostat and the National Institute of Statistics.

The paper is using the quantitative method of research based on the systematization of bibliographic information and the evolution of economic indicators which characterize Romanian transportation infrastructure. Since our paper presents the case of Romanian waterways, canals and maritime transportation infrastructure, the main research method used was the method of the case study. Other research methods applied were the bibliographic study for theoretical documentation of the approached topic; synthesis of all the data found relevant for the research purpose; comparison of the research results and data with the results presented in other studies.

## **4. Findings**

### **4.1. Navigable inland waterways classification and presentation and maritime ports infrastructure**

The inland navigable waterways are classified according to EUROSTAT into artificial waterways such as navigable canals, and natural waterways such as rivers and lakes (IWW\_IF\_INFRASTR). The total length of the navigable canals in Romania is 182 km out of which almost 95.6 km belong to the Danube – Black Sea Canal. The remaining 86.4 km are distributed between shorter canals such as Sulina Canal, Tatanir Canal, Saint George Canal, Mile 34 Canal, Crişan-Caraoman Canal, Călăraşi Canal and the Bega Canal (GD. No.665, 2008).

The Bega Canal is the first one to be built on the territory of Romania and it is uniting the city of Timisoara with the neighboring country Serbia with a total length of 116 km out of which 44 km are on Romanian territory (Iliesu, 2003).

The Danube – Black Sea canal is comprised of the main artery which is 64.4 km in length and the north branch which is 31.2 km long. The primary role of this canal is to facilitate transportation of goods from the Port of Constanta to the Danube River. This canal shortens the transportation route of goods from Asia to Central Europe by approximately 4.000 km, this has been possible once the Main-Rhine Canal was finalized in 1992, and hence a navigable inland waterway was connecting the Port of Constanţa with the Port of Rotterdam (NCNCA, CN. 2019).

The volume of goods transported through this canal has surpassed the forecasted volumes for year 2019, with a total of 35.802 thousand tons. The volume of internal goods transported has risen slowly over the past years but there is 38.4% increase in the volume of external goods transported compared to year 2018 (NCNCA, AR. 2019).

Romania's natural navigable waterways have a total length of 1.647 km, 1.075 km of this is represented by the Danube River (IWW\_IF\_INFRASTR). The importance of the navigable inland waterways is undeniable and the Romanian and European authorities have been recently addressing the issue of investments in this type of transport infrastructure. Project DANTE is proof of such initiative, a project financed by the European Union that united the efforts of 10 countries to improve the administrative environment, develop a book of lessons learned and reduce bureaucracy in order to stimulate the transportation of goods on the Danube River (European Commission, 2019).

Since the Danube River stretches extensively on the borders of Romania, we shall present in Table 1, some of the main Ports that are to be found on the bench of the river and in the proximity of the Black Sea and centralize data regarding location, length of quays, berths, capacities and ways of access.

If we analyze the commercial routes in the Black Sea we shall observe that on an international level, the only visible Romanian maritime port is the Port of Constanţa. The main competition amongst the international ports is measured in the volumes of goods that transit their premises. The business on the Black Sea is not only provided by the natural opportunity on the market but it is also set in place by the multilateral agreements signed between countries such as the Black Sea Economical Collaboration Zone. This agreement does not only facilitate cooperation between maritime ports located in the Black Sea but also with those in the Mediterranean Sea and the Adriatic Sea. The Port of Constanţa has a competitive advantage against its competitors because it has an intermodal transport system. It has direct connections to the road and railway infrastructure, it has access to an international airport, but also it has a direct connection to the inland navigable waterways, through the Danube - Black Sea Canal, which goes straight to Central Europe.

Table 1. Main Ports Characteristics on the Danube River and the Black Sea, in Romania

Name of Port	Quays	Berths	Platform capacity	Access
Moldova Veche – Danube 1048 KM	550 m	300 m – ore 150 m – commercial goods 100 m – passengers	3.000 square meters	Road
Cetate – Danube 810-813 km	1000 m	1000 m	Total Port surface 95.689 square meters	Road
Corabia – Danube 628+600 km Danube 630 km	1470 m	150 m – cereals 120 m – ships 120 m – general goods	20.000 square meters 6.000 to silo for cereals	Road Railway
Bechet - Danube 679 km	670 m	100 m – cereals 200 m – general goods 300 m – oil terminal	12.000 square meters Oil terminal	Road
Drobeta T. Severin – Danube 930-934 km	1.937 m	530 m – passengers 200 m – containers 375 m – hibernal 432 m – waiting 300 m – commercial goods 100 m - cereals	Shipyards Silo for cereals	Road Railway
Orșova - Danube 955 km	500 m	500 m – general goods with Railway access	25.000 square meters	Road Railway
Călărași – Danube 370 km	P. Industrial	400 m – steel 135 m – slag	Silo for cereals	Road Railway
	P. Commercial	100 m – cereals 250 m – commercial goods 100 m – passengers	213.000 square meters Warehouse – 3.000 square meters	Road Railway
Borcea b. 94 km	P. Modelu			Road Railway
Oltenița - Danube 430 km	750 m	250 m – passengers 300 m – commercial goods	31.000 square meters	Road Railway
Calafat – Danube 795 km	600 m	100 m – waiting 350 m – commercial goods 150 m – non operational	Place for coaches reload	Road Railway
Cernavodă – Danube 300 km	1469 m	300 m – passengers 580 m – commercial goods 250 m - waiting	90.000 square meters	Road Railway
Danube Black Sea Canal 64+400 km		Waiting Passengers		Road Railway
Giurgiu – Danube 493+800 km	P. Ramadan – 1400 m	Waiting Commercial goods Passengers Bunkering		
	P. Cioroiu – 710 m	Waiting Commercial goods		
Tulcea – Danube 73,05 km	330 m	Mainly used for raw material supply for the metallurgical plants in Tulcea 7 berths – 2.500 m	12.600 square meters	
Brăila River - Maritime Danube 170 km	2.900 m	14 berths – 1.200 m maritime ships 5 berths – 400 m passengers 1 berth – 750 m general goods River-Maritime Berths – 550 m	Warehouse – 11.560 square meters	
	Docs Basin	1.475 m of waiting		
Galați Mineral Sector	2.200 m	16 berths dedicated to minerals		Road Railway
Galați Commercial Sector	1.677 m	18 berths for operations		Road Railway
Galați Bazinul Nou Danube 79 Mm	1.847 m	4 berths – between 90-110m each 1 berth - 130m – cereals	Total surface of 334.464 square meters Platform 131.105 square meters	Road Railway

			Warehouses 46.303 square meters	
Galați Docuri Danube 80 Mm	1.365 m	12 berths	Platform 67.137 square meters Warehouses 17.940 square meters	Road Railway
Constanța		Two satellite shipyards Midia and Mangalia with 3 docs each 140 functional and operational berths Largest container terminal in the Black Sea	Total surface of the Port is 3.926 hectares 3 Shipyards Container capacity of 1.000.000 TEU / year	Road Railway

Source: Author’s construction based on data from (RUIP, 2022).

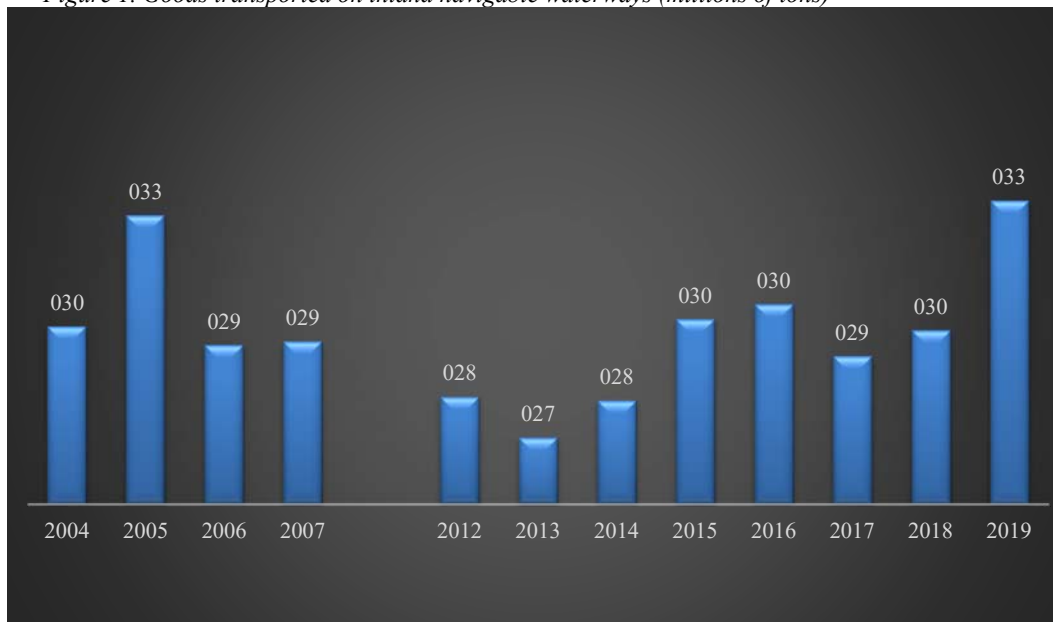
Another advantage is that it has a large hinterland, a term with Germanic origins that refers to areas with a small number of inhabitants that has been adopted internationally by Italians to refer to the rural area around larger cities and by the British who used it when talking about the area surrounding the maritime ports. This large hinterland creates the largest operational capacities in the region, enabling the movement of goods from maritime vessels to inland vessels, and allows access inside the Port of Constanta to all categories of vessels that go through the Suez Canal (Simileanu and Sageata, 2009).

The political changes from 1990 have severely impacted the volume of goods traded in the Black Sea, the most affected ports being those in the West, hence the Port of Constanța suffering one of the hardest hits with volumes decreasing from 62 million tons in 1988 and 1989 to 42.4 million tons in 1990, 28.4 million tons in 1991 and 26.8 million tons in 1992 (Sageata, 2014).

#### 4.2. Volumes of goods transported by inland navigable waterways and maritime infrastructure

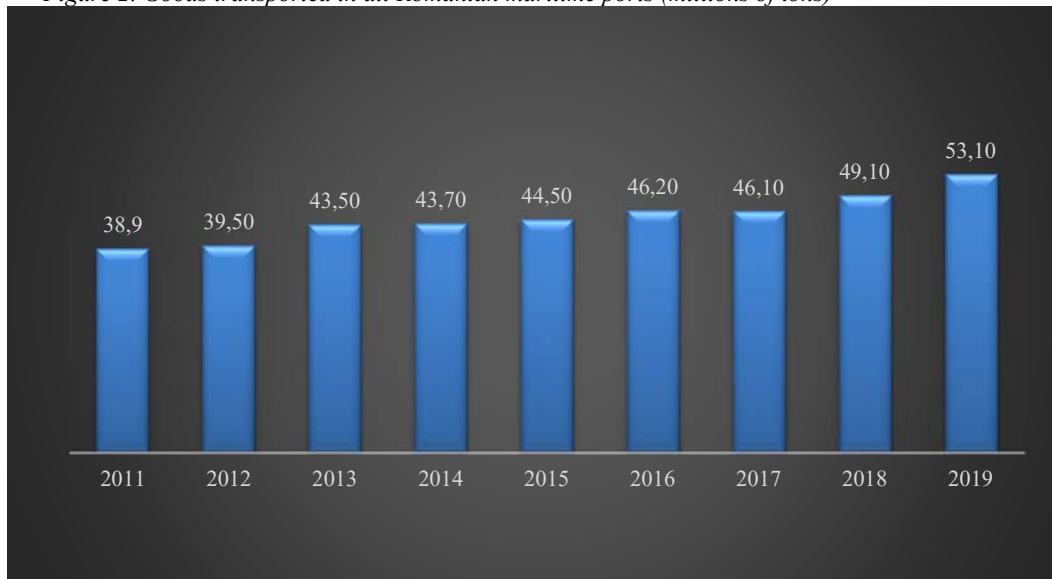
Having a clear image of Romania’s navigable inland waterways and ports we now look at the volumes of goods transported on this type of infrastructure. Figure 1 displays the volumes of goods transported on inland navigable waterways in two periods of time: between 2004–2007 and 2012–2019, due to availability of times series in the EUROSTAT database and Figure 2 shows the volumes of goods in all maritime ports after 2011.

Figure 1. Goods transported on inland navigable waterways (millions of tons)



Source: Authors' computation based on Eurostat

Figure 2. Goods transported in all Romanian maritime ports (millions of tons)



Source: Authors' computation based on Eurostat

We analyzed further the administrative structure of the navigable waterways and ports that lie under the management of the Ministry of Transport. The Ministry of Transport has divided the responsibilities for this sector in nine smaller state owned companies. Two of these companies are in charge with training specialized personnel and interventions in case of environmental accidents or human injuries. In the following section we shall present the ones in charge with operations. The first on this list is the National Naval Authority (NVA) which, according to their internal organization chart, is in charge with the following ports: Constanta, Galati, Tulcea, Giurgiu and Drobeta Turnu Severin. We analyzed the annual reports from this organization and found that the reporting has started in 2015 and the volumes of goods or total volume of ships is never mentioned (NNA, 2022).

The second company under the Ministry of Transport is the Maritime Ports Administration Constanta (MPAC). This company is dealing with operations in Port of Constanta and fortunately the administration prepares a yearly report that is made public on their official website. Hence we collected all data regarding volume of goods beginning with year 2001, this data can be observed in Table 2 (MPAC, 2022).

Table 2. Volumes of Goods Transported in the Port of Constanta from 2001 to 2019 (mio to)

<b>Year</b>	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>Volume</b>	33.8	40.5	43.2	50.4	60.6	57.1	57.7	61.8	42
2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
47.5	45.9	50.5	55.1	55.6	56.3	59.4	58.3	61.3	66.6

Source: Authors' computation based on MPAC Annual Reports 2001-2019

The National Company of Navigable Canals Administration (NCNCA) is a public company under the Ministry of Transport that has initially been one of the first financiers of the Danube - Black Sea Canal in 1975. Currently it is in charge with operations on the main canal and all smaller adjacent canals in the region. The statistics section on their official web page provides some data regarding the total volumes of goods that have been transported on the Danube - Black Sea Canal as seen in Table 3 (NCNCA, 2022).

Table 3. Volumes of Goods Transported in the Danube - Black Sea Canal 1990 to 2019 (mio to)

<b>Year</b>	1990	1991	1992	1993	1994	1995	1996	1997	1998
<b>Volume</b>	5.0	4.3	3.6	5.1	6.3	9.2	10.3	11.1	12.2
1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
10.5	11.2	10.1	11.1	10.7	13.2	15.3	13.3	12.4	13.1
2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
9.2	12.3	11.6	13.7	13.9	14.4	14.0	14.5	13.7	14.1
2019									
16.7									

Source: Authors' computation based on NCNCA Report

The Lower Danube River Administration Galați (LDRAG) and Bega Navigable Canal Administration (BNCA) are public companies in charge with ensuring the navigation conditions on the lower stream of the Danube and the Bega Canal through maintenance dredging, maintaining the coastal and floating signaling operational, carrying out maintenance works and repairs of hydro technical constructions. After analyzing their annual reports we observed that they can provide useful information regarding the vessels and ships that navigate in their waters and information regarding the infrastructure. Unfortunately they only provide public reporting beginning with 2018 or even more recent, but for future references they could be a potential source of data (LDRAG, 2022; BNCA, 2022).

The Danube River Ports Administration Giurgiu (DRPAG) is a company responsible for activities that are auxiliary to naval transportation. In some way this company is similar to the Lower Danube River Administration and the Bega Canal Administration because they are responsible with ensuring the basic operational conditions of the infrastructure through activities such as dredging, maintaining the signaling system, assisting ships carrying dangerous goods, collecting waste, etc. This Company is responsible for the administration of the following ports: Bechet, Călărași, Calafat, Cernavodă, Cetate, Corabia, Drobeta Turnu Severin, Giurgiu, Orșova, Oltenița and Moldova Veche. They provide data regarding volumes of goods transported beginning with year 2013, we centralized this data from their annual reports in Table 4 (DRPAG, 2022).

Table 4. Volumes of Goods Transported on the Danube River from 2013-2019. (mio to)

<b>Year</b>	2013	2014	2015	2016	2017	2018	2019
<b>Volume</b>	2.9	3.2	2.9	3.6	3.4	3.2	3.5

Source: Authors' computation based on DRPAG Annual Reports

The Danube Maritime Ports Administration Galați (DMPAG) is a company that manages the port infrastructure located on the maritime Danube, thus is responsible for the operations in the following ports: Galați, Brăila, Tulcea, Hârșova, Isaccea and Mahmudia and also is responsible for the secondary maritime canals Măcin, Chilia and Sfântul Gheorghe. According to their consolidated report about the transported goods in their three main ports Galați, Brăila and Tulcea, we present the data in Table 5 (DMPAG, 2022).

Table 5. Volumes of Goods Transported in the Danube - Black Sea Canal 1990 to 2019 (mio to)

<b>Year</b>	1991	1992	1993	1994	1995	1996	1997	1998	1999
<b>Volume</b>	8.8	7.3	9.1	10.4	10.6	10.8	12.2	11.2	11.1
2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
11.2	9.9	12.1	12.4	14.2	14.8	15.2	14.3	12.7	7.7
2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
11.7	10.5	8.3	8.0	7.8	9.0	8.7	7.9	8.4	9.4

Source: Authors' computation based on DMPAG Report accessed at 18.06.2022

The National Institute of Statistics (NIS) provide some Annual Reporting regarding volumes of goods transported on inland navigable waterways as well as goods going through Romanian maritime ports. We collected this data and present it Table 6 and Table 7, unfortunately the data reported only spans over six years (NIS, 2022).

*Table 6. Volumes of Goods Transported in Romanian maritime ports 2014 to 2019 (mio to)*

Year	2014	2015	2016	2017	2018	2019
Volume	43.7	44.5	46.2	46.1	49.1	53.1

*Source:* Authors' computation based on NIS Annual Reports

*Table 7. Volumes of Goods Transported on Inland Waterways 2014 to 2019 (mio to)*

Year	2014	2015	2016	2017	2018	2019
Volume	27.8	30	30.4	29	29.7	33.2

*Source:* Authors' computation based on NIS Annual Reports

## 5. Conclusions

Following our data collection we observe an inconsistency in the reporting of volumes of goods transported on the Romanian waterway infrastructure over the time-frame established in our research. Not only we do not have enough data, but some data reported by various Romanian authorities are in contradiction with each other. Even so, we observe a slow but constant increase in the volumes of goods transported over the past years. In Table 5 we see that the volumes of goods transported in the Danube - Black Sea Canal have been at their highest around the year 2007, but the volumes have been growing again in the past years.

In Table 6 we see a clear positive trend in the volume of goods passing through Romanian maritime ports, while the Port of Constanta has the largest inter modal capacity in the Black Sea which provides a competitive advantage specially when the transport industry is heading towards more intelligent and durable inter modal and multi modal solutions. To support this, the Ministry of Transport from Romania is undergoing four major projects financed from local and European Cohesion Funds that are focused on the development of the infrastructure, modernization of operational technology, improvement of safety regulations and specialized training. Considering that the sector is already on a positive trend, we can assume that projects such as DANTE, DAPhNE or DIONYSUS shall further accelerate the increase of traffic on the Romanian navigable waterways. Higher volumes of goods transported generate effects on the market such as creation of specialized jobs in logistics or infrastructure maintenance, it stimulates the construction industry for large infrastructure, generates income from taxes and supports business development by creation of opportunity.

The purpose of our research was to present the inland navigable waterways and maritime ports infrastructure in the case of Romania and the volume of goods transported on this type of infrastructure. From the data collected we managed to observe that Romania has a high potential in maritime and inland waterways transport because it has access to the Black Sea, to the Danube River and it has an extensive network of navigable canals, natural and artificial, that connect the Danube to the Black Sea.

Romania also has the advantage of an already extensive list of river ports and maritime ports and a long history in operation on waterway transport infrastructure. This experience has generated a considerable know how in the sector and work force tradition in the towns and cities in close vicinity of ports or navigable waterways.

With the desire for a thriving Romanian economy, we recommend that the authorities invest in the modernization and maintenance of the existing river and maritime infrastructure to further support the increasing volumes of goods transported. The bureaucracy should be minimized, good practices booklets should be set in place, as well as quality and safety standards, to attract businesses in this sector and to facilitate an environment where they can grow and influence the nation's economy.

The limits of the present study are connected to the limited times series under examination due to the lack of data for longer time period, as well as inconsistencies of data recorded.

As further directions of research, authors intend to widen the area of research and analyze the evolution of air traffic in Romania. We wish to centralize data regarding Romanian airports infrastructure, the amount of goods transported by airplanes and future development plans in this sector.



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## Characteristics of the Youth Employment – Romania 2000 – 2020 Data

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### Abstract

*For this paper the statistical data has been analyzed, data of the employment rate recorded for Romania, time period 2000 – 2020. The employment rate characteristics have been explored to observe the course by Romanian region and women's employment rate. The gap between men's and women's employment rate has deepened from year 2000 to 2020. Youth's employment rate was observed correlated with the NEETs rate and young people discouraged to search of a job. Youth living in rural areas, 15- 34 years old, have a higher tendency to be discouraged to become employed. The recommendation is to implement more partnership programs between schools, local authorities and enterprises for the youth living in the rural area to increase the participation of young people in the labour market, to reduce urban and rural areas' gap and bring well-being to the individual and to the community.*

**Key words:** youth employment, early school leavers

**J.E.L. classification:** J21, I24

### 1. Introduction

Opportunities for the individual's employment arrive as a matching to the level of training and education. Demand and supply of jobs are influenced by the continuous changes of the labour market and the required skilled labour force.

Income support policies, facilitation of employment of youth, adults over 50, women and disadvantaged groups could have a raising effect of the employment rate. Economic cycles, adapting the artificial intelligence into the working environments, unexpected healthcare events could also influence the employment rate. (OECD, 2021)

The employment rate represents the individuals from 15 to 64 year olds working in gainful employment. The rate is seasonally adjusted and it displays the percentage of the total working age population active on the labour market.

### 2. Literature review

Employability is defined as a set of competences and personal attributes a person acquired that helps him or her obtain and maintain a job. New elements have been added in the literature revised, thus employability definitions by the individual's perspective, are connected to the degree of successful careers and job satisfaction. (Pool and Sewell, 2007)

Companies search for the adequate skilled candidate to enhance its performance and productivity on a competitive global market. The performance of an enterprise is co-dependent of the employee's performance, therefore the need for collaboration training programs to upgrade the skills and knowledge of the personnel. To withstand the rapid changes of the global market, enterprises invest in human capital development to obtain the required abilities and skills. (Peters et al, 2017)

Employers recruit job seekers with the necessary knowledge, skills and experience to improve the performance of the company by producing better result. Employability competences are abilities, values and knowledge that an individual possesses to become competent and competitive on the labor market. (Hillage and Pollard, 1998) European Company Survey 2019 data shows that

77 % of the employers encountered difficulties to find the candidates with the adequate skills for the job vacancies. (EUROFUND, ECS, 2019)

Regarding the employability skills, some researchers display three types: technical, cognitive, non-cognitive. For individuals to become employed, they are required to possess relevant abilities and competences to make them competitive and productive. Employability competences are defined as abilities, aptitudes and skills that a person acquired and that are searched by employers for a person to be able to adapt to changing situations and working environments. (Fugate, et al., 2004)

European Skills Agenda & Youth Employment Support describes employability skills by European Skills, Competences, Qualifications and Occupations classification (ESCO) as knowledge, skills, transversal skills and language skills and knowledge. Young people are encouraged to display their abilities through Europass. It also recommends youth to understand their skills acquirement and need of improvement by searching the ESCO website. (EC, 2021)

Candidates can use tools as curriculum vitae or Europass to document and display their competences obtained through education and training alongside skills developed through the participation in non-formal education, extracurricular activities and voluntary work. Documenting and describing their acquired competences enable the individual and the employer to match the job vacancies. (Römgens, Scoupe and Beusaert, 2020)

### 3. Research methodology

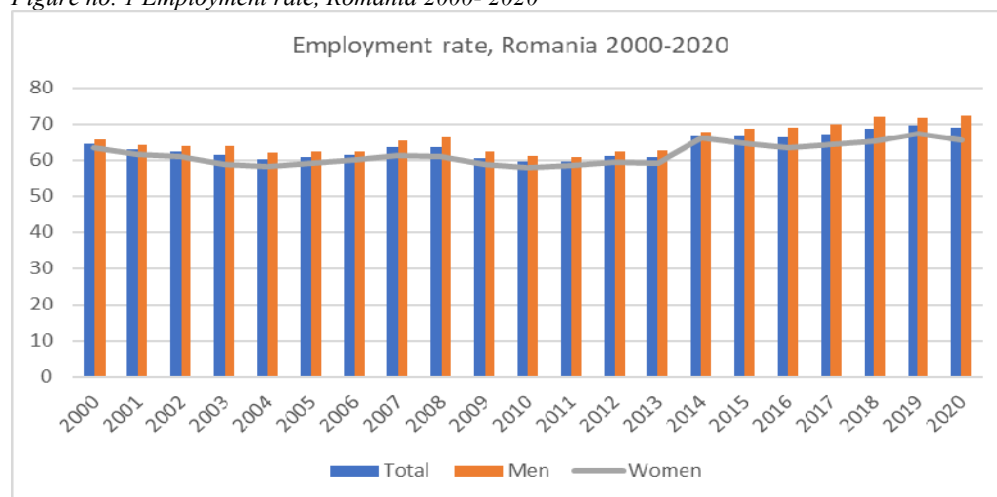
For this paper the statistical activity rate data has been analyzed, data of the employment rate recorded for Romania, time period 2000 – 2020. Romanian national and European Union data on employment is seasonally published by INSSE and Eurostat.

The data scrutinized was represented in tables and figures, with the purpose of displaying the results. The findings are the followings: the employment rate increased since 2000 to 2020; there is a substantial gap among youth employment rates by residential area; the gap between women’s and men’s employment rate has deepened since 2000.

### 4. Findings

The data analyzed and shown in figure no. 1, displays from the year 2000 to 2011 the employment rate which has dropped almost 4 %, followed by an increasing trend from 2012 to 2020, recording a value of 69.1 % in 2020. As pictured in figure no. 1, the gap between men’s and women’s employment rate has deepened from year 2000 to 2020, from 2 % percent difference in 2000 to 7 % difference, higher men’s rate, in 2020.

Figure no. 1 Employment rate, Romania 2000- 2020

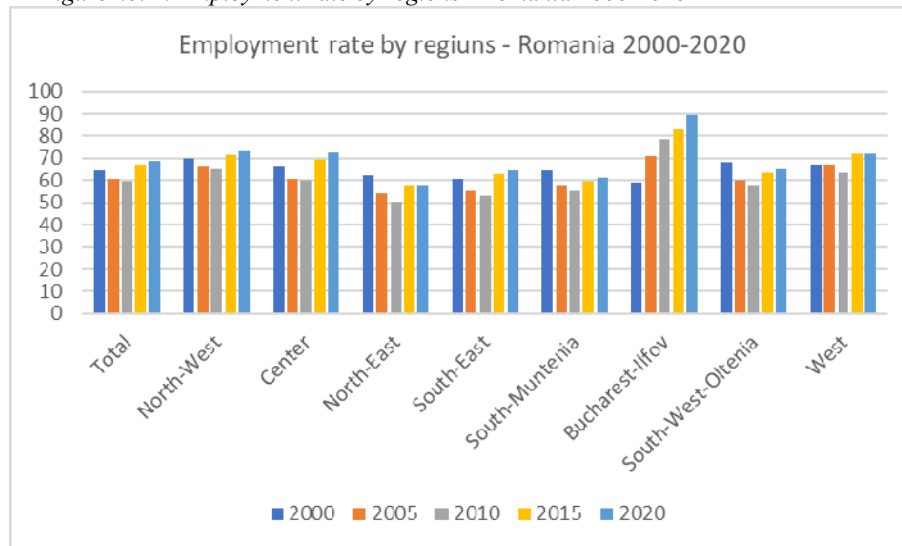


Source: TEMPO Online, INNSE data for Romania

Analyzing the statistical data for the indicator early leavers from education, women have a higher tendency to drop out of school. From the year 2008 to 2018 there can be seen a slight decreasing trend, reaching 15.6 % in 2020. (TEMPO online)

The same gap as the employment rate, women are more inclined to leave the education system earlier than men do. Further research will be conducted to find good practices of reducing the gap between the women’s and men’s employment rate by participating in training activities and partnership between local authorities, companies and school units to better prepare the young individuals for the labour market requirements. (Light, 2001)

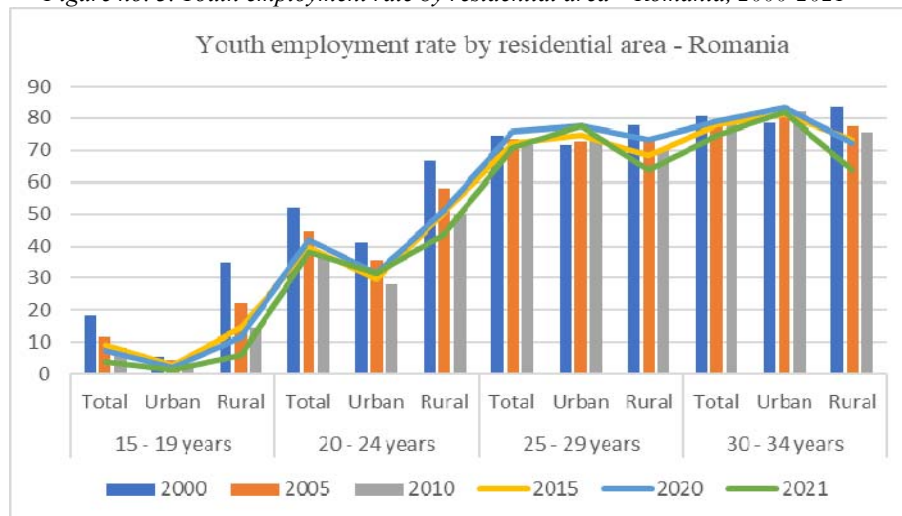
Figure no. 2. Employment rate by regions - Romania 2000-2020



Source: TEMPO Online, INNSE data for Romania

The residents of Bucharest area have the highest employment rate increase for the reviewed period by 30.4 percentage points. North-West, West and Central areas have a higher employment rate, over 70%. North-East area recorded the lowest employment rate 58.1 %, 11 % lower than the national rate. (Figure no. 2) Employment rates are influenced by many factors, one of them is the migration of active age individuals. Further research would be conducted to observe the reason for lower employment rates parallel to researching good practice for achieving higher employment rates.

Figure no. 3. Youth employment rate by residential area – Romania, 2000-2021



Source: TEMPO Online, INNSE data for Romania

The youth employment rate data researched for this paper represents the number of employed persons aged 15 to 24 and 25 to 34 year olds represented as the percentage of the labour force for that age category. From the year 2000 to 2021 the employment rate of young people, dropped for all young adults age categories. (Figure no. 3)

According to some researchers one third of the people that left Romania in the year 2007, the EU accession year, constituted by 25 to 34 years old young adults. Among the listed reasons for emigrating were the lack of employment opportunities and low wages. The economic crisis led to lower employment rates till 2012. For over half of the unactive youth, the reasons implied for not working were the personal responsibilities and obstacles ran across on the previously job search. (Pisica et al, 2015)

Young people residents of the rural areas of Romania, record a lower employment rate. Rural areas are predominant agricultural area. The vulnerability of young adults on the labour market is seen by the gap between urban and rural areas, gap noticed in participation in education and training, training accessibility, early school leavers and NEETs, inequalities that reflect into the participation of young people in the labour market, thus the raising number of individual living in poverty.

*Table no. 1. Young people's employment rate by age and regions, Romania 2000-2021*

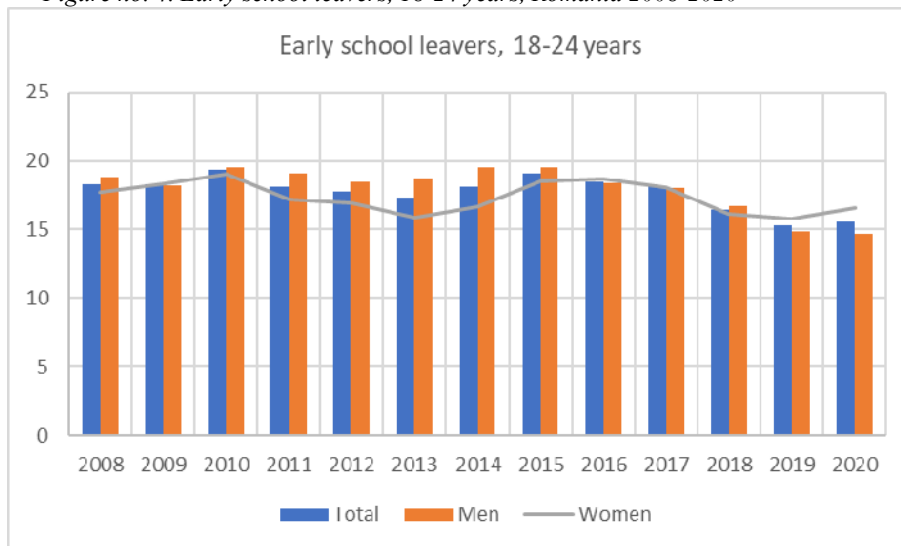
Age/ time	Time	2000	2005	2010	2015	2020	2021
<b>15 - 24 year olds</b>	total	35.2	28.4	24.3	24.5	24.6	20.8
	North-West	39.5	28.1	25.1	21.5	20.4	21.1
	Center	32	27.6	19.2	18.3	17.1	16.7
	North-East	41.7	33.8	31.4	36	36.8	26.2
	South-East	33	29.4	23.3	22.2	24.4	25
	South-Muntenia	34.3	29.2	24.9	24.7	28.2	21.4
	Bucharest-Ilfov	25.9	21.7	21.3	23.2	19.8	19.8
	South-West-Oltenia	35.5	26.7	25.4	21.8	23.8	19.2
	West	35.1	26.1	19.3	20.6	12.6	9.2
	<b>25 - 34 year olds</b>	total	77.9	76.4	75.9	74.9	77.6
North-West		77.8	78.6	78.5	80.6	82	81.4
Center		76.2	74.1	69.8	68.8	70.7	68.9
North-East		78.7	80.8	77.4	82.1	84.3	73.4
South-East		74.8	73.7	70.9	70.8	71	66.6
South-Muntenia		78.2	73.9	75.7	70.9	74.3	72.2
Bucharest-Ilfov		78.7	79.6	84.5	80.9	86.1	82
South-West-Oltenia		79.3	74.8	70.1	65.1	72.3	59.3
West		79.7	74.7	76.8	73.7	71.5	72

Source: TEMPO Online, INNSE data for Romania

Romania still records significant differences between regions and reached a high level of poverty. Among the European Union's citizens, Romanian people have the higher risk of poverty and social exclusion, a rate of 35.8 % for the year 2020. (EUROSTAT data)

The recommendation is to raise the level of flexibility and mobility of the working force inside Romania. The mobility of the working force is very low, the paper states that legal benefits were provided, but implementing the mobility is delayed by the lack of integrating measures for the family members, by providing social and educational services. (Ministry of Investments and European Projects, 2021)

Figure no. 4. Early school leavers, 18-24 years, Romania 2008-2020



Source: TEMPO Online, INNSE data for Romania

To understand the characteristics of youth employment and the transition from school to work, data for early school leavers and NEETs provided was analyzed. The published by INSSE, TEMPO online, data found applies for the time period 2008 to 2020.

According to EUROSTAT data, Romania has one of the highest rates of early school leavers in the last five years, 2017-2021, and the highest value recorded in European Union Member States for 2021, 15.5%. (EUROSTAT data) The role of education and training is crucial in a life of an individual, there is a direct correlation between the level of education and employment rate. (Breen et al, 1995)

Table no. 2. NEETs rate, Romania 2008-2020

Time	Age	2008	2010	2015	2020
Total	15-24	12.4	16.6	18.1	14.8
	25-29	17.9	23.2	25.3	20.2
	30-34	17.5	20.1	21.6	20.7
Men	15-24	9.6	14.2	15	11.6
	25-29	10.2	15.7	17.7	11
	30-34	9.1	12.4	13	10.6
Women	15-24	15.4	19.2	21.4	18.1
	25-29	25.9	31.1	33.6	30.2
	30-34	26.1	28.1	30.8	31.6
Urban	15-24	9.7	12.9	15.1	10.7
	25-29	14.9	20.2	22.1	16.5
	30-34	14.5	17.3	18.4	16.1
Rural	15-24	15.9	20.9	21	18.3
	25-29	22.2	27.8	30.1	24.8
	30-34	21.8	24.1	26.5	27.6

Source: TEMPO Online, INNSE data for Romania

As also seen in previous tables and figures, there is a significant gap between rural and urban areas. NEETs rate is higher in rural area, 27.6 % for 30 to 34 year olds, compared to 16.1 % in the urban area for the same age group rate recorded in 2020. Women’s NEETs rate for the group age



25 to 34 is almost three times higher than men's. Romania also has the second highest NEETs rate among Member States, recorded in 2021, according to EUROSTAT data. High NEET indicator translates into high risk of exclusion from the labour market, followed by social exclusion and poverty increase, whereas in Romania 1 in 4 young adults age 25 to 34 from rural areas were in this situation in the year 2020. (table no. 2)

## 5. Conclusions

Young adults represent a sustainable potential for economic growth, but a significantly unused potential of rural areas 'youth. Development of partnership programs with all the stakeholders, national and local authorities, school units, NGO's, training companies and companies is required for an adequate valorization of the human capital, particularly focused on youth, especially from the rural area and disadvantages population. Presenting the benefit of partnerships and the benefits of attending different school activities and extra-curricular activities with an impact on employability. Concerning the urban and rural areas difference, more projects require to be implemented, targeted on the need of the individual, training programs adapted for the individual needs, style of learning and characteristics of the community.

The recommendation is to implement more partnership programs between schools, local authorities and enterprises for the youth living in the rural areas and for the women to increase the participation of young people in the labour market, to reduce urban and rural areas' gap, alongside the men and women's gap and bring well-being to the individual and to the community.

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## Recruitment Process’ Characteristics as Presented in the European Company Survey – European Union vs Romania 2019 Data

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### Abstract

*This paper analyses the data provided through the European Company Survey – 2019, recruitment process’ characteristics of the EU’s companies compared to the Romanian companies. The data scrutinized provided information for the new employees recruited since 2016, how difficult it has been to find personnel with the required skills for the vacant jobs, what were the characteristics searched among the candidates, the percentage of the candidate chosen without the required skill level. When it comes to looking to find suitable candidates, over 60 % of the Romanian and European companies consider internal personnel fitted for the new position. According to the data researched, both Romanian and EU’s companies do not tend to employ a candidate without the required skill level. Therefore, investing in training and internship programs for the current employees and young people could reduce the skill mismatch and prepare the candidates for the new vacant positions.*

**Key words:** recruitment process, skills, vacant jobs

**J.E.L. classification:** J20, J23, J24

### 1. Introduction

The characteristics of the recruitment process applied by companies to recruit employees and select candidates. Human resources’ manager team identifies the needs of the company, discovering the fitted candidates linking them to the vacant positions. The recruitment methods can be internal, when management searches among the internal candidates or external, candidates outside the establishment interviewed for the new vacancies. (Holm, 2012)

ECS data analysis contributes to the development of working conditions across EU’s companies alongside new and emerging labour market trends. EUROFUND papers affirm that the ECS data is a great tool in the policymakers’ hands to improve and develop perspectives for better working conditions and better living for the individual. The ECS data analysis provides important knowledge about the present issues to the national policymakers and social partners to find ways to update the quality of living and working conditions, as declared. (EUROFUND, 2022)

### 2. Literature review

The development of human capital and human resource management implies good strategic establishment recruitment process. (Millmore, et al., 2007) Recruitment is defined as the process of identifying qualified candidates and attracting best suited job seekers. (Barber, 1998) The recruitment process involves searching for candidates inside the establishment personal, internal recruitment, or scout outside the establishment for needed individuals that have adequate skills for the vacancies. The internal recruitment subject is connected to the career management matter. (Barber, 1998, McKenna and Beech, 2008)

Holm created a figure to describe the recruited process as located in the researched literature, the outcome is: the recruitment process involves activities like preparing a facet of the vacancy job description and requirements to better identify the adequate candidates; attract applicants by

drawing up and place announcements; sorting received applications and communicating with selected candidates; setting up interviews and tests. (Holm, 2012, citing Bartam, 2000, Dessler, 2006 and Parry and Tyson, 2008)

The companies search for future employees prepared to face the job requirements and increase their efforts to process consecutive tasks, to become competent for a productive company. When recruiting external candidates an establishment can use the following tools: public employment agencies, job and carrer fairs, private scout firms, job searching websites, social networks.

Some authors defined the term e-recruitment as using digital technologies through the internet to find suited applicants. (Nikolau, 2021) In the last years the evolution of the use of internet, digital technologies and social network took e-recruiting to further technique developments by the use of artificial intelligence involved in the recruiting process, selection and activities. (Gilch and Sieweke, 2021)

### 3. Research methodology

For this paper data provided through the European Company Survey (ECS) – 2019 was analyzed, the data for the following indicators: recruitment process’ characteristics of the EU’s companies compared to the Romanian companies. The data scrutinized provided information for the new employees recruited since 2016, how difficult it has been to find personnel with the required skills for the vacant jobs, the specific characteristics searched among the candidates, and the percentage of the candidate chosen without the required skill level. The findings are that half of the Romanian companies that participated at the ECS stated that more than 40 % of the employees are newly recruited since 2016, compared to only 19 % of the EU’s companies. Romanian companies experienced more difficulties than European average finding employees with the adequate skills.

### 4. Findings

The sample size of the EC Survey was 21,869 senior personnel manager interviews, 3,073 employee representative interviews, whereas together management for human resources and employee representative interviews were carried out for 1,835 establishments. European companies of the sample size were employers of 10 or more persons, activating in all NACE Rev. 2 categories. The fieldwork period was from January to July 2019. It is stated that formal employee representative was interviewed if applied. The sample size for Romania was one thousand companies. (EUROFOUND, 2020)

Figure no. 1. Newly recruited personal since 2016, European Union vs Romania, 2019 data



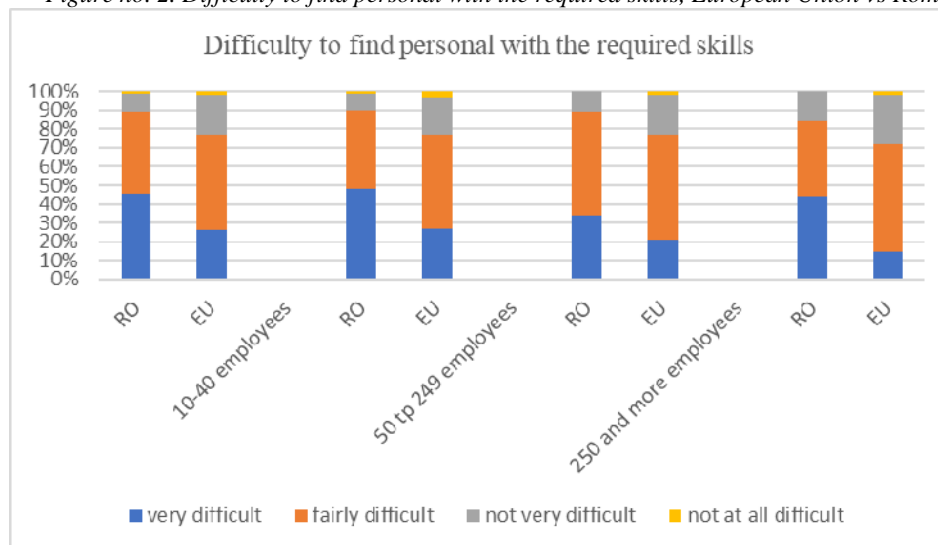
Source: EUROFOUND, European Company Survey 2019 - Data visualization

On average, half of the Romanian companies specified that 40 % and more of the employees are newly recruited since the year 2016, compared to only a fifth of the European companies. Medium size businesses, both Romanian and European, inclined to have hired more than small and big companies. Almost 60 % of the European big size companies recruited less than a fifth new personnel since 2016. (Figure no. 1)

When correlating the ECS data to EUROSTAT data, the numbers are confirmed. EUROSTAT data published for the employment rate for the time 2016 to 2019, employment rate, 20 to 64 year olds, for Romania was 60.3 % compared to EU's 69.6 %, Romanian's rate achieved a higher ascending trend, almost 5 %, reaching 65.1 % for Romania and 72.7 % for EU. The employment rate in Romania, 67.1 % for 2021, is still lower than the EU's average, 73.1 %, due to higher inactivity rate in the rural areas and among disadvantaged population. (EUROSTAT dat)

Almost half of Romanian managers stated that they had great difficulty in finding candidates with the required skills for the vacant job positions, compared to a quarter of the European ones. (Figure no. 2) Only one tenth of the Romanian companies indicated that finding a suitable candidate was not difficult, compared to a fifth of the European businesses. The importance of participating in the training programs to form and upgrade the requested skills is highlighted here.

Figure no. 2. Difficulty to find personal with the required skills, European Union vs Romania, 2019 data



Source: EUROFOUND, European Company Survey 2019 - Data visualization

Correlating the difficulty to find the adequate personal indicator to the adult participation rate in education and training, last 4 weeks, for the year 2016 the EU's was 10.3 % compared to Romania's extremely low rate of 1.2 %. By 2019 EU's rate recorded 10.8 where Romanians still recorded a tendency of not participating to training programs, 1.3 % participation rate. As Romania records a very low rate of adult participation in education and training, ten times lower than EU, continuing research will be done to notice the 2021 and 2022 trend. (EUROSTAT data)

Internal transfers, when it comes to looking to find suitable candidates among the enterprise's own employees, 33 % always and 36 % most of the time Romanian companies consider internal personal fitted for the new position. Whereas 36 % always and 28 % most of the time European companies explore own candidates. (ECS 2019 data)

Table no. 1. Most important characteristics when recruiting new employees, European Union vs Romania, 2019 data

Characteristics of the candidates	RO	EU	RO 10-49 employees	EU 10-49 employees	RO 50-249 employees	EU 50-249 employees	RO 250 and more employees	EU 250 and more employees
personality that fits the company	18%	27%	19%	27%	15%	27%	7%	27%
all the required qualifications	13%	14%	12%	14%	14%	15%	24%	18%
experience in similar positions	26%	24%	25%	23%	32%	27%	33%	28%
all the required skills	22%	19%	22%	19%	26%	17%	25%	17%
no single most important characteristic	21%	16%	22%	17%	14%	13%	10%	9%

Source: EUROFOUND, European Company Survey 2019 - Data visualization

Most important characteristics, as seen in table no. 1, pursued by European establishments are personality that fits the company and job experience, where Romanian managers choose experience in similar job and the required skills. Larger size companies, both Romanian and European companies, emphasize more on the experience of the candidate. Obtaining the required qualifications and skills is mandatory for an individual’s employment status, as seen in table no. 1, these two characteristics obtained a third of the score for small businesses and half of the score for large businesses. Core work skills, specific and transversal competences acquiring is critical for raising on the professional career path. (ILO, 2021) (Dixon et al, 2010)

## 5. Skills requirements

When asked about the changing appearing in the skill’s upgrade, 42 % of the managers indicated a rapid change in the requirement for the enterprises’ needs. Half of the Romanian and European companies indicated the need of a change among the knowledge and skills of the employees. The rapid and challenging changings in the labour market, the technology applied on present jobs is also seen in the answers of the human resources managers, where only 6% indicated no change at all. (ECS 2019 data)

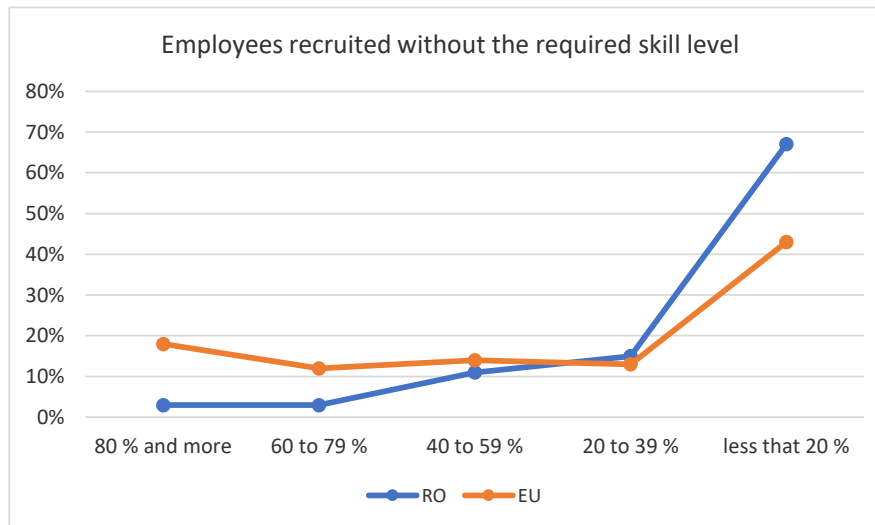
According to the figure no. 3, both Romanian and EU’s companies do not tend to employ a candidate without the required skill level.

Artificial Intelligence technologies, the rapid work environments changes due to digital implementations require highly qualified, adequate skilled and prepared labour force. The responsibility of skill updating relies on the shoulders of both the employee and the employer to provide and participate in training programs to upgrade the necessary competences to be competitive, adapt to changes and be productive.

In a recent published article the authors, followed by research work, display the skills needed to be active on the future world of work. Research by the McKinsey Global Institute published a list of fifty-six foundational skills stated to better prepare the individual for the new working environment. The competences are divided into four categories, cognitive, like communication and critical thinking; interpersonal skills, like teamwork and sociability; self-leadership skills, like self-motivation and confidence; and very important in the future work, digital skills. (Dondi, M., et al., 2021, McKinsey)

Regarding the skills requirements for an individual to be employable, to find a suitable job and remain active on the labour market, the information provided in the previous paragraph and the data in table no. 1, as previous figures no. 2 and no. 3, display the importance of participating in training programs for developing and updating the skills needed for the new job, for the continuing changing labour market demands.

Figure no. 3. Employees recruited without the required skill level, European Union vs Romania, 2019 data



Source: EUROFOUND, European Company Survey 2019 - Data visualization

## 6. Conclusions

Romanian companies recorded a higher percentage of newly hired employees compared to European ones. Medium size companies tended to have recruited more employees. Further research could be done to observe the growth of the small and medium size companies and correlate it with the development and availability of funding for SMEs.

Employment data further research will be carried out to follow the trend and the impact of the pandemic, as 766 thousand people are not employed anymore, whereas the European average did not decrease in contrary increased.

By 2021, Romania still records a 6% lower employment rate than EU, the recommendation being to stakeholders' partnerships, especially in rural areas and areas with major disadvantage population. Partnership programs could be implemented between local authorities, school units, companies and training establishments targeting skill shortages by raising the participation rate in training programs, including recognizing the competences acquired through non-formal learning contexts.

Further research will be conducted to observe what makes an individual employable alongside the benefits of participating in non-formal education's activities to acquire the needed work-related skills to raise the employability capacity.

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## Forms of Tourism in Romania and Influencing Factors

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### Abstract

*Tourism can take different forms. Natural resources together with man-made resources are the determining factors in generating forms of tourism. Thus the exploitation of this potential can generate different forms of tourism, such as rural tourism, ecotourism, cultural tourism, urban tourism, business tourism, mountain tourism, coastal tourism.*

*Romania has a wide range of natural and man-made resources, so the forms tourism takes are very diverse. Thus there are both forms of tourism that are determined by natural resources and forms of tourism that result from the exploitation of man-made resources. Of course, the practice of these forms of tourism is constantly under the influence of certain economic, social, cultural, political and legislative factors. Therefore, the aim of this paper is to identify the different forms that tourism can take and to see the importance of mountain and coastal tourism in Romania.*

**Key words:** tourism, touristic potential, natural resources, man-made resources

**J.E.L. classification:** L80, L83

### 1. Introduction

For the tourist market of a country, the forms in which tourism is manifested are very important because they represent the expression of the valorisation of the natural and anthropic tourist potential.

Depending on these forms, strategies are established to attract tourist flows and to mitigate the negative effects generated by the factors that influence them.

### 2. Theoretical background

The form of tourism can be defined "by the concrete aspect of the combination of transport, accommodation, food and leisure services that make up the tourist product, but also the way in which the tourist product is marketed" (Minciu, 2001, p.71). In other words, the form of tourism is generated by the formula in which tourist services are associated, but it should be borne in mind that tourist services cannot exist without the presence of natural and man-made resources that constitute tourist attractions and generate tourist flows that take different forms,

An important role in classifying forms of tourism is played by the place of origin of tourists, which generates two main forms of tourism, namely domestic tourism and international tourism (Snak *et al*, 2002, p.31). Of course, for a country both forms of tourism are important, but the form of international tourism through which foreign tourists visit a country is more important because it generates foreign exchange. However, domestic tourism can be a very important form of tourism because in crisis situations, such as the health crisis caused by COVID, it can make an important contribution to a country's economy.

Many elements of the environment are of particular importance in the tourism development of a region, as they are the motivation for one form of tourism activities or another (Ielenicz, Comanescu, 2013, p.82). In other words, tourism can take different forms, resulting from the valorisation of different resources that determine the motivation to travel to a tourist destination.



Tourism can take several forms, depending on: the area of origin of the tourists, the length of stay, the price paid, the peculiarities of the tourist destination, the type of transport used, the age of the tourists, the way of organization (Dinu, M., 2002, p.248). As can be seen, the forms that tourism can take are varied and are generated by numerous factors, natural, artificial, endogenous and exogenous.

### 3. Research methodology

Tourism takes many forms of manifestation, therefore research of these forms is important to determine the structure of the tourism market in a country, such as Romania. In researching the main forms of tourism in Romania, indirect sources are used, i.e. statistical data obtained from official sources. The analysis of these data involves research over a certain period of time, in order to discover the trends and factors that determine the evolution of these forms of tourism.

### 4. Forms of tourism in Romania

In Romania, forms of tourism are determined by the existence of natural resources as well as resources created and exploited by people.

Thus, Romania is one of the countries in which all forms of relief are found, namely: plains, plains, hills, mountains, lakes, coastline, as well as natural resources with therapeutic value and a rich flora and fauna. Therefore the exploitation of these resources generates many forms of tourism such as: mountain tourism, coastal tourism, spa tourism, ecotourism, rural tourism and agrotourism, hunting tourism, equestrian tourism.

Harnessing man-made resources generates cultural tourism, business tourism, urban tourism. The exploitation of religious traditions and customs and the existence of monasteries lead to religious and pilgrimage tourism.

Particularly important for Romania are the forms of mountain and coastal tourism. These forms cover important segments of the Romanian tourism market, which is why it is very important to analyse data on the number of tourists arriving in accommodation units for these forms of tourism.

Table no. 1. Number of tourists arriving in tourist accommodation units in mountain resorts in Romania in 2019-2021

Year	Total tourists		Of which			
	Number	%	Romanian tourists		Foreign tourists	
			Number	%	Number	%
2019	2305517	100	2109378	91,5	196139	8,5
2020	1295105	100	1269109	98,0	25996	2,0
2021	1866402	100	1816197	97,3	50205	2,7

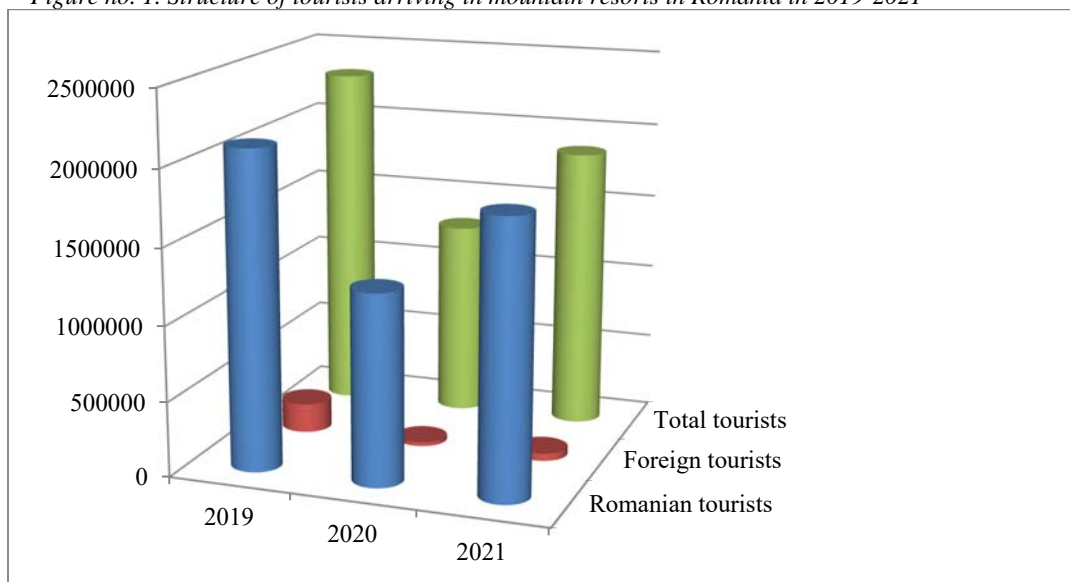
Sources: National Institute of Statistics, [www.insse.ro](http://www.insse.ro) - Romanian Tourism Statistical Abstract, 2022, p.40; 2021, p.40; 2020, p.40;

The analysis of the data in Table 1 highlights the evolution of the number of tourists staying in mountain resorts in Romania, namely:

- The total number of tourists arriving in tourist accommodation establishments in mountain resorts decreased by 19% in 2021 compared to 2019 (more than 439,000 fewer tourists)
- However, it can be seen that although in 2021 we are dealing with a decrease compared to 2019, in 2021 compared to 2020 there was a 44% increase in the number of tourists, which highlights the revival of the tourism phenomenon for this form of tourism.
- The dramatic decrease in tourist flow in mountain resorts was recorded in 2020 when there was a 44% decrease compared to 2019, the main cause being the restrictive measures generated by COVID.
- The same trends were recorded for Romanian tourists and foreign tourists staying in mountain resorts.

- The number of Romanian tourists in mountain resorts decreased in 2020 compared to 2019 by 39.8% and in 2021 compared to 2019 by 19%. The reduction of pandemic restrictions increased the number of Romanian tourists by 43.1%.
- Also in the case of foreign tourists there is a decrease, both in 2020 compared to 2019 by 86.7% (the largest decrease recorded due to restrictions imposed on air travel), but also in 2021 compared to 2019 there was a decrease of 74.4%, which still means a significant decrease in foreign tourist flows for mountain tourism. Of course, the easing of restrictions related to the existing pandemic has led to an increase in foreign tourist flows to mountain resorts by 93% in 2021 compared to 2020.
- The analysis of the structure of tourist flows in mountain resorts (see also figure number 1) highlights the following aspects for the period 2019-2021:
  - The share of Romanian tourists in the total number of tourists in mountain resorts increased from 91, 5% in 2019 to 97, 3% in 2021.
  - The share of foreign tourists in the total number of tourists in mountain resorts in Romania decreased from 8.5% in 2019 to 2.7% in 2021, which shows that Romanian tourists were the main consumers of this form of tourism, namely mountain tourism.
  - Moreover, an analysis of the structure of mountain tourism highlights the large share of domestic tourism, between 91% and 97% of the mountain tourism market (foreign tourists account for between 3% and 8%).

Figure no. 1. Structure of tourists arriving in mountain resorts in Romania in 2019-2021



Source: Table no.1, National Institute of Statistics, [www.insse.ro](http://www.insse.ro)

The analysis of the data in Table 2 provides us with information about seaside tourism and the trends recorded in the period 2019-2022.

Table no. 2 Number of tourists arriving in tourist accommodation units on the seaside in Romania in 2019-2021

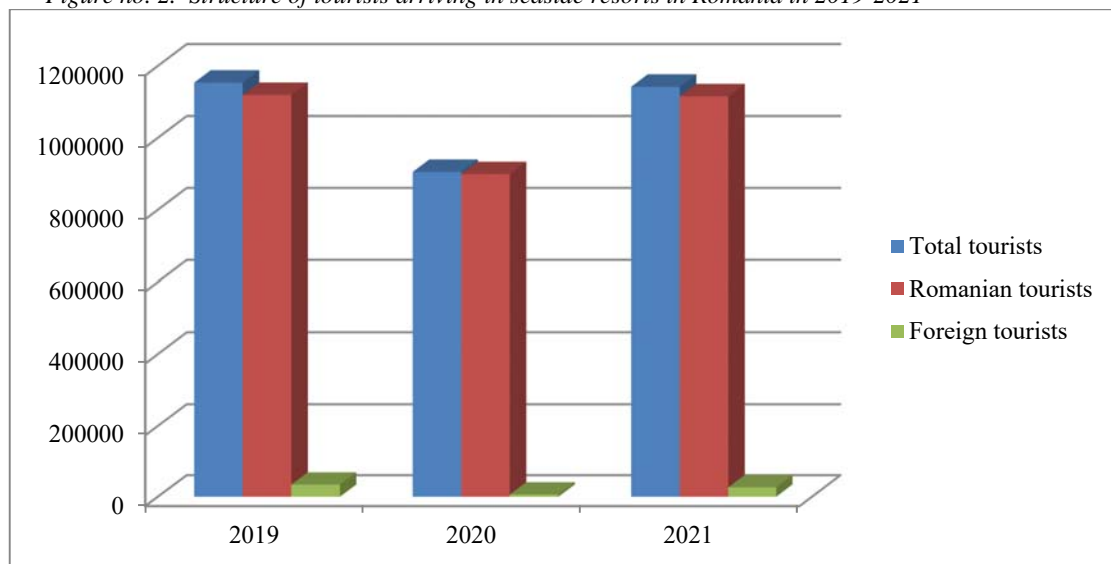
Year	Total tourists		Of which			
	Number	%	Romanian tourists		Foreign tourists	
			Number	%	Number	%
2019	1153682	100	1119401	97,0	34281	3,0
2020	905266	100	899104	99,3	6162	0,7
2021	1142271	100	1115593	97,6	26678	2,4

Sources: National Institute of Statistics, [www.insse.ro](http://www.insse.ro) - Romanian Tourism Statistical Abstract, 2022, p.38; 2021, p.38; 2020, p.38;

Thus, the following aspects emerge:

- The total number of tourists decreased in 2020 compared to 2019 by 21.5% and in 2021 compared to 2019 by 0.98% which means that seaside tourism has reached the same level as at the beginning of the pandemic in 2019.
- In 2020 there was a 21.5% decrease compared to 2019 as a result of the pandemic, but in 2021 it increased by 26.1% compared to 2020, which cancelled out the decrease generated by the pandemic and in this way seaside tourism in Romania remained at the same level.
- Romanian tourists on the Romanian coast decreased in 2020 compared to 2019 with more than 220,000 tourists, then increased in 2021 compared to 2020 with 24%. In 2021 compared to 2019 the number of Romanian tourists in seaside resorts was only 0.34% lower, which means that the tourist phenomenon for this form of tourism is recovering
- For foreign tourists on the Romanian coast, there is a huge decrease in 2020 compared to 2021 by 82%, which highlights the major impact of the pandemic on this form of tourism for foreign tourists.
- In 2021, the tourism phenomenon revived, registering a significant increase of 332% compared to 2020, but below the limit recorded in 2019 when the number of foreign tourists was 22% higher than in 2021.
- The analysis of the structure indicates that the majority of Romanian tourists (between 97% and 99%) are Romanian coastal tourists, while the share of foreign tourists in the total number of tourists on the Romanian coast is between 3% and 2% (see figure 2).

Figure no. 2. Structure of tourists arriving in seaside resorts in Romania in 2019-2021



Source: Table no.2, National Institute of Statistics, [www.insse.ro](http://www.insse.ro)

## 5. Conclusions

For the two forms of tourism analysed, it is found that they were strongly affected in the period 2019-2020, the main cause being health-related. Of course, there are other factors influencing the forms of tourism in Romania, such as those of an economic nature (high prices not correlated with the quality of natural resources and tourism infrastructure, but also with the services offered, which has deterred the orientation of tourist flows to the countries competing for Romania).

For the two main forms of tourism analysed, it is found that mountain tourism has the largest market share compared to coastal tourism, as coastal tourism is strongly affected by seasonality.

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## Domestic Tourism and Romania's International Tourism

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### Abstract

*If domestic tourism takes place within a country, international tourism is carried out by crossing the borders of that country, either by foreign tourists entering the country or by residents leaving the country for other tourist destinations. Both forms of tourism are important for a country, as they generate both tourist flows and financial flows, which can involve expenditure and income from tourism.*

*In Romania, the analysis of tourism flows, from the point of view of these forms of tourism, highlights the importance of domestic tourism for sustaining tourism activity in Romania, since international tourism has recorded low rates in terms of foreign tourist arrivals and, at the same time, high rates of domestic tourist flows to other tourist destinations competing for Romania. As such, the purpose of this paper is to highlight the role of domestic and international tourism for Romania.*

**Key words:** domestic tourism, international tourism

**J.E.L. classification:** L80, L83

### 1. Introduction

Seen from the point of view of the emission and reception of tourist flows, tourism takes the form of domestic tourism and international tourism.

Domestic tourism determines the formation and distribution of tourist and financial flows within a country, exploiting the different forms of tourism and thus ensuring the higher or lower development of certain areas of that country. International tourism can contribute to a country's economic and tourism development if foreign tourists come to that country, or it can generate a deficit in the balance of trade if domestic tourists go to other tourist destination

### 2. Theoretical background

Domestic and international tourism are two essential forms of tourism for a country. This is why these two forms of tourism are given special conceptual attention in economic theory.

Thus, Cristureanu C., defines international tourism as "the action of temporary movement of residents of a country as visitors to another country in order to satisfy tourist motivations and not for lucrative activities, which involves the provision of tourist services, consumption of these services, but also income for the destination country" (Cristureanu, 2006, p.25). At the level of a country, international tourism is represented by the arrivals and departures of tourists (Stanciulescu *et al*, 2002, p.180).

In the "Lexicon of Tourism Terms" domestic tourism is "tourist travel by residents of a country within the borders of that country" (Stanciulescu *et al*, 2002, p.180).

We note that in both international and domestic tourism there are two types of flows: physical flows caused by the movement of tourists either within or outside the country, and financial flows represented by the expenditure made by tourists and the revenue received by the tourism service providers in the country.

In other words, international tourism can be expressed by the totality of flows that are formed between sending and receiving countries (Pirvu, 2012, p.47). These flows are essential for a country's economy as they have an impact, either negative or positive, on the balance of trade and payments.

Both domestic and international tourism are concerned with travel to tourist destinations, but not all travel generates these forms of tourism, which is why tourist travel is fundamentally different from migration (Page, 2009, p.17). In other words, domestic or international travel must be based on a tourist motivation, which determines the visitor status for the country.

### 3. Research methodology

For the study of domestic and international tourism in Romania, statistical methods based on the analysis of indicators on Romanian and foreign tourists are used to identify trends, developments and influencing factors for the analyzed data.

The interpretation of these data is essential to establish different measures to recover the tourism activity in Romania and to revive tourism.

### 4. Domestic and international tourism in Romania, influencing factors and stimulation measures

Special information is obtained from the analysis of the data in Table 1, data on the evolution of foreign visitor arrivals in Romania, as well as the departures of Romanian visitors abroad, in the period 2019-2021, a period that was under the negative effects of the health crisis caused by COVID.

*Table no. 1 Arrivals of foreign visitors in Romania and departures of Romanian visitors abroad, 2019-2021 (thousands of persons)*

Year	Foreign visitor arrivals in Romania	Departures of Romanian visitors from Romania	Differences between departures of Romanian visitors abroad and arrivals of foreign visitors in Romania
2019	12815.4	23065.7	10250.3
2020	5022.7	9510.1	4487.4
2021	6788.8	11642.6	4853.8

*Sources:* National Institute of Statistics, www.insse.ro - Romanian Tourism Statistical Abstract, 2022, p.70; 2021, p.70;

Thus, regarding the total arrivals of foreign visitors in Romania, we can draw the following aspects:

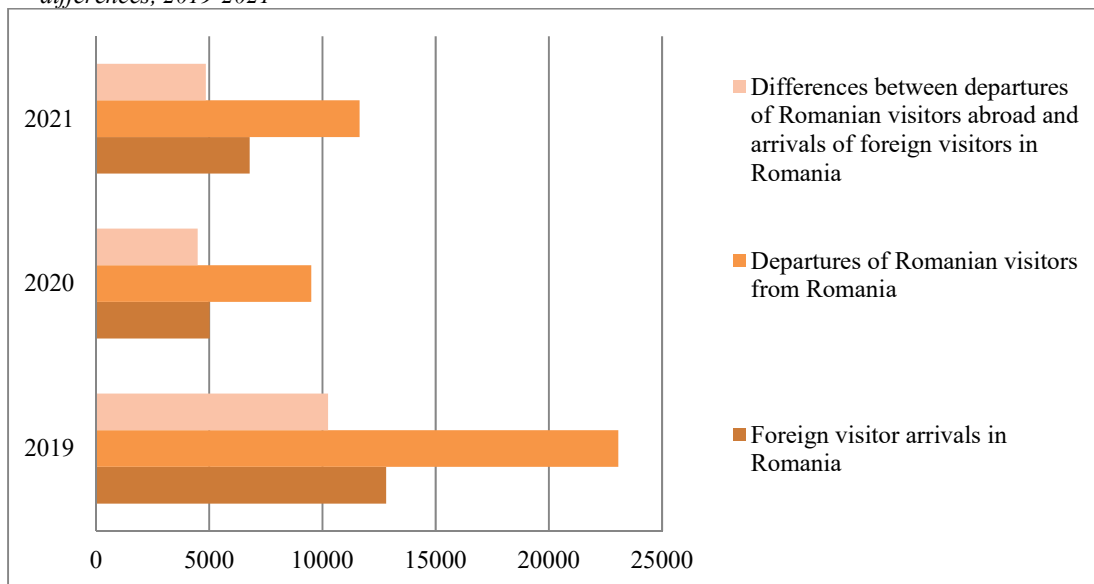
- If in 2019 the total number of arrivals of foreign visitors in Romania was over 12815 thousand, there is a drastic decrease in the number of foreign visitors in 2020 to approximately 5022, which means a reduction of 60%.
- This 60% reduction in 2020 compared to 2019 is mainly due to the restrictions generated by COVID, restrictions that have negatively affected inbound and outbound tourist flows in Romania.
- In 2021 compared to 2020, although there was a 35% increase in foreign visitor arrivals in Romania, compared to 2019 it represents a 47% decrease, which reflects the fact that inbound tourist flows have not even reached the value of 2019. This fact highlights not only health factors with a negative impact on inbound tourist flows, but also the existence of other economic factors, as well as factors related to the tastes, preferences and motivations of foreign tourists. In other words, the COVID pandemic has caused changes in the preferences of foreign visitors to Romania, but also in the preferences of Romanian tourists, generating a reorientation of tourist flows towards other more attractive destinations.

In the case of departures of Romanian visitors to other tourist destinations, it is noted:

- Diminuarea numărului de la 23065 mii în 2019, la peste 9510 mii în 2020 (adică o reducere de peste 58%) ceea ce semnifică un nivel asemănător reducerii sosirilor de vizitatori străini în România
- Decrease in the number of visitors from 23065 thousand in 2019 to over 9510 thousand in 2020 (i.e. a reduction of over 58%) which means a similar level of reduction in the number of foreign visitor arrivals in Romania.
- Although in 2021 compared to 2020, there was an increase in the number of Romanian visitors who went abroad by 22.4% (from 9510 thousand to 11642 thousand Romanian visitors), however, these outbound tourist flows were in 2021 compared to 2019 almost half the values recorded in 2019, reflecting a recovery of the tourism phenomenon in this segment, but still under the influence of the restrictions caused by the COVID pandemic

Of particular importance are the annual differences between departures and arrivals (see also Figure 1).

Figure no. 1. Departures of Romanian visitors abroad, arrivals of foreign visitors in Romania and their differences, 2019-2021



Source: Table no.1, National Institute of Statistics, [www.insse.ro](http://www.insse.ro)

Thus, the number of Romanian visitors who went to other tourist destinations is higher than the number of foreign visitors who came to Romania. In 2019, the number of Romanian visitors who went to other tourist destinations was over 10250.3 thousand higher (almost 1.8 times higher). The same trend was maintained in 2020, but also in 2021, which means a deficit balance of payments on this segment of tourism.

Table no. 2 Overnight stays of Romanian and foreign tourists in Romania in 2019-2021

Year	Total tourists		Of which			
	Number (thousands)	%	Romanian tourists		Foreign tourists	
			Number (thousands)	%	Number (thousands)	%
2019	30086.0	100	24795.2	82.4	5290.8	17.6
2020	14579.1	100	13581.7	93.1	997.4	6.9
2021	20835.3	100	19002.6	91.2	1832.7	8.8

Sources: National Institute of Statistics, [www.insse.ro](http://www.insse.ro) - Romanian Tourism Statistical Abstract, 2022, p.65; 2021, p.65;

The analysis of the tourist accommodation indicator in tourist accommodation facilities in Romania provides us with a clearer picture of the phenomenon of domestic and international tourism

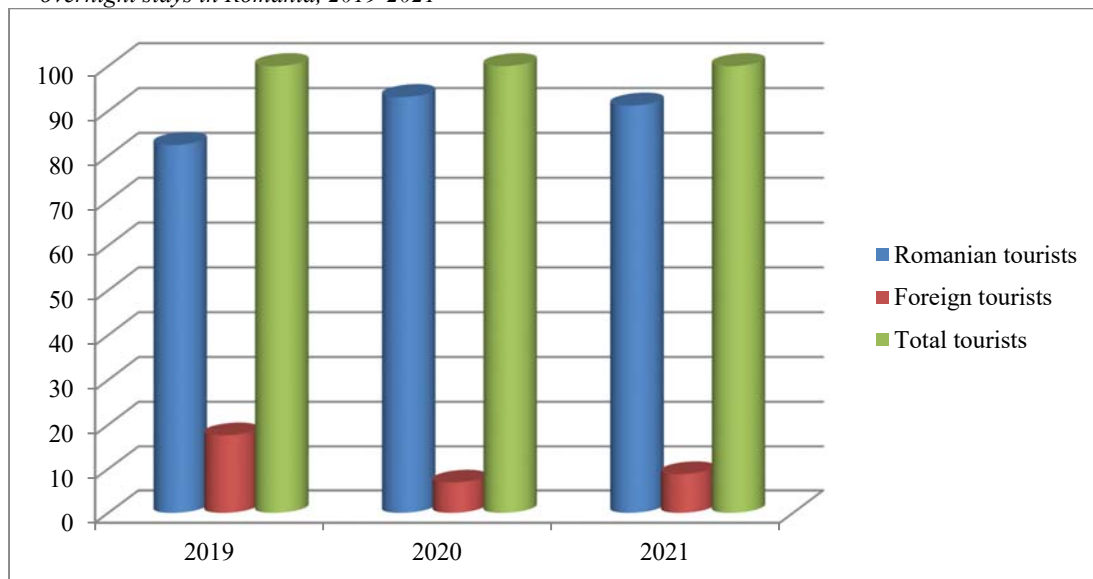
Thus:

- There is a decrease in total overnight stays from 30086 thousand in 2019 to 14579 thousand in 2020 (a reduction of 51.5%) and to 20835.3 thousand in 2021 (a reduction of 30.7%). In other words, 2020 saw the largest decrease, and then the phenomenon of overnight stays in tourist accommodation facilities has an upward trend.
- In the case of Romanian tourists, the analysis shows the same trend, i.e. a decrease in overnight stays in 2020 compared to 2019 by 45% and by 23.3% in 2021 compared to 2019 (although in 2021 compared to 2020 there was an increase of 39.9%).
- In the case of foreign tourists staying in Romania, the largest reduction is observed in 2020 compared to 2019 (by 81.1%), although in 2021 there was an upward trend (an increase of 83.7% is observed in 2021 compared to 2020), however, there is a decrease of 65.3% compared to 2019, which reflects the reduced size of foreign tourist flows in Romania.

The analysis of the structure of overnight stays in Romania, for Romanian and foreign tourists, shows the high share of overnight stays of Romanian tourists compared to foreign tourists: between 82.4% and 91.2% for Romanian tourists, compared to 17.6% in 2019 and 8.8% in 2021 for foreign tourists (see figure 2).

This highlights the importance of domestic tourism in Romania's tourism market. Of course, this high share of domestic tourism is also based on the facilities for stimulating domestic tourism by granting holiday vouchers, which can only be used in Romania, thus generating the development of domestic tourism.

Figure no. 2. Share of Romanian and foreign tourists' overnight stays in the total number of tourist overnight stays in Romania, 2019-2021



Source: Table no.2, National Institute of Statistics, [www.insse.ro](http://www.insse.ro)

We can say that domestic tourism is the main form of exploitation of Romania's tourism potential, although both domestic and international tourism are not exploited to their true value.

In addition to health factors, which have affected the phenomenon of domestic and international tourism in Romania, there are other factors, namely: insufficient promotion of Romania as a tourist destination on the international tourism market, poor tourist services with low quality correlated with high tariffs, but also factors relating to the general infrastructure and thus affecting mountain tourism, coastal tourism, rural tourism, spa tourism, and other forms of tourism involving access roads suitable for taking in tourist flows (lack of motorways, roads, tourist signs and markings, a technical and material base specific to tourism that is physically and morally worn out).



Therefore, Romania must be promoted more effectively as a tourist destination on the international market, investments must be made in both general and tourist infrastructure, and the behaviour of service providers must be changed both towards Romanian tourists and foreign tourists. The departure of Romanian tourists abroad must be limited and the entry of foreign tourists into Romania must be stimulated through various facilities.

## 5. Conclusions

Although both domestic and international tourism are important for a country, as is the case of Romania, it is noted that in Romania, during the period analyzed, domestic tourism has a high share (around 90%) of the Romanian tourism market. On the other hand, international tourism, although essential for an economy, has a low share, in terms of foreign tourists staying in Romania (less than 10%), which indicates a poor exploitation of tourism resources on the international tourism market.

In conclusion, the outflows of Romanian tourists abroad are much higher than the inflows of foreign tourists in Romania, which from an economic point of view has a strong negative impact on Romania's balance of trade and balance of payments. On the other hand, there is also a positive effect of this phenomenon, namely the lack of mass character of international tourism in Romania, thus preserving Romania's natural, cultural and traditional resources.

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# Application of the European Tourism Indicator System (ETIS) in Sibiu County

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## Abstract

*The European Tourism Indicators System (ETIS) for sustainable destination management is a product of the European Union's Sustainable Development Strategy, which has been formulated with the aim of promoting economic prosperity, social equity, cohesion and environmental protection. The purpose of this paper is to present an analysis of the application of this system of indicators in the case of the Romanian tourist destination Sibiu County, identifying the difficulties and challenges of ETIS implementation and emerging opportunities. We believe that the results of this analysis can provide useful guidelines and suggestions for those who manage this tourist destination, as well as for other tourist destinations who will want to implement the ETIS toolkit or other similar methodologies.*

**Key words:** tourist destination, sustainable tourism, ETIS, Sibiu County

**J.E.L. classification:** M31, Q21, Z32

## 1. Introduction

The COVID-19 pandemic has blocked the world in 2020 and continues to devastate it, and reality shows that this crisis will be longer than expected. The tourism sector has been most affected. However, the pandemic drew our attention to the things that matter, social interaction, and the natural environment.

Despite the devastating impact of the COVID-19 pandemic, this global crisis also offers opportunities for the tourism industry to be better prepared for future crises and more resilient by redefining and reshaping operational practices. It also provides the possibility to redesign tourist destinations to meet the new usual standards, to create sustainable destinations, better to live in, and more attractive to visit.

This paper aims to apply the European Tourism Indicator System (ETIS) to a tourist destination in Romania and to identify the difficulties and challenges of an ETIS operationalization procedure and emerging opportunities. Sibiu County was chosen as a case study, being a complex destination and recognized for the opportunities to develop various forms of tourism. The study provides several conclusions and makes some recommendations in support of the implementation of this management tool.

## 2. Theoretical background

Tourism destinations are the most important part of the tourism system and they represent the essential unit of tourism research (Buhalis, 2000; Pike 2004; Wang & Pizam, 2011). David Bierman (2003) defines the destination as a country, region, or locality that is marketed or markets itself as a place for tourists to visit.

According to the World Tourism Organization, "a tourism destination is a physical space with or without administrative and/or analytical boundaries in which a visitor can spend an overnight. It is the cluster (co-location) of products and services, and of activities and experiences along the tourism value chain and a basic unit of analysis of tourism." (UNWTO, 2019:14). In other words, the tourist destination is the focal point of tourism.

Sustainable tourism can be defined as that form of tourism developed and maintained in a destination in a way and extent to which it can remain viable indefinitely without degrading or altering the natural environment.

A sustainable tourist destination is one that addresses the opportunities and impacts that tourism has on a society and its cultural and natural heritage in a way that maximizes the benefits of tourism while reducing any negative impact. It is a destination that applies innovation and seeks solutions to challenges such as seasonality, sustainable mobility, and visitor flow management while increasing the opportunity to improve the experience of both visitors and residents. (NECSTouR, 2019).

A responsible tourism strategy can support job creation, social inclusion, the protection of natural and cultural heritage, biodiversity conservation, sustainable livelihood generation, and improved human well-being. During a time when the sector is facing an extraordinary crisis, collective efforts are needed to ensure its long-term viability.

Globally, more and more tourism organizations are trying to find practical solutions for the sustainable development of tourism.

The European Tourism Indicators System for sustainable destinations (ETIS) is a product of the European Union Sustainable Development Strategy, which was created to promote economic prosperity, social equity, cohesion, and environmental protection. The EC launched ETIS in Brussels on 22 February 2013 in its first form. ETIS has been implemented voluntarily in 2 pilot phases since 2013, by over 100 destinations. Following feedback, the EC revised the system in 2016, providing destinations with a fully tested system and a more realistic set of core indicators (EC, 2016)

The ETIS's main aim is to assist local authorities in measuring and monitoring the sustainability of tourism performance at their destinations, providing a simple and easy-to-use comparison tool. It contains 43 basic indicators, to which more secondary indicators can be added according to the specifics of each tourist destination.

The indicators can be used voluntarily, together, or integrated into existing destination monitoring systems. It is a flexible system.. In accordance with the requirements of the destination, the interested parties in the local community, and the special sustainability challenges facing the destination, the system can be extended or contracted.

To implement the System in a tourist destination, seven steps are required:

1. Increase awareness. Communicate the decision to implement ETIS to as many people as possible, especially local stakeholders.
2. Creating the destination profile. Fill in the form regarding the destination profile, with basic information about geography, tourist facilities, transport links, number of visitors from the destination, etc.
3. Stakeholder working group (SWG) formation. For SVG to succeed, representatives of the private sector and destination management organizations or tourism authorities must play an active role.
4. Establishing roles and responsibilities. Once the SVG is established, there needs to be agreement on the responsibilities of its members and how data collection will take place.
5. Data collection and recording. Data collection should bring together different sources of data in one place to create a detailed profile of the tourism sector of destination.
6. Analysis of results. The GLPI then analyzes the results, sets realistic goals, and decides on a course of action to accomplish them.
7. Formulation of an action plan and strategic management for long-term improvement. After SGV develops an action plan to address immediate priorities, a long-term improvement strategy can be developed.

### 3. Research methodology

To collect the data needed to measure the core indicators of the "European Tourism Indicators System for sustainable destinations" (ETIS), secondary and direct research were conducted. Direct research was conducted between March and October 2021 and was shown through surveys (questionnaires of locals, visitors, industry, and local authorities) and semi-structured interviews with envoys of the local tourism sector. Interviews were helpful for an expanded view. 1065 people over the age of 18 responded to the survey conducted among the resident population in Sibiu County, thus obtaining a representative sample with an error of 3% and a probability of 95%. Over 945 people over the age of 18 responded to the survey conducted among visitors to Sibiu County. Almost 90% of the respondents were Romanian. The localities of origin of Romanian tourists in Sibiu County who responded to the survey are: Bucharest, Alba Iulia, Cluj, Timisoara, Bacau, Brasov, Deva, Pitesti, Branesti, Constanta, Calan, Urziceni, Caracal, Ploiesti, Alexandria, Timisoara and Targu Jiu. The survey among Sibiu tourism companies took place between April and October 2021. The survey was carried out by e-mail, and the questionnaire was posted on various web pages. Because of the low response rate, telephone calls and questions were conducted at the companies' headquarters. Unfortunately, only 38 companies replied to the questionnaire, which could not be a representative sample. The survey conducted among the public authorities did not receive any answers, being invalidated. The interviews conducted during the study took place between August and September. Representatives of the hospitality industry, NGOs, and cultural service providers participated.

### 4. Findings

Sibiu County is located in the center of the country, in the southern part of Transylvania. The county seat is Sibiu. According to the National Institute of Statistics, Sibiu County was inhabited on January 1st, 2021, by 400,116 people, of whom 65% lived in urban areas. (INS, 2021).

The tourist heritage of Sibiu County is an intertwining of multiculturalism, picturesque, and tradition. The most important natural resources of Sibiu County are concentrated in the southern area, within the Cindrel, Lotru, and Făgăraș mountain groups. These are joined, among the major natural attractions, by the healing factors of the two spas in the county - Ocna Sibiului and Bazna. The areas of the "Natura 2000" network in the northeast and east of the county (a large part of the surface of the Hârtibaciului and Târnavelor Plateau) are also worth mentioning in terms of natural potential. In terms of anthropic resources, they include the categories: of fortified churches (with a concentration of such attractions in the northern half of the county), folk areas with traditions, gastronomy, and specific crafts, medieval urban architectural ensembles (historic centers of Sibiu, Medias) and to a lesser extent those in Agnita or Dumbrăveni), museums (Astra, Brukenthal, etc.), fortresses, palaces and mansions scattered throughout the county (Brukenthal Summer Palace, Apafi Castle, etc.), as well as several festivals and events (theater, music, folklore, crafts, medieval, sports, etc.). Sibiu County is crossed in the east-west direction by two roads, one road and one railway, of the European Corridor TEN-T Danube Rhine, respectively DN7 and the A1 and Highway 300. A pan-European corridor connects the major urban centers in Sibiu County with Western Europe and Romania. In Sibiu County, the majority of domestic tourists arrive via the national road network. The most important roads that cross the territory of Sibiu County are also two of the most valuable roads in terms of landscape: Transfăgărășan (DN7C) and Transalpina (DN67C). A large part of the international tourists arrive by air, the Sibiu International Airport being their main access route to the county.

According to INS, in 2021, there are over 300 tourist reception units and 10549 accommodations in the county (INS, 2021). The majority of tourist accommodations are located in Sibiu, where 38% of them are located, followed by Căliște (8%), Ocna Sibiului (5%), Rășinari (4.7%), and Cârțișoara (4.4%).

The network of structures with public catering functions (bars, wineries, restaurants) inventoried has over 200 units, almost half located in Sibiu; the concentration areas identified for these structures are identical to those highlighted in the case of accommodation structures (<http://turism.gov.ro/web/autorizare-turism>).

According to the National Institute of Statistics (INS, 2021), there were 5.5 thousand people employed in hotels and restaurants in this county in 2020, representing 2.9% of the total employed population. Entertainment, cultural, and recreational activities employed 2.2 thousand people or 1.2% of the total employed population of Sibiu County.

Sibiu is among Romania's top ten most visited counties.

The average length of stay of tourists in Sibiu County has remained relatively unchanged for the past five years, being about 1.6 to 1.7 days. This indicates the transit and/ or city break character of the destination.

In general, Sibiu County can be considered attractive primarily as a cultural destination, the architectural heritage, and events being the most promoted. However, the valuable natural resources of this destination, which can be the basis for the development of both "classic" and niche forms of tourism, should not be neglected either.

The European Tourism Indicators System (ETIS) specifically concerns the durability of tourist destinations. The current study evaluated 43 basic indicators for analyzing the sustainability of the "Sibiu County" destination. These indicators were divided into four sections that refer to destination management, the economic value of tourism, socio-cultural impact, and environmental impact (see Table no.1)

Table no 1 Sibiu County destination indicators

Section	Criteria	Indicator Reference	Indicator	Sibiu County results
A. Destination management	A.1. Sustainable Tourism Management in Tourism Enterprises	<b>A.1.1</b>	Percentage of tourism enterprises/establishments in the destination using a voluntary certification/labelling for environmental/quality/sustainability and/or Corporate Social Responsibility measures	n/a
	A.2. Customer Satisfaction	<b>A.2.1</b>	Percentage of tourists and same day visitors that are satisfied with their overall experience in the destination	79%
		<b>A.2.2</b>	Percentage of repeat/return visitors (within 5 years)	53%
B. Economic value	B.1. Tourism Flow (volume & value) at the Destination	<b>B.1.1</b>	Number of tourist nights per month	Oct.2020 – 38499 Nov. 2020 – 16829 Dec. 2020 – 24247 Ian. 2021 – 37313 Feb. 2021 – 38361 Mar. 2021 – 27827 Apr. 2021 – 28320 Mai 2021 – 41455 Iun. 2021 – 5345 Iul. 2021 – 107845 Aug. 2021 – 137722 Sept 2021 - 90046
		<b>B.1.2</b>	Number of same day visitors per month	n/a
		<b>B.1.3</b>	Relative contribution of tourism to the destination's economy (% GDP)	n/a
		<b>B.1.4</b>	Daily spending per overnight tourist	On average 585 RON/day
		<b>B.1.5</b>	Daily spending per same day visitor	n/a

	B.2. Tourism Enterprise(s) Performance	<b>B.2.1</b>	Average length of stay of tourists (nights)	1,7	
		<b>B.2.2</b>	Occupancy rate in commercial accommodation establishments per month and average for the year	24,77% on average	
	B.3. Quantity and Quality of Employment	<b>B.3.1</b>	Direct tourism employment as percentage of total employment in the destination	2,88%	
		<b>B.3.2</b>	Percentage of jobs in tourism that are seasonal	n/a	
	B.4. Tourism Supply Chain	<b>B.4.1</b>	Percentage of locally produced food, drink, goods and services sourced by the destinations tourism enterprises	n/a	
	C. Social and Cultural Impact	C.1. Community/Social Impact	<b>C.1.1</b>	Number of tourists per 100 residents	3,65
			<b>C.1.2</b>	Percentage of residents who are satisfied with tourism in the destination (per month/season)	67%
<b>C.1.3</b>			Number of beds available in commercial accommodation establishment per 100 residents	2,63	
<b>C.1.4</b>			Number of second homes per 100 homes	n/a	
C.2. Health and Safety		<b>C.2.1</b>	Percentage of tourists who register a complaint with the police	n/a	
C.3. Gender Equality		<b>C.3.1</b>	Percentage of men and women employed in the tourism sector	55% men; 45% women	
		<b>C.3.2</b>	Percentage of tourism enterprises where the general manager position is held by a woman	n/a	
C.4. Inclusion/Accessibility		<b>C.4.1</b>	Percentage of rooms in commercial accommodation establishments accessible for people with disabilities	n/a	
		<b>C.4.2</b>	Percentage of commercial accommodation establishments participating in recognised accessibility information schemes	n/a	
		<b>C.4.3</b>	Percentage of public transport that is accessible to people with disabilities and with specific access requirements	n/a	
		<b>C.4.4</b>	Percentage of tourist attractions that are accessible to people with disabilities and/or participating in recognised accessibility information schemes	n/a	
C.5. Protecting and Enhancing Cultural Heritage, Local Identity and cultural Assets		<b>C.5.1</b>	Percentage of residents that are satisfied with the impacts of tourism on destination's identity	n/a	
		<b>C.5.2</b>	Percentage of the destination's events that are focused on traditional/local culture and heritage	n/a	

D. Environmental Impact	D.1. Reducing Transport Impact	<b>D.1.1</b>	Percentage of tourists and same day visitors using different modes of transport to arrive at the destination	Car – 79%; Bus -12% Train - 4% Motorcycle - 3% Airplane – 1% Bicycle 1%
		<b>D.1.2</b>	Percentage of tourists and same day visitors using local/soft mobility/public transport services to get around the destination	58%
		<b>D.1.3</b>	Average travel (km) by tourists and same day visitors from home to the destination	525 km.
		<b>D.1.4</b>	Average carbon footprint of tourists and same day visitors travelling from home to the destination	n/a
	D.2. Climate Change	<b>D.2.1</b>	Percentage of tourism enterprises involved in climate change mitigation schemes— such as: CO2 offset, low energy systems, etc.—and “adaptation” responses and actions	n/a
		<b>D.2.2</b>	Percentage of tourism accommodation and attraction infrastructure located in “vulnerable zones”	n/a
	D.3. Solid Waste Management	<b>D.3.1</b>	Waste production per tourist night compared to general population waste production per person (kilos)	n/a
		<b>D.3.2</b>	Percentage of tourism enterprises separating different types of waste	n/a
		<b>D.3.3</b>	Percentage of total waste recycled per tourist compared to total waste recycled per resident per year	n/a
	D.4. Water Management	<b>D.4.1</b>	Percentage of sewage from the destination treated at least at secondary level prior to discharge	n/a
	D.5. Water Management	<b>D.5.1</b>	Water consumption per tourist night compared to general population water consumption per resident night	n/a
		<b>D.5.2</b>	Percentage of tourism enterprises taking actions to reduce water consumption	n/a
		<b>D.5.3</b>	Percentage of tourism enterprises using recycled water	n/a
	D.6. Energy Usage	<b>D.6.1</b>	Energy consumption per tourist night compared to general population energy consumption per resident night	n/a
		<b>D.6.2</b>	Percentage of tourism enterprises that take actions to reduce energy consumption	n/a

		<b>D.6.3</b>	Percentage of annual amount of energy consumed from renewable sources (Mwh) compared to overall energy consumption at destination level per year	n/a
	Landscape and Biodiversity Management	<b>D.7.1</b>	Percentage of local enterprises in the tourism sector actively supporting protection, conservation, and management of local biodiversity and landscapes.	n/a

*Source:* authors' contribution

The results in the table above show that the application of the European Tourism Indicators System needs to be applied at the level of the destination "Sibiu County" but under the conditions of establishing a local coordinator and creating a relevant SWG. Our simulation encountered a number of difficulties in collecting and measuring several indicators. Some indicators are unreliable due to missing data (generally those related to the environment, which indicates a problem in monitoring the impact of various human and economic activities on the environment). Out of the total of 43 basic indicators, only 16 could be measured accurately, ie 37%.

The results obtained from data collection and measurement of indicators revealed the following aspects:

Tourism businesses should be encouraged and supported to obtain sustainability labels so that they can be included in a recognition system for sustainability. In the current conditions, it is recommended that the entire destination or at least some micro destinations from Sibiu County apply to obtain a safety label (health). Regarding the flow of visitors, given the particular situation caused by the COVID-19 pandemic, a rigorous analysis could not be made, especially on the seasonality. However, there has been a return to tourism with the relaxation of national health security measures by increasing the number of tourists since July. The number of tourists nights and the number of same day visitors should be continuously monitored. In terms of business performance, there is too short a tourist stay coupled with a low occupancy rate. Therefore, it is imperative to make efforts to monitor and find out the causes. In addition, solutions to attract visitors for longer periods of time need to be stepped up and found. There is a positive impact of tourism on the local community, measured by both the locals' satisfaction and the stress caused by tourism. Nevertheless, decision-makers must pay close attention to any change in the level of satisfaction from locals with the tourist activity and take the necessary measures as soon as possible, always consulting the local community. The indicators related to the protection and improvement of the cultural heritage and the local identity obtained equal values: 55%. This fact indicates that the level of satisfaction in Sibiu County with regard to the impact of tourism on local culture is reflected in the level of tourism activity in that county. Due to a lack of data for measuring the related indicators, the impact of tourist activity in Sibiu County on the environment cannot be assessed.

## 5. Conclusions

The key challenges highlighted by the application of ETIS in the case of Sibiu County regarding the development of sustainable tourism are: participation in certification/environmental labeling/quality/sustainability systems and/or CSR; increasing the attractiveness of the destination; addressing the impact of tourist transport; minimizing resource use and waste production; the protection and efficient use of the natural and cultural heritage; accessible tourism; the use of tourism as a tool in the sustainable development of the county.

The key benefits for Sibiu County in the implementation of the ETIS are: providing relevant information for decision making; streamlining risk management; prioritizing action projects; comparative performance evaluation; improving the relationship with the local community;



improving the cooperation of all stakeholders; improving visitor experiences; reducing costs and increasing profits; increasing the value per visitor, etc.

Overall, the experience of simulating the application of the European Tuism Indicator System in the case of Sibiu County offered us perspectives on several critical issues. First of all, it is difficult to get statistics at the local level. Often, statistical data is not available in the public reports of the County Council or in official statistics or other public documents. This is a significant limitation that reduces the efficiency of the system for management purposes. It is essential that accurate and reliable indicators be used in the System to plan local policies. But direct and secondary research require a significant investment of resources to obtain data over the long term (years). For this reason, sources of funding should be identified. The role of the local coordinator is also crucial. To be effective, it must be able to get together and have an certain effect on interested parties, accessing important data (or being able to access it via someone else), and to have a certain level of management authority.

The selection of relevant indicators must be a flexible process and appropriate to the particularities of each destination. As part of this process, the stakeholders' requirements must be considered, and there must be available information that addresses their needs, as well as a periodicity and availability of such data. There are also times when additional indicators are required when the available ones are insufficient, in concordance with the requirements of the destination. Furthermore, the indicator system should promote the development of a methodology to facilitate the efficient use of indicators. SWG can analyze the results once the destination dataset is complete, identify realistic benchmarks or targets, and determine which of the issues raised by the System is a priority for the destination and their priority order.

Using a simple and widely recognized system of indicators provide a means of comparing experiences in different destinations. Comparability is an essential precondition in support of best practices at local, regional, national, and international levels. By evaluating the system of indicators, best practices can be implemented to support both public and private planning efforts.

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## Aspects of European funding for the energy transition - Just transition

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### Abstract

*The present study follows the financial allocations in energy transition, focusing on fair transition related to the carboniferous and mono-industrial areas, in Europe and especially in Romania, whose populations go through significant challenges of the quality of life, generated by changing the activity profile. The research revealed that, at this moment, the impact of the amounts allocated for a fair transition cannot be assessed, neither in the European Union nor in Romania, because the official implementation programs are still being finalized and approved on national and community flows. We also obtained a very interesting conclusion regarding the stage of reducing the share of coal in the national mix, the statistics showing an important advance compared to the targets set for Romania in the perspective of 2030 and 2050, respectively. During the research, we used statistical data on the Cohesion Policy published by the European Commission and the International Energy Agency.*

**Key words:** energy transition, just transition, European funding, energy security, sustainable development

**J.E.L. classification:** A13, B16, B26, B55, C10, C46, F36, F52, G28

### 1. Introduction

This project aims to research the financial allocations in the field of energy transition, being chosen as a case study the financing in fair transition for coal and mono-industrial areas, with a population strongly affected by the change of activity profile and quality of life.

The research wants to answer the question related to the method of allocation and the size of the amounts, to the way of their dispersion for the targeted areas in Europe and what are the steps to implement the financing for a fair transition in Romania. We also want to know if it is possible to evaluate, at this stage of the research, the impact of the amounts allocated for this objective, both in the European Union and in Romania.

During the research, statistical data published by the European Commission on the implementation of Cohesion Policy, as well as those of the International Energy Agency, were used.

### 2. Literature review

Evolution of the energy sector in the EU in conditions of instability and risk requires the implementation of an innovative energy doctrine, built on the correct use of new principles on the internal market, competitiveness and safety in power supply (Gribincea *et al*, 2020, p.86). Some authors (Schröder, 2020, p.13) support the promotion of a fair transition to a circular economy in which one realizes that natural resources are finite and therefore seeks to keep materials in circulation for as long as possible. The economic development model of the fair transition is based

on bottom-up public policies, with the aim of creating the conditions for a fair income and a decent quality of life for the workforce and communities suffering from declining industrial activity, but also for pollution abatement measures (Bankwatch Romania, 2022). At the same time, (Muscă *et al*, 2022, p.19) argue that efforts for a fair transition must work together with those for gender equality, because changes, for example, in the Romanian coal-fired areas affect women the most, which has to deal with the pressure of wage labor and, at the same time, that of domestic debt and childcare and care for children and the elderly.

The COVID-19 pandemic has called for a massive response from European countries to a wide range of economic areas. International institutions and governments are now under pressure to turn these short-term initiatives into policy changes in the longer term, so as to ensure a fair transition in tackling climate change and inequities (Mărgineanu *et al*, 2021, p.326). Thus, the paradigm of a "fair transition" calls for the need to interconnect efforts to achieve climate neutrality with a focus on equity issues for people affected by energy poverty and lack of livelihoods, categories that depend on a fuel-based economy. fossils. At the same time, this transition must pursue "climate justice" to ensure the quality of life of current and future generations (Newell *et al*, 2013, p.137). Therefore, global equity requires a profound fair transition (Stavis *et al*, 2020, p.4), which should be an innovative framework for analysis that aggregates knowledge on climate, energy and environmental justice (McCauley *et al*, 2018, p.3).

Some experiences have shown that policies in some parts of the world to accelerate the shutdown of coal-fired power plants have not sufficiently communicated the processes involved in a "fair" transition in affected communities, which has led to misdirection, marginalization of local interests. and gave way to inefficient redirection of funding that was intended for communities in transition areas (Weller, 2019, p.16). (Ciplet *et al*, 2019, p.13) were of the opinion that the "just transition" paradigm neglected the conflicts that arise between sustainability goals and those related to equity for communities.

### **3. Research methodology**

In obtaining results, the historical method was used to make it possible to understand the process of shaping the current policies of a fair transition in terms of the imperatives of sustainability of both the environment and the social perspective. The logical method has helped to better understand the cause-effect relationship and the objective connections between economic processes of an energetic nature. With the help of the graphical method, the statistical data and their evolution in details of interest for the present study were highlighted. The analysis and synthesis of the information provided a systematic and integrated approach to the complex of factors considered in the study.

### **4. Findings**

We obtained answers based on statistical data related to the allocation of amounts for the targeted areas in Europe and the steps to implement the funding, through official documents addressing the fair transition in Romania. The research also revealed that, at this moment, the impact of the amounts allocated for a fair transition cannot be assessed, neither in the European Union nor in Romania, because the official implementation programs are still being finalized and approved on national and community flows.

We also obtained a very interesting conclusion regarding the stage of the process of reducing the share of coal in the national mix, the statistics showing an important advance compared to the targets set for Romania in the perspective of 2030 and 2050, respectively.

For a proper understanding of the process dedicated to just transition, we took an overview of the place of coal in energy security, with a special attention for Romania.

#### **4.1. The Fair Transition Fund, in support of EU Cohesion Policy**

The Fair Transition Mechanism is designed as a tool to ensure a fair transition to a climate-neutral economy, in line with the "no one is left behind" principle (European Commission, MTJ, 2022). The territories in question are mainly coal-fired regions, which will be most affected by the

actions needed to implement the European Green Pact, but also other heavily industrialized areas that need to be transformed into highly polluting industrial processes.

The Fair Transition Mechanism (JTF) is designed in addition to the EU financial allocations directly relevant to the energy transition, in particular the European Regional Development Fund (ERDF) and the European Social Fund Plus ("ESF +").

Cohesion policy (CP) supports the aggregation of socio-economic and territorial cohesion in the European Union, with a view to adjusting disparities between Member States and regions. It sets out the Union's political priorities, in particular the green and digital transition. PC is the main European investment policy, mobilizing, in both the 2014-2020 and 2021-2027 programming periods, a financing volume of about one third of the total EU budget. For the 2021-2027 programming period, the total resources of cohesion policy amount to EUR 392 billion (including indexation for annual amounts over that period).

PC allocations fall into the following objectives:

1) The "Investment for jobs and growth (IJG)" objective is funded by: European Regional Development Fund (ERDF); European Social Fund + (ESF +); Cohesion Fund (CF); Fair Transition Fund (JTF).

2) "Interreg" Objective: European Territorial Cooperation (ETC);

3) Supporting PCs through EU Managed Instruments (EU Instruments) and Technical Assistance (TA)

#### 4.2. A comparative analysis between the allocations at the level of the European Union and that of Romania

Following the open data of the European Commission (European Commission, Cohesion Data, 2022) and the way they are organized in statistical series, we extracted the amounts allocated for the IJG objective: Investment for jobs and growth (including ERDF, ESF + and FC), ETC objective (Interreg), TA (Technical Assistance) and EU Instruments. Data for JTF (Just Transition Fund) are also mentioned separately.

Regarding the Fair Transition Fund, it is observed that the allocation at the level of the European Union is 19,236.9 thousand euros, of which Romania has 2,139.5 thousand euros, ie 11.12% of the total amounts. Compared to the percentages of the IJG (ERDF, ESF + and FC) and Interreg, the allocation rate for the Fair Transition Fund is the highest. There are no allocations for our country for EU Technical Assistance and Tools.

Table 1. EU / Romania comparative financial allocations under Cohesion Policy

	IJG	JTF	ETC	TA	EU Instruments
UE (thousand Euros)	361.056,80	19.236,90	9.041,60	1.332,10	1.211,60
Romania (thousand Euro)	29.937,40	2.139,50	372,60	0,00	0,00
% Ro/UE	8,29	11,12	4,12	0,00	0,00

Source: Comparative analysis based on European Commission statistics available at <https://cohesiondata.ec.europa.eu/stories/s/2021-2027-EU-allocations-available-for-programming/2w8s-ci3y#2021-2027-cohesion-policy-eu-budget-allocations> (accessed 14.06.2022)

The Fair Transition Fund is designed as a key tool to support territories severely affected by the transition to climate neutrality and to avoid widening regional imbalances. The fund will be used in shared management, in an equation that includes national, regional and local authorities, as well as stakeholders. Romania has a total allocation on FTJ of approx. 1.947 billion euros, to which is added the national co-financing of 0.292 billion euros (15%, with the possibility of reaching, in some cases, up to 50%), the total amount being approx. 2.240 billion euros (Romanian Government, Ministry of Finance, 2021).

From the open data of the European Commission (European Commission, Cohesion Data, 2022) and their organization by statistical series, we made a comparative analysis of the amounts allocated at Member State level, including the calculation of the allocation ratio between the amount to the Member State. respectively and total FTJ.

Table 2. Comparative financial allocations from the Fair Transition Fund for EU Member States, 2021-2027

Nr.	Member State	Allocation JTF (thousand Euros)	% allocation JTF/EU
	EU	19.236,90	100
1	Romania	2.139,50	11,12
2	Portugal	223,80	1,16
3	Spain	868,70	4,52
4	France	1.030,10	5,35
5	Czech Rep.	1.641,50	8,53
6	Poland	3.847,40	20,00
7	Hungary	261,10	1,36
8	Lithuania	273,20	1,42
9	Greece	830,20	4,32
10	Bulgary	1.295,10	6,73
11	Slovakia	458,90	2,39
12	Malta	23,30	0,12
13	Cyprus	101,10	0,53
14	Latvia	191,60	1,00
15	Belgium	182,60	0,95
16	Sweden	155,70	0,81
17	Estonia	353,90	1,84
18	Italy	1.029,70	5,35
19	Finland	465,70	2,42
20	Croatia	185,90	0,97
21	Netherlands	622,90	3,24
22	Ireland	84,60	0,44
23	Germany	2.477,60	12,88
24	Denmark	89,00	0,46
25	Austria	135,80	0,71
26	Luxemburg	9,30	0,05
27	Slovenia	258,70	1,34

Source: Comparative analysis based on European Commission statistics available at <https://cohesiondata.ec.europa.eu/stories/s/2021-2027-EU-allocations-available-for-programming/2w8s-ci3y#2021-2027-cohesion-policy-eu-budget-allocations> (accessed 10.06.2022)

Romania, from the point of view of the total amounts allocated for the implementation of the FTJ, occupies the third position among the member states. So, on the first place is Poland, with an allocation of 20% of the FTJ, followed by Germany, which has 12.88% of the FTJ, on the third place being Romania, with a percentage of 11.12% of the FTJ. Along with Luxembourg, Cyprus and Malta, countries with very small territories, the lowest EU allocations for FTJ are in countries such as Ireland, Sweden, Belgium, Croatia.

Continuing the analysis based on open data from the European Commission (European Commission, Cohesion Data, 2022), we have made an annual profile of allocations for the Fair Transition Fund, taking into account EU-wide amounts and amounts for Romania, shown in the table below.

Table 3. Annual allocation profile for the Fair Transition Fund - EU / Romania comparative analysis, 2021-2027

Year	EU	Romania	% UE
2021	3.244.705.617,00	360.910.931,00	11,12
2022	5.463.509.838,00	607.710.115,00	11,12
2023	5.572.780.031,00	619.864.317,00	11,12
2024	1.202.379.481,00	133.741.532,00	11,12
2025	1.226.427.073,00	136.416.363,00	11,12
2026	1.250.955.612,00	139.144.690,00	11,12
2027	1.275.974.726,00	141.927.584,00	11,12
<b>total</b>	<b>19.236.732.378,00</b>	<b>2.139.715.532,00</b>	<b>11,12</b>

Source: Comparative analysis based on European Commission statistics available at <https://cohesiondata.ec.europa.eu/stories/s/2021-2027-EU-allocations-available-for-programming/2w8s-ci3y#2021-2027-cohesion-policy-eu-budget-allocations> (accessed 12.06.2022)

Thus, we found that the allocation percentage of the total FTJ at EU level for Romania is constant every year, this being 11.12%. It is noted that the allocation strategy was for the maximum funding to be planned for the first three years of implementation, respectively 2021-2023, after which, in the next four years, the amounts decrease substantially.

At the time of completion of this paper, there are **no financial data on the implementation** of the Fair Transition Fund, as this process will start after the adoption by EU Member States of FTJ national programs, probably in 2022 (European Commission, Just Transition Mechanism - Performance, 2022).

#### 4.3. About the place of coal in energy security

By 2020, unabated coal will supply 35.2% of global energy production (International Energy Agency, 2021) and, depending on the evolution of the availability of new technologies in the future, will have a key place in the industry. In coal-fired energy production, reducing pollution ("abated coal") means using carbon dioxide capture and storage (CCS) technology or carbon capture, use and storage (CCUS) technology. In antithesis, "unabated coal" has the meaning of a coal-fired power plant without technological equipment CC (U) S (E3G, 2022).

The climate neutrality scenario by 2050 assumes that the production of unabated coal will decrease annually by approx. 11% and cease completely in 2040.

Following the signing of the Paris Agreement, 21 countries that currently use polluting coal for electricity generation have agreed to phase out its use, but these commitments accounted for only 3.2% of global coal-fired energy production in 2020. and 1% of global greenhouse gas emissions from the energy sector. Basically, it is estimated that coal will continue to be an essential component in the energy mix of many countries around the world.

However, International Energy Agency statistics show that global coal-fired energy production has rebounded sharply in 2021 amid rising economic activity in China and gas prices in Europe and the United States. Compared to the first part of 2020, coal production in the first half of 2021 increased by approx. 15% (IEA, 2022). In addition, the map of global coal consumption indicates that economies on the Asian continent have a hard time saying where targets for the phasing out of coal have not yet been set. In the European Union, coal is mined in 41 areas in 12 Member States, making it the richest fossil fuel in the European Union and generating the largest volume of economic activity (Valea Jiului Social Institute Association, TRACER, 2022). The transition to a low-greenhouse gas economy brings substantial technological, social and economic challenges, especially for coal-fired regions, which need to be prepared to reduce, to phase out, coal use, following Sustainable Development.

From the open data of the International Energy Agency (IEA, 2022) and their organization by statistical series, we conducted a comparative analysis of the distribution of coal utilization capacity in the energy sector (GW) by age of plants still in operation in countries selected, 2021.

Table 4. Distribution of coal use capacity in the energy sector (GW) by age of plants still in operation in selected countries, 2021

EU Member State	GW				total
	<10 years	11-30 years	31-50 years	>50 years	
Germany	10	9,8	17,8	3,2	40,8
Netherlands	3,5	0,6	0	0	4,1
Finland	0	0,6	1,5	0	2,1
France	0	0	3,1	0,1	3,2
Greece	0	1	1,5	0,3	2,8
Hungary	0	0	0,4	0,7	1,1
Ireland	0	0	0,9	0	0,9
Italy	0	5	2,4	1,6	9
Portugal	0	0,6	0	0	0,6
Romania	0	0,2	3,4	0,9	4,5
Slovakia	0	0	0,4	0,6	1
Spain	0	0,5	1	0	1,5

Source: comparative analysis based on International Energy Agency statistics <https://www.iea.org/commentaries/key-lessons-for-phasing-out-co2-emitting-coal-plants-from-electricity-sectors> (accessed 14.06.2022)

From the available statistical data, it appears that the leader in the European area in terms of coal use capacity for energy generation is Germany, followed by Italy and Romania. On the other hand, the least coal-dependent EU countries are Portugal, Ireland, Slovakia and Hungary. On the other hand, Germany and the Netherlands are the only countries with coal-fired power plants older than 10 years, with the most significant age segment for the reported countries being 31-50 years, which is a third of the total, followed by the 11-30 years old.

Regarding Romania, studies show that 25.6% of the total GHG emissions in Romania in 2020 are related to the combustion of coal for electricity generation at the Hunedoara (CE Hunedoara) and Oltenia (CE Oltenia) Energy Complexes, which operate in Dolj, Gorj and Hunedoara counties. The positive side is that the volume of emissions related to coal combustion in CE Oltenia and CE Hunedoara was 66% lower compared to 2007 (PTTJ Hunedoara, 2020).

The declining trend in coal, gas, oil and nuclear production has resulted in the EU's increasing dependence on primary energy imports (Eurostat, 2016) to meet domestic demand from Member States. Moreover, the conflict in Ukraine, which began in February 2022, is leading the European Union to make certain short-term compromises on the European Ecological Pact. In March 2022, after the issue of dependence on gas imports from Russia was discussed, European officials agreed that, for the time being, it will be allowed to return to coal for electricity generation (Timmermans, in Politico, 2022). This solution was also taken over by Romania, by revaluing the coal production capacity through the Hunedoara Energy Complex (Agerpres, 2022).

In Romania, during 2022, almost 17% of the internal energy mix for electricity generation is occupied by coal, in a percentage of approx. half that of hydropower and almost equal to that of wind energy. The data we compared, at a distance of 4 months (before and during the evolution of the economic context determined by the conflict in Ukraine), show a slight increase (by 0.2%) in the share of coal, together with hydropower (which records the largest difference, 0.6%), wind energy, nuclear energy, mainly to the detriment of the share of hydrocarbons (-1.2%) (ANRE, 2022, February and June)

Analyzing the estimates on the share of energy sources in Romania's energy mix for the period 2020-2050 (Ministry of Energy, Environmental Report, 2019), we note that at the level of June 2022, there is an advance of 3.8 on the percentage of coal % of the proposed target for 2030 and 0.4% of the proposed target for 2050.



Another interesting indicator to note is the "degree of energy independence", ie the percentage between production and the amount of primary energy available in the analyzed period, the calculation being made by subtracting energy resources from exports and stocks at the end of the reference period (INS, 2021). The data sources used by the National Institute of Statistics of Romania to calculate the indicator were: "statistical research on electricity and heat production", "statistical research on energy balance and structure of energy equipment", "energy resources and their use". For Romania, among the values of the indicator "IND121A - Degree of energy independence" we extracted the percentages related to coal, resulting in a peak in 2009 (86,5%) compared to which, in the last year for which there are statistical data (2020), there was a decrease 12.6% (73,9%).

A sustainable transition in line with energy security needs for low-GHG energy production will be achieved, according to national strategy papers, through the phasing out of coal dependence. This complex process is to be through a normative act approving the calendar 2022 - 2032 for the closure of the total installed capacity based on coal and lignite (PTTJ GD, 2022). For the functioning of the national energy system in a framework of security and continuity, the Turceni and Rovinari groups will be kept in use, between 2026–2030, as a technical reserve. At the same time, the mines in Hunedoara and Gorj counties, which supply these energy complexes, will be closed until 2032, so that, in 2030, the amount of coal estimated to be extracted will decrease by 75% compared to 1993 , it is estimated that, starting in 2031, coal mining will cease altogether.

## 5. Conclusions

Benefiting from the access to open data published by the European Commission on the implementation of Cohesion Policy and the International Energy Agency, in the research project we proposed here we managed to follow the financial allocations in the field of energy transition, focusing on fair transition related to the carboniferous and mono-industrial areas, whose populations go through significant challenges of the quality of life, generated by the change of the activity profile.

A question arising during the research for this project is related to a comparative analysis of the costs and implications of the whole process of fair transition in coal areas from the perspective of coal mine closure and what would be an alternative to refurbish them by use of carbon capture and storage (CCS) technology or carbon capture, use and storage (CCUS) technology. We propose to answer this question in a future research.

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## **Destination Management Organizations in Romania: Important Steps Taken Recently for Their Operationalization**

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### **Abstract**

*Although it has a special tourism potential, whether natural or anthropogenic, Romania has not made enough progress in terms of increasing tourist traffic, compared to other neighboring countries. After the regime change in 1989 and the privatization of tourism units, the state-owned hotel and restaurant enterprises in the tourist resorts were abolished, but private tourism operators did not have the necessary legal framework for their involvement in the decision-making process concerning destinations.*

*The Romanian legislation on Destination Management Organizations (DMOs), adopted in 2017, was not favorable to the creation of such organizations on the model of the Public-Private Partnership (PPP). As a result of the recommendations in the report prepared by the OECD on the operationalization of these organizations in Romania, the legislation on tourism has been amended, although the current form of the regulation is also not the one expected by most tourism operators.*

**Key words:** Destination Management Organizations, Romanian tourism, OECD support, new regulation, Public-Private Partnership

**J.E.L. classification:** K23, L31, L83, L88, M38, Z32, Z33, Z38

### **1. Introduction**

Until the end of the year 1989, most of the tourist reception structures in Romania were owned by the Romanian state, and the tourist resorts were managed by the so-called Hotel and Restaurant Enterprises or by County Tourism Offices. Following the change of the political regime and after undergoing the privatization process in tourism, the respective state enterprises were abolished, most of the owners of tourism assets being private; however, the tourist resorts have undergone substantial degradation, while the tourist destinations are impacted by the lack of associative structures within which investors can participate in decision-making regarding the development and promotion of those destinations.

After a decline in tourist traffic, recorded after 1989, especially in terms of the inbound tourism, and a delay in the process of privatization of tourism assets, which lasted more than a decade (and was not conducted in the most appropriate way, either), important private investments appeared in the tourist reception structures having accommodation, food, leisure and balneary treatment functions in Romania. Gradually, most of these public assets within the destinations area have become private, the former Hotel and Restaurant Enterprises or state’s Tourist Offices, which ran the tourist resorts, were abolished, and the resorts remained in the care of local public administrations where the resorts and tourist localities are situated. In many cases, even though private entrepreneurs, owners of the tourist assets in those resorts, have been dissatisfied with the way in which local public administrations are doing their duty to preserve and improve the general infrastructure of those resorts (access roads, sidewalks, public lighting, degraded street furniture, etc.), they have not had the legal possibility to intervene in the decisions regarding these issues, within the Local Councils on the territory of which the tourist destinations are located.

The introduction, in the Romanian legislation, of provisions regarding the possibility of setting up DMOs, through the new regulation, should lead to a better administration of the tourist resorts, to taking the best decisions regarding their development and promotion, through public-private partnerships between the local public authorities and the private entrepreneurs within the resorts. In this way, it will be possible to attract more tourists to the Romanian destinations, especially foreign tourists, whose share is, for now, still modest.

The aim of this paper is to carry out a critical analysis of the new legislative changes on the operationalization of DMOs in Romania, as well as making observations, suggestions and proposals that will be useful to the tourism stakeholders who will participate in the creation of these organizations.

## **2. Literature review**

There are many conceptual approaches to the definition of Destination Management Organizations. Thus, for example, the UNWTO Committee on Tourism and Competitiveness (CTC) defined them as follows: "the leading organizational entity which may encompass the various authorities, stakeholders, and professionals and which facilitates tourism sector partnership towards a collective destination vision (OECD, 2020, p. 10).

According to the World Tourism Organization, DMO is "the coordinated management of all the elements that make up a destination (attractions, amenities, access, marketing and pricing)" (UNWTO, 2011, p. 4). Moreover, the role of DMOs should be "to lead and coordinate activities under a coherent strategy" (UNWTO, 2011, p. 2).

The governance structures of these organizations are varied, starting from the case of a single public authority to the Public-Private Partnerships (PPP) model, having a key role in initiating, coordinating and managing various activities, such as implementing policies in tourism and strategic plans or the development of tourist products, and in most situations the activities of marketing and tourism promotion of destinations.

Dore and Crouch point out that, historically, DMOs were originally designed as marketing organizations, and marketing remains the principal purview of DMOs (Dore & Crouch, 2003, p. 137).

The contemporary vision, found, in practice, in OECD member states, suggests that, as a matter of priority, these organizations should deal with the development of tourism, in the broadest sense. More specifically, they should act for the development of the product and improvement of the staff, of the experiences promoted to the potential tourists, and for the physical development, i.e., the way a destination is presented to the visitors. In the study dedicated to the operationalization of DMOs in Romania, the OECD experts' approach was in the sense of this broader vision, based on destination management, along with its marketing (OECD, 2020, p. 11).

The tourism industry is characterized by the activities performed by a large number of small-sized companies, along with the bigger ones. These small companies tend to focus too much on their own business, having neither the necessary time, nor the resources or expertise to understand the way the whole industry works. Thus, they can get lost in their concern for product development, in improving the professional skills of their employees, etc. However, a DMO can act as a broker for the local tourism, bringing together various organizations, from public administrations to private tourism companies, NGOs, universities, and tourism schools, etc., that work together for the benefit of the entire destination.

## **3. Research methodology**

This paper is based on a quantitative, longitudinal desk research, using data sources in classic and online format (Jupp 2010; Jugănar. 1998).

The secondary information collected was used to perform, on the one hand, a comparative analysis of the provisions of the previous legislation and the new amendments to the Romanian regulations on the organization and functioning of Destination Management Organizations, and on the other hand, an assessment of how the new regulations took into account the suggestions and recommendations made by the OECD experts in the study "Operationalization of Destination

Management Organizations in Romania". We consider that the observations that we have indicated in this study and the formulated conclusions can be useful to those involved in the creation of Destination Management Organizations in Romania.

#### **4. Findings**

##### **4.1. The main findings and recommendations contained in the study conducted by the OECD on the operationalization of Destination Management Organizations in Romania**

The Organization for Economic Co-operation and Development (OECD) published in 2020 a study entitled "Operationalization of Destination Management Organizations in Romania", which it carried out in response to a request from the leadership of the former Ministry of Tourism (OECD, 2020). This report was made in support of the public and private stakeholders in Romania, in order to help them work in partnership, to plan, develop, manage and sell, with maximum effectiveness, the offers of tourist destinations where they work. The aim of the study was to strengthen the tourism structures, at each level, within Romania (respectively, local, regional, and national), so as to bring maximum benefits to tourist destinations. The term "regional" used in this study does not have administrative, political, or legal meanings, rather a functional meaning, in the sense of a structure which includes organizations situated on the territory of more than one county.

The respective report was intended to be used by those who will establish new Destination Management Organizations (DMOs) at the local and regional / county level, as well as by those who will be responsible for the functioning of these organizations after they are established. (OECD, 2020, p. 4).

Within this report there is a diagnostic component, with a SWOT analysis made from a national and regional perspective, by capitalizing on the conclusions reached within two regional workshops, organized in Constanta (on the Romanian Black Sea coast) and in Brasov (in the mountainous area of the Carpathians). This study also included some examples of good practice from other parts of the world, as well as recommendations on how to find answers to the complex challenges in developing a network of sustainable DMOs in Romania. Moreover, the study contains a DMO operating Manual, which includes the steps needed to establish and maintain the operation of the DMO network in Romania, and in an annex a DMO roadmap is presented, which shows the actions, roles, and chronological stages of suggested activities for the creation and development of this network of organizations.

The Government of Romania was invited to take into account, in its future activity, the policy recommendations contained in this report.

##### **4.2. The measures regarding tourism stipulated in Romania's National Recovery and Resilience Plan**

The aim of the European Union's Recovery and Resilience Mechanism (RRM) is to provide support for key investments and reforms, for a sustainable recovery and the improvement of the economic and social resilience of EU Member States. At the end of the investment period, it is expected that European economies and societies will be better prepared for the challenges of and opportunities for green and digital transitions.

In order to use the RRM financing instrument, each EU Member State has had to draw up its own **Recovery and Resilience Plan (RRP)**, thus setting out its priority investment areas in order to end the crisis, revitalize its economy and increase its resilience capacity. Romania is also at this stage.

The Recovery and Resilience Plan drawn up by Romania is a Strategic Document, which sets out the investment priorities and needed reforms for recovery and sustainable growth, correlated with those of the green and digital transition, envisaged by the European Commission.

The "Tourism and culture" component of the Romanian PNRR is aimed at increasing the social, economic, and territorial cohesion and creating new jobs, while also attracting investments that create added value, thus stimulating social and cultural development. Within Pillar IV. Social and territorial cohesion in PNRR, Component C11 refers to Tourism and Culture, its objective being to increase social, economic, and territorial cohesion and to create new jobs, especially in rural areas. Those who drafted this component of the PNRR considered that promoting a sustainable socio-

economic transformation in rural and disadvantaged areas can be achieved (also) by creating and developing a network of Regional Destination Management Organizations and supporting local investments in tourism (Ministry of European Investments and Projects - MIPE, 2021, p. 1).

Unfortunately, the approach of the authors who drafted this component of PNRR in Romania seems to have started from a wrong premise and they did not understand very well that the DMOs to be created should not be *set up by the Government*, but rather with its support. Thus, in the “Milestones, targets, indicators and monitoring and implementation calendar applicable to the loan” table, belonging to Component C11 of the PNRR it is stated that “**The Government will set up 8 destination management organizations** (in accordance with milestone 328), including all the relevant entities operating in the tourism and culture sectors in a certain area” (MIPE, 2021, p. 3 of the table). This statement was also taken over in the Explanatory Memorandum to Government Emergency Ordinance no. 86/2022 for the amendment and completion of Government Ordinance no. 58/1998 on the organization and development of the tourism activity in Romania.

In our opinion, if such an approach were to be put in practice, with the Government forcing the set up of new organizations, it would be expected for the endeavor to be a real *failure*, as this is not the way to constitute a true *Public-Private Partnership*, able to produce the expected results in the medium and long term!

The vision considered by the PNRR regarding the evolution of tourism is the one formulated in the National Strategy for Tourism Development of Romania 2019 - 2030, respectively that, by 2030, Romania will become a well-known tourist destination, providing high quality, throughout the year, focused on the uniqueness of its cultural heritage and providing services of international caliber. At the same time, it is stipulated that the cultural and creative sectors will contribute to the territorial revitalization of the country in a sustainable way, exploring values such as creativity and transforming them into economic and social benefits (PNRR, 2021, p. 17).

#### **4.3. Recent amendments to the Romanian legislation on tourism activity**

While, declaratively, tourism has been considered a *priority area* or an *area of strategic importance* in Romania, in reality, the measures taken by the (too numerous) governments which ruled the country were not the ones needed for the development of the tourism activity, especially for the tourism promotion of the Romania destination and, in particular, for the increase in the flows of foreign tourists in Romania.

Almost every minister in charge of the ministry of tourism or president of the central public authority responsible for tourism, in recent decades, proposed or tried to impose their own views on the drawing up of a new law on tourism in Romania, given that the legislation in force was adopted in 1998, but their endeavors have never been completed. It would have been very difficult for them to have succeeded, given that, for instance, in the last 7 years, Romania has had 8 governments!

The obligations assumed by Romania as an EU Member State, within Romania’s National Recovery and Resilience Plan (PNRR), within component C11. Tourism and culture, according to which the Ministry of Entrepreneurship and Tourism must take some measures and meet certain milestones and targets, have determined the urgency of the modification of the legislation in force regarding tourism. Thus, on June 23, 2022, the Government of Romania adopted Emergency Ordinance no. 86/2022 for the amendment and completion of Government Ordinance no. 58/1998 on the organization and development of the tourism activity in Romania. It is necessary to specify that, in Romania, the legislation in force allows the Government, under certain conditions, to adopt such Emergency Ordinances (GEOs), which have the force of law and immediate applicability. Subsequently, these GEOs are analyzed, debated, and adopted, with ensuing amendments or rejections, by the Parliament of the country.

The new regulation defined a series of terms regarding tourism activities, such as: tourist reception structure, tourist accommodation, tourist resort, tourism development hub, tourism area of an administrative-territorial unit, hotel complex, balneary complex, etc. The *definition* given to the destination management organization (DMO) is very important, i.e., the “legal person that drafts and implements the tourism development and marketing strategy of the destination, in accordance with the legal provisions in force” (Government of Romania, 2022, art. I. 2. r.), with the specification that these organizations can be set up on 4 levels: local, county, regional and national. In the previous regulation, in accordance with the provisions of law no. 275 of 2018, the

definition of DMO did not differ much, being the following: "a legal entity that carries out the tourism development policy of the destination, including the marketing policy of the destination, in accordance with the legal provisions in force", stating that this is a public utility type of association (Government of Romania, 2018, art. I. 1.).

An important clarification, within the new regulation, is that DMOs can be legally set up as associations only if they obtain the approval of the central public authority responsible for tourism (respectively the Ministry of Entrepreneurship and Tourism), prior to submitting the registration request to the Register of Associations and Foundations.

The *objectives* of the DMOs that will be created, regardless of the level at which they will operate, are, among others, increasing the notoriety of the tourist brand of the destination, increasing the number of tourists coming to the destination during the year and increasing the average tourist stay. To achieve these objectives, the new regulation establishes a number of *activities* that should be carried out by the created DMOs, regardless of the level at which they operate. Among these are the following:

- elaboration of the development and marketing strategy of the destination;
- coordination and implementation of the adopted strategy;
- coordinating the process of realization and implementation of the brand of the respective destination;
- performing market research and studies in the field of tourism regarding the destination;
- contributing to the training of human resources in the field of tourism within the destination;
- attracting funding from national and European sources.

The monitoring of the fulfillment of the objectives set out by each organization will be done by establishing some performance indicators, which will be analyzed periodically.

#### **4.4. The 4 categories of Destination Management Organizations in Romania, depending on the level at which they operate**

At the *local level*, the destination management organization can be established by associating one or more administrative-territorial units (town/city halls of some localities) within the tourist destination with the payers of special taxes for tourism promotion, as well as with other entities that pay the membership fee for being members of the DMOs, in accordance with the provisions of the statute of each organization. Such members can be: organizations belonging to the representative confederations or employers' federations, having activities in tourism, but also other employers' organizations, which are not members of the confederations or employers' federations, as well as other employers and other associative structures within each destination.

For the establishment of a DMO, the following *minimum criteria* have been established by law:

a) The respective destination must already be certified as a tourist resort of local or national level or have a minimum 100 accommodation places within the classified tourist reception structures, within the destination, for a local level DMO, a minimum number of 1,000 classified accommodation places, for a county-level DMO and of at least 10,000 accommodation places in the tourist reception structures for a regional-level DMO;

b) It must prove the possession of a minimum budget of 30,000 Euros at the date of submission of the request for approval from the ministry, in the case of a local DMO, at least 100,000 Euros for the county level one and of at least 250,000 Euros in the case of a regional DMO;

c) The existence of a draft tourism development and marketing strategy and of an action plan, approved by the Board of the organization, but also the possibility that, in the absence of these documents, they could be drawn up and adopted within one year from obtaining the approval from the ministry responsible in the field of tourism;

d) The organizational structure of the local DMO must include at least one position of tourism destination manager.

We can notice that the minimum threshold of 100 classified accommodation places is quite low, in order to give the possibility of creating as many local DMOs as possible, but the budget of only 30,000 euros is too modest to be able to achieve a good promotion of the respective tourist destination, with a limited number of staff to be employed within the organization.



Regarding the destination management organizations at *county level*, they can be set up based on the association between a County Council within the destination with payers of the association’s membership fee. They may be, in accordance with the provisions of their own statute, local destination management organizations within that county, units of public administration in that county, which are not part of the local DMOs established in that county, as well as other entities which operate in that destination, but which are not part of a local DMO in that county. The amount of special taxes for tourism promotion is approved by each local Council of each locality within which the destination is located.

At the *regional level*, destination management organizations aim to draft and implement the regional development and marketing policy. Their establishment can be done by associating one or more county tourist destination management organizations with county administrative-territorial units that are not part of other county destination management organizations and / or with other entities that are not part of another local or county DMO in the region and which pay a fee, according to the provisions in the statute of the respective organization.

Following the discussions carried out throughout the territory by the representatives of the Ministry of Entrepreneurship and Tourism with stakeholders from the Romanian destinations, the following regions were set up, within which 8 regional DMOs will be established:

- 1) Banat-Crişana (on the territory of 5 counties);
- 2) Bucovina (on the territory of a single county: Suceava);
- 3) Dobrudja (two counties);
- 4) Maramureş (two counties);
- 5) Muntenia (11 counties);
- 6) Moldova (7 counties);
- 7) Oltenia (5 counties);
- 8) Transylvania (9 counties).

As can be seen, the aim has been to set up these regional DMOs on the structure of the old historical regions (Provinces) of Romania. However, we cannot fail to notice the enormous discrepancy between their dimensions regarding the number of counties on whose territory these organizations will operate, starting from the situation of a single county or two, and up to seven, nine or even eleven counties, within a single organization! A special situation is that of the Bucovina region, which would operate on the territory of a single county (Suceava), so that the activity of the county DMO will overlap, territorially, with that of the regional DMO.

We can anticipate great difficulties that may arise in the creation and proper functioning of some DMOs which will have such a large number of founding associates, located in many counties, located at considerable distances from each other. This is especially the case of the Muntenia and Transylvania regions. We believe that better solutions could have been found, such as the municipality of Bucharest, the capital of Romania, together with Ilfov County, could have their own regional DMO, the counties in Transylvania could be grouped within two regional DMOs, as well as those in the Moldova region, and the Bucovina DMO could include Neamt County, where there are, among others, numerous monasteries, which are attractions visited by tourists, as is the case of Suceava County. On the other hand, the establishment of the Dobrudja and Maramures DMOs, each having in its composition only two counties, could be much easier to achieve.

The new regulation also stipulates the possibility of an association between several DMOs at local, regional and county level, for the creation, development and promotion of a network of thematic destinations.

At the *national level*, the National Tourism Destination Management Organization is to be established, by associating the central public administration authority responsible in the field of tourism with regional DMOs, other public entities, as well as other private organizations which are relevant to tourism, with national representativeness and which are not part of a local, county, or regional type of DMO.

#### **4.5. The decision-making process within the new DMOs**

A delicate subject, which has been, in recent years, a reason for disputes and misunderstandings between the potential public and private partners in Romania (which could have already set up



DMOs at the local level, but did not agree on this), was and continues to be the *decision-making mechanism* within the governing bodies of these organizations.

Thus, each of the parties (representatives of the local public administration, respectively those of private entrepreneurs within the destination) wanted to have the majority vote right, i.e., to have the opportunity to have the "last word" in decision-making within the organization. Few of them correctly understood the principles of good functioning of a Public-Private Partnership (PPP).

According to the new regulation, the governing bodies of the DMOs, regardless of level, are the General Assembly of the members and the Board of Directors.

The *General Assembly*, made up of all the members, has, mainly, the following *responsibilities*: the drafting and approval of the development and marketing strategy of the destination; validation of the acceptance of new members of the association; election and revocation of the members of the Board of Directors and of the censor; approval of the income and expenditure budget, of the other annual financial statements, discharge procedure for the members of the Board of Directors; changes in the statute of the organization; establishing the amount of the association membership fee.

The *Board of Directors* consists of minimum 5 members, unpaid, each of them having equal voting rights, proposed and voted in the General Assembly of the members of the organization. The main *responsibilities* of the Board of Directors are the following: it coordinates and implements the tourism development and marketing strategy of the destination; it presents, in the General Assembly, the Annual Activity Report, the execution of the revenue and expenditure budget, the annual activity plan, as well as the forecasted budget; it concludes legal acts in the name and on behalf of the association; it approves the personnel policy and the organizational chart of the association; it establishes the procedure through which the tourist destination manager will be hired and it organizes the recruitment process for this position; submits for approval to the General Assembly the membership fee amount.

Within a *local* DMO, decisions will be taken by vote, within the General Assembly of members; however, except for the local public administration authority, the other members of the organization will have a voting right proportional to the amount of special taxes for tourism promotion paid by them during the previous year. The associations or employers' organizations that have among their members payers of the promotion fees will have the right to a vote proportional to the total amount of the fees paid by all the paying members of the respective destination tax. The vote of the other DMO members, who are not payers of the promotion fee, will be calculated in proportion to the amount of the membership fee paid, their vote representing the difference up to 100%, depending on the representativeness established by the local public authorities.

At the level of *county* DMOs, as in the case of *regional* DMOs, the decisions of the members within the General Assembly will be taken on the principle that each member of the organization has the right to one vote, and at the level of the *national* Destination Management Organization, within the General Assembly, the decisions will be taken by vote in proportion to the amount of the membership fee paid.

An important clarification, in the new regulation, regarding DMOs at regional and national level is that, if a member or the association of two or more members ensure more than half of the annual budget of the organization, then that member or the respective association will have the power of veto over the decisions that will be put to the vote. In other words, whoever pays more to the organization's budget will be able to have the last word in any decision within it. It is debatable whether this is the most correct solution that could be found through the new regulation.

#### **4.6. DMOs' funding sources in Romania**

The main *sources of income* of DMOs are, according to the new regulation, the following:

- the amounts transferred to the local DMOs by the local public authorities from the tourism promotion taxes collected;
- association membership fees;
- other amounts with which their members contribute to the promotion and development of tourism;
- funding attracted from external sources.

The DMOs at the local level established, through the new regulation, the obligation of the local public administration authorities to transfer to the local DMOs 20% of the amounts "collected from the tourists" via the special taxes for tourism promotion. This specification, that the taxes are "collected from the tourists", included in the new regulation, could create a great confusion and difficulties in the application of the provisions, because the respective taxes are collected, in some localities, where they were thus approved by the respective local Councils, not from the tourists, but from the companies carrying out accommodation, public catering, leisure activities, companies with a commercial activity, pharmacies and other economic operators that carry out their activity within the destination. This is the case, for example, of the special tourism promotion tax collected in the Mamaia resort, located on the Black Sea, belonging to the city of Constanța (which was the first locality where such a tax was applied, in Romania, since 2013).

Thus, we consider that it would have been necessary to introduce, in the new regulation, among the sources of funding of the destination management organizations, provided in Article 105<sup>5</sup>, both the amounts collected from tourism promotion taxes, paid by economic operators within the destination, and the amounts collected from hotel taxes (resort / city tax) collected from the tourists. This could be the most important source of funding of local DMOs. In fact, this source of funding is considered, by OECD experts, as being ... "the most common example of specific indirect tourism taxation around the world" (OECD, 2017, p. 14).

Within the same destination, it is possible to set out and collect both types of taxes. This is the case, for example, of the tourist resorts belonging to the municipality of Mangalia, in Constanța County (Olimp, Neptune, Jupiter, Cap Aurora, Saturn, Venus resorts, including the city of Mangalia), where, starting from 2021, a tax was imposed, to be collected from tourists, in the amount of 5 Ron (approx. 1 euro) lei / day / tourist / overnight accommodation. However, starting with the year 2022, it was established and paid by the economic operators within the destination, for each activity carried out and for each place of business, a special tax for the development and promotion of tourism. In this case, according to the provisions of the new regulation on local DMOs in Romania, this special tax will not be the source of legal funding for these organizations, only the tax collected from the tourists will be! The amount of the tax collected from the tourists in these resorts was, in 2021, of about 800,000 lei, i.e., just over 161 thousand euros (Pintilie, 2022).

In their turn, according to the new regulations, DMOs at the county level have the obligation to transfer 20% of the amounts received from DMOs at the local level to the DMOs at the regional level to which they will belong. Moreover, DMOs at the regional level have the legal obligation to transfer 20% of the amounts received from the county DMOs to the national DMO.

An important provision of the new regulation refers to those organizations undertaking activities in the field of tourism in Romania, which are already established and operating, according to the provisions of the legislation on organizations and foundations. These associations can modify the provisions within their statute in order to be able to fulfill all the creation criteria and the objectives of a Destination Management Organization, as established by the new regulation. Thus, the respective organizations can be recognized as DMOs based on the approval they will be able to obtain from the central public authority responsible in the field of tourism and after their registration in the Register of Associations and Foundations (Government of Romania, 2022, Art. II). The authors of the OECD study identified 21 such tourism promotion and development associations operating in Romania (OECD, 2020, p. 37).

#### **4.7. The reactions of certain tourism organizations in Romania after the adoption of the new regulation**

While the Federation of Romanian Tourism Employers (FPTR) considered, through a press release on the day of the adoption of GEO 86/2022 (June 23, 2022), that "the money for the promotion of tourism will be in safe hands" and that the changes in and completions to the current legislation on the establishment and operation will facilitate the rapid establishment of local, county and regional DMOs, other entrepreneurs in Romanian tourism did not share that opinion. FPTR praised, through the respective press release, the effort and constructive discussions and concessions made, during the debates, by the associative structures of the local public administration authorities, which thus contributed to the amendments brought to the current

legislation: the Association of Romanian Communes, the Association of Romanian Towns, the Association of Romanian Municipalities, and the National Union of Romanian County Councils (FPTR, 2022).

On the other hand, however, the Alliance for Tourism (APT) has publicly shared its *disappointment* regarding the formula reached in the new regulation, a formula it did not support during the consultations. The Alliance considers that **this step is insufficient** in the absence of clear and explicit regulations, and the implementation of these new provisions, in the absence of some regulations, risks to lead to a *resounding failure*, according to a press release of the organization. The Alliance for Tourism (APT) is built "as a formal platform for the collaboration between its members, organizations aimed at developing the tourism sector in Romania and respecting legal and ethical principles in business" and brings together over 25 tourism organizations in Romania (<https://aliantaturism.ro/>).

As per APT, according to the new regulation, DMO funding at the national level would provide an amount of only about 100 thousand euros per year, and the rest of its revenue would depend on the political decision of the Government. In fact, one of the serious problems that tourism in Romania has faced in the last 3 decades has been the extremely low budget for tourism promotion. For example, in 2022, the promotion budget of the tourist destination Romania is only 2,5 million euros, while other competing countries have 75 million euros or even higher budgets, the APT statement also shows. The target for tourism to have a share of 10% of GDP in Romania cannot be achieved without providing an annual funding of at least 10 million euros / year for the promotion of Romanian tourism abroad, the APT statement continues. Regarding the decision-making mechanism (the way voting takes place), as an essential element for the proper functioning of destination management organizations, APT representatives point out that, considering the way the regulation was adopted, the DMOs cannot work at the local level. Such an organization cannot be compared to a joint stock company, in which a member (even a state authority) has, by law, voting privileges. APT proposed other alternatives, which take into account all the demands of the authorities, but also international examples of good practice. However, according to APT, *a unique option in Europe* was preferred, which is "an important brake in achieving the goal", it is said in the APT statement. (Bănciulea, 2022).

## 5. Conclusions

The new legislative changes regarding the organization and development of the tourism activity in Romania have long been expected and are welcome, even if some provisions are not the most appropriate or the ones expected by most tourism operators.

A real support for the adoption of this new regulation came from the recommendations formulated by the OECD experts, within the study entitled Operationalization of Destination Management Organizations in Romania. Moreover, the fact that within Romania's PNRR, measures, "milestones and targets" were established, which practically forced the Romanian Government to adopt these legislative changes regarding the legal framework on setting up and carrying out DMOs' activity, was a factor which contributed greatly to the urgency of adopting these measures.

We consider, however, that, within PNRR, some provisions were formulated without consulting the tourism business environment. For example, the provision that the Government *will set up* the 8 DMOs, stipulated in Romania's PNRR was at best uninspired, because it induces the idea of an imposition, from the governmental authorities, of the creation of the new DMOs, instead of starting from the premises of real Public-Private Partnerships (PPPs) in the creation and effective functioning, in a sustainable way, of these organizations.

Romanian Government Emergency Ordinance no. 86 of 2022, which brings these legislative changes, even if it is already in force and produces legal effects, will have to be debated in the Romanian Parliament, in the autumn of this year (2022), on which occasion some corrections and modifications / completions could be made, so that the final version of the regulation, which will become law after its adoption in the Parliament, will have the most appropriate form.

In the next period, it is expected that the Romanian Government, especially the Ministry of Entrepreneurship and Tourism, will show more skill and diplomacy in its efforts to discuss and bring to the same table all the stakeholders in the destinations, in order to create the most appropriate partnerships within the new DMOs that will be set up, at all levels. It would be normal to start this process at the local level. It will also take at least an equally important effort to convince most of the tourism promotion and development organizations that have been operating for several years in different places in Romania, so that they can change their organizational and functioning statutes and possibly add more partners so that these organizations be endorsed and recognized as DMOs.

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# The Recovery of Tourism and Travel After the COVID-19 Pandemic: Romania's Case. Recent Favorable Developments, but also Certain Concerns over the Perspectives

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## Abstract

*The negative effects of the COVID-19 pandemic on the tourist traffic and the tourism sector have been felt globally, but to different extents, depending on the tourism regions and countries.*

*In Romania, the decrease recorded in tourist traffic during the pandemic period has been severe, but within the limits of the average recorded in European Union Member States and with considerably different values, depending on the categories of tourist destinations in the country.*

*The main challenge for Romania remains carrying out a large-scale promotion campaign on the foreign markets related to its tourist offer, given the modest results obtained so far in attracting foreign tourists, despite the tourism potential that it has. The post-COVID-19 period could represent a reset of tourism in Romania.*

**Key words:** Tourism in Romania, COVID-19 pandemic, tourism recovery, evolution trends, concerns

**J.E.L. classification:** E 32, I 15, L 83, Z 31, Z32, Z39

## 1. Introduction

Tourism and travel have been affected, after the onset of the COVID-19 pandemic, more than other economic activities, in many countries of the world, including Romania, due to the travel restrictions imposed by the authorities and the fact that, in certain periods, tourist reception structures with accommodation and food facilities for tourists were closed or could only operate within a limited capacity.

The aim of this paper is to perform a comparative analysis of the evolution of the tourism sector in Romania, after the onset of the COVID-19 pandemic, compared to the other European Union countries and to the global developments, in order to identify some particularities of the situation in Romania. We believe that some conclusions of the performed analysis may be useful for tourism stakeholders, in the coming period, but also represent a basis for further research on some aspects related to the tourism sector and some categories of tourist destinations in Romania.

## 2. Literature review

Numerous works appeared in the specialized literature regarding the various crises that have affected the tourism sector over the years, whether health crises (epidemics), natural disasters or terrorist attacks. However, none of these previous crises has had such a significant impact on the tourism industry as the pandemic generated by the SARS-CoV-2 virus.

Soon after the onset of the COVID-19 epidemic, the first studies and analyses were carried out, not only on the evolution of the epidemic, but also on the restrictions and other measures taken by the public authorities in the countries of the world in order to fight the pandemic, including those regarding the quarantine of the population and the travel restrictions imposed. Furthermore, international organizations published the first statistics on the evolution of tourist traffic at global, regional, national, and local levels.

In this paper, we have used and processed mainly data published by international tourism organizations (UNWTO, WTTC), Eurostat, the Romanian National Institute of Statistics and other official, public and private, organizations.

### **3. Research methodology**

This paper is based on a longitudinal, quantitative, desk research, using mainly online data sources, but also in the classic format (Jupp 2010; Jugănaru1998).

In this article we have used, analyzed and interpreted some available statistical data on the evolution of the main indicators of tourist traffic at global, European and Romanian level, in the period after the onset of the COVID-19 pandemic, in an attempt to identify some causes of and explanations for the different evolution of these indicators, depending on the country, area or tourist region.

We have analyzed and compared a series of studies, statistical databases and reports of specialized or relevant organizations in the field of tourism, such as UNWTO, WTTC, but also Eurostat, etc., which presented the evolution of the tourism sector or that of some aspects related to it.

### **4. Findings**

#### **4.1. The evolution of international tourism during the COVID-19 pandemic**

The number of international tourist arrivals globally plummeted by 72% in 2020 compared to 2019, from 1.466 billion to 405 million, and the value of receipts by 62%, from USD 1.483 billion to USD 546 billion.

Analyzing the evolution of the 5 major tourist regions of the world, as they have been designated by the UNWTO, we observe the decrease in the number of international tourist arrivals, globally, by 72% in 2020 compared to the previous year, and by 61% in 2021 compared to 2019. The most affected region was Asia-Pacific, with decreases of 84% in 2020 and 94% in 2021, followed by the Middle East (-73% and -75%, respectively) and Africa (-74% and -78%, respectively). The most moderate decreases were recorded in the Americas and Europe regions, with identical percentage values (-60% in 2020 and -62% in 2021).

The evolution of international tourist arrivals, by months, according to UNWTO data, shows that, worldwide, in the month of January of the year 2020, there was an increase of 2%, followed by a decrease of 14% in February, and then a real collapse (65% decrease) in March, 97% in April, 96% in May and 91% in June 2020, compared to the corresponding period in 2019. A slight increase followed in July and August, then the situation started to worsen again. The best situation was recorded in August 2020, -75% of the August 2019 level.

In the first months of 2021, the situation remained serious, with declines between 87% in February, 81% in May and 91% in June 2021, compared to the levels recorded in the corresponding periods of 2019. In the warm season, the results were better (-63% in July and -53% in August and September), followed by slight decreases in arrivals in the following months.

In the first 3 months of 2022 the evolution was slightly better, from -66% in January to -60% in February and -56% in March, compared to the corresponding period of the year 2019.

In terms of international tourism receipts, the worst situation was recorded in the Asia-Pacific Region (-79% in 2021, compared to 2019), followed by the Americas and Africa (both with -61%), and the smallest decreases were recorded in Europe (-50%) and the Middle East (-52%).

For the first 3 months of 2022, compared to a 61% decrease globally, the number of international tourist arrivals recorded the smallest decreases, compared to the same period of the year 2019, in Europe (-43%) and the Americas (-46%), and the most severe decrease in Asia-Pacific (-93%), with the slowest recovery (UNWTO, 2020 a).

#### **4.2. The evolution of tourism in the European Union Member States during the pandemic**

In EU Member States, the Eurostat statistics show a particularly severe impact on international tourism of the measures taken by the authorities to combat the effects of the COVID-19 pandemic and to protect the population, while internal tourism was less affected. After the first lockdown,

introduced in the spring of 2020, there was a real collapse recorded in tourist traffic, in some countries to almost zero. The partial recovery of the number of arrivals in accommodation units in the summer of 2020 was largely due to domestic tourist demand, when many people decided for "staycation" in their own country.

At the peak of the summer tourism season, i.e., in July and August 2020, compared to the same period of the year 2019, the number of arrivals in accommodation units in EU countries decreased by only 9% for internal (domestic) tourism, while the decrease in the number of arrivals for international (inbound) was up to 65%. The most affected category of accommodation units, during the respective period, was hotels and similar establishments (-39%), followed by holiday and other short-stay accommodation (-31%). The smallest impact was felt by the category of units such as camping grounds, recreational vehicle parks and trailer parks (-13%) (Eurostat, 2022a).

The cumulative results obtained in July and August of the year 2021 were 55% higher for international tourist arrivals and 15% higher for internal tourist arrivals, compared to the same period of the year 2020. Compared to 2019, the results in July and August 2021 were 45% lower for international tourist arrivals, while internal tourist arrivals were 4% higher.

For the first quarter of the year 2022, the cumulative results obtained indicate significant increases compared to the first quarter of 2021, with the number of arrivals more than doubling for internal tourism and the number of international tourist arrivals was 6 times higher; however, in absolute terms, the increase is not so great compared to the previous decreases. The results recorded in this period of the year 2022 remain below those of the year 2019, the number of internal tourist arrivals falling by 21% and that of international tourist arrivals by 42% (Eurostat, 2022a).

According to EUROSTAT, the evolution of the number of overnight stays in tourism accommodation in EU countries has been increasing at an average rate of 3.1% per year, from 2011 until 2019, from 2.2 billion to 2.9 billion, followed by a real collapse, in 2020, when the number of overnight stays dropped by 50.5% to 1.4 billion, due to the restrictions imposed after the onset of the COVID-19 pandemic. In 2021 there was a 27.8% recovery to 1.8 billion overnight stays in the 27 EU Member States, including the overnight stays related to the internal tourism of each country and inbound international tourist overnight stays. In terms of structure, more than two thirds of these were overnight stays registered in the accommodation units by the domestic tourists (71.8%), while overnight stays by tourists from other EU Member States accounted for 20.4% and those from tourists from non-EU countries, only 7.7% (Eurostat 2022c, pp. 78-79).

The largest decrease in international tourism receipts was recorded in Southern Europe (Mediterranean), -68% in 2020 compared to 2019, and -48% in 2021 compared to 2019, followed by Northern Europe (-64% and -61%, respectively), and the smallest decreases were in Central and Eastern Europe (-59% and -54%, respectively).

Comparing the results obtained in 2021 with those obtained in 2020, disregarding what happened in the two pre-pandemic months (January and February), we can see that more arrivals were recorded in each month of 2021 compared to the equivalent period of the previous year, and this recovery continued in the first 3 months of 2022, when more arrivals were recorded than in the same period of 2021 (Eurostat, 2022c, p. 82).

#### **4.3. The evolution of tourism in Romania in the 2019-2021 period**

The privatization process in the field of tourism, which followed the change of the political regime at the end of the year 1989, in Romania, started slowly and lasted longer than in other activity sectors, which made the performances obtained to be relatively modest, compared to those of neighboring countries, such as Bulgaria and Hungary.

Romania's tourist accommodation capacity experienced a significant decrease after 1990, from 353,236 places in 1990 to 282,806 places in 1999 (mainly due to the removal from the tourist circuit of some old accommodation units, in which no investments were made for repairs and modernization), followed by a slight increase, so that in 2009 there were 303,486 places, and in 2019 there were 356,562 places. In 2020 and 2021, the accommodation capacity continued to increase, reaching 358,119 places, respectively 364,507. As for the number of tourist reception structures, it has grown significantly, from 3,213 in 1990, to 3,250 in 1999, 5,095 in 2009, and 8,402 in 2019. Even after the onset of the pandemic, the number of accommodation units continued



to grow significantly, reaching 8,610 in 2020 and 9,146 in 2021, as many investments in building new units were underway. This increase in the capacity of tourist reception is primarily explained by the fact that many new, privately owned, mostly small-sized units, predominantly tourist villas and boardinghouses (guest houses/pensions), but also hotels, were built in the last two decades. At the same time, the level of comfort of classified tourist reception structures increased. Thus, the share of only 2.7% of the number of places within tourist accommodation structures classified into the 3-star category in the year 1991 reached 39.6% in 2019, the share of those classified into the 4-star category rose from 0.26% to 17.6%, and those classified into the 5-star category from 0.3% to 2.5% (NIS, 2022).

However, Accommodation Capacity Net Utilization Index has seen significant decreases, from 46.7% in 1992 to 34.5% in 1999 and 28.4% in 2009. Ten years later, in 2019, the value of this indicator improved to 33.9%, yet it was still well below the level reached in 1992. Following the Covid-19 pandemic, this indicator fell dramatically to 22.8% in 2020, then rose slightly to 26.3% in 2021 (NIS, 2022).

The number of tourist arrivals in tourist reception structures with accommodation functions has experienced a sinuous evolution after 1990, in Romania, in terms of internal tourism, and especially in terms of international inbound tourism. Thus, compared to a total number of arrivals of 12,296,552 tourists in 1990, their number decreased by 58.45% until 1999, reaching 5,109,444, increasing then to 6,141,135 in 2009 and reaching a maximum of 13,374,943 tourists in 2019.

Regarding the total number of overnight stays (of Romanian and foreign tourists), the evolution was largely similar to that of the number of arrivals, with a spectacular decrease in the first decade, from 44,551,804 overnight stays in 1990, to 17,669,777 in 1999 and to 17,325,410 in 2009, followed by a considerable increase to 30,086,091 in 2019, which is still 32.5% lower than the one recorded in 1990 (NIS, 2022).

Due to the restrictions introduced during the pandemic period, the number of tourist arrivals in Romania decreased to 48% in 2020 compared to the 2019 level, the decrease being more severe in terms of foreign tourist arrivals (down to 17% of the 2019 level), and the number of total overnight stays also decreased to 48% compared to 2019. Moreover, the number of overnight stays by foreign tourists in Romania decreased even more compared to the Romanian tourists (down to 19%, compared to 2019).

According to the WTTC, the total contribution of travel and tourism to GDP formation in Romania has known a decrease by 44% in 2020 compared to 2019 and recorded an increase by 14.9% in 2021 compared to 2020; however, the decrease in 2021 was of 36.4% compared to 2019. While in 2019 tourism and travel had a 6.0% contribution to GDP, in Romania, in 2020 the contribution dropped to only 3.5%, and in 2021 it slightly increased to 3.8%.

Regarding the contribution of this sector to job creation, whereas in 2019 the number of jobs in this sector was 568,3 thousand, in 2020 it decreased by 11.5%, reaching 503 thousand, and in 2021 it increased by 5.6% compared to 2020, up to 531 thousand, representing 93.4% of the 2019 level. This loss of skilled workers is at least as serious as the financial losses of tourism operators in Romania, given that even before the pandemic it was very difficult to cover the shortage of staff especially because of the phenomenon of emigration of workers from Romania to other Western countries.

International visitor spending in Romania decreased from a level of USD 4,692.5 million in 2019 to USD 1,725.4 million in 2020 (- 63.2%), followed by a 9% increase in 2021 compared to 2020, reaching USD 1,882.6 million in 2021.

Internal (domestic) tourism spending in Romania decreased from USD 5,337.3 million in 2019 to USD 3,110.5 million in 2020 (-41.7%) and it increased by 39.8% in 2021, compared to 2020, reaching USD 4,348.2 million.

While in 2019 the ratio between domestic spending and international spending in Romania was 53% to 47%, the share of domestic spending rose to 70% in 2021, due to the travel restrictions imposed internationally during the COVID-19 pandemic.

In terms of the structure, the share of Leisure spending was, in 2019, 71%, compared to 29% - Business spending, reaching, in 2021, a share of 77%, compared to 23%.

The most important markets supplying international tourists for Romania in 2019 were Germany (11%), followed by Israel (9%), Italy (8%), US and Hungary (with 6% each). In 2021 Germany remained first (with 13%), but the order of the other countries changed, with France (10%) in second place, followed by Italy (8%), Israel (6%) and Hungary (5%).

As for outbound departures of Romanian visitors, while in 2019, as country of destination, Hungary was first (14%), followed by Greece and Italy (12% each), Bulgaria (10%) and Spain (8%), in 2021 Bulgaria (22%) was first, followed by Hungary (15%), Greece (12%), Italy (9%) and Turkey (8%), the first two being Romania's neighbors (WTTC, 2022).

#### **4.4. The evolution of the main indicators of Romania's internal tourism, in the 2019-2021 period, by categories of tourist destinations and types of tourists**

We have analyzed the evolution of the number of tourist arrivals in Romania, both Romanian and foreign tourists, in the tourist reception structures with classified accommodation functions, as well as the number of overnight stays, per total and by main destination categories, using statistical data published by the National Institute of Statistics of Romania (NIS, 2022). Thus, regarding the number of arrivals indicator, we can observe (Table no. 1) a decrease in the total number of arrivals (of Romanian and foreign tourists) in 2020, down to the level of 48%, compared to the level of the year 2019 and to 70% in 2021, compared to 2019. The main explanation for this negative evolution lies in the travel restrictions imposed after the onset of the COVID-19 pandemic. The decrease was much more severe for foreign tourists (inbound tourism) than for Romanian tourists (domestic tourism), down to a level of only 17% in 2020 and 31% in 2021, compared to 2019.

Regarding the main categories of internal tourist destinations, the evolution was quite different compared to the national average. Thus, the weakest results were recorded in Bucharest (the country's capital) and in the county seat towns/cities (excluding the city of Tulcea in the Danube Delta), with a level of only 38% per total arrivals in 2020 and 58% in 2021, compared to 2019, followed by the category "Other localities and tourist routes", where the decrease reached 48% in 2020 and 70% in 2021, compared to 2019, and the balneary resorts, with a decrease reaching 53%, respectively 82%, compared to 2019.

The smallest decreases were recorded in the tourist resorts on the Romanian Black Sea coast, where the decrease was 78% in 2020 and it reached, in 2021, almost the same level as in 2019 (more precisely, 99%), followed by the Danube Delta area, including the city of Tulcea, where a level of 71% was reached in 2020 and 82% in 2021, compared to 2019. But in this tourist area the most severe decrease in foreign tourist arrivals was recorded, down to only 7% in 2020 and to 29% in 2021 compared to 2019. The main explanation for this evolution could lie in the fact that in the countries of origin of the foreign tourists who used to come to the Danube Delta the travel restrictions imposed were more severe.

In the balneary resorts, the main cause for the large decline in tourist flows to these destinations was the fact that the Romanian authorities imposed very severe restrictions, going as far as banning certain categories of therapeutic procedures within the treatment centers.

In the resorts of the Romanian Black Sea coast, the better results obtained compared to other tourist areas of the country can be explained by the fact that other tourist destinations with coastal offers in countries where the Romanian tourists used to go in the previous years (especially Bulgaria, Turkey and Greece) were more difficult to access, due to the travel restrictions imposed by the authorities of each country, depending on the evolution of the number of COVID-19 infections.

As regards the evolution of the number of overnight stays (Table 2), the evolution was somewhat similar to that of the number of tourist arrivals. Thus, per total (Romanian tourists, plus foreigners), the number of overnight stays in 2020 reached 48% of the level recorded in 2019, and in 2021 it reached 69% compared to 2019.

By main destinations, the most important decreases were recorded in Bucharest and the county seat towns/cities, reaching 37% in 2020 and 57% in 2021 compared to 2019, followed by "other localities and tourist routes", with decreases up to 47% in 2020 and 67% in 2021 compared to 2019, and by the balneary resorts, where the values were at the level of 46% in 2020 and 70% in 2021 compared to 2019.

Table no. 1 The evolution of the number of tourist arrivals in tourist reception structures with tourist accommodation functions, according to tourist destinations, by type of tourists, in Romania, in the 2019-2021 period

Tourist destinations	Types of de tourists	Years				
		2019	2020	Evolution 2020/2019	2021	Evolution 2021/2019
		Number of arrivals	Number of arrivals	Change (%)	Number of arrivals	Change (%)
<b>Total</b>	<b>Total</b>	13374943	6398642	48%	9370232	70%
-	<b>Romanians</b>	10691195	5944775	56%	8527409	80%
-	<b>Foreigners</b>	2683748	453867	17%	842823	31%
<b>Balneary resorts</b>	<b>Total</b>	1133359	601326	53%	924400	82%
-	<b>Romani</b>	1098706	595762	54%	911438	83%
-	<b>Foreigners</b>	34653	5564	16%	12962	37%
<b>Coastal resorts, excluding the city of Constanta</b>	<b>Total</b>	1153682	905266	78%	1142271	99%
-	<b>Romanians</b>	1119401	899104	80%	1115593	100%
-	<b>Foreigners</b>	34281	6162	18%	26678	78%
<b>Mountain resorts</b>	<b>Total</b>	2305517	1295105	56%	1866402	81%
-	<b>Romanians</b>	2109378	1269109	60%	1816197	86%
-	<b>Foreigners</b>	196139	25996	13%	50205	26%
<b>Danube Delta area, including the city of Tulcea</b>	<b>Total</b>	166411	118325	71%	137182	82%
-	<b>Romanians</b>	146006	116797	80%	131224	90%
-	<b>Foreigners</b>	20405	1528	7%	5958	29%
<b>Bucuresti and county seat cities, excluding Tulcea</b>	<b>Total</b>	6275835	2359090	38%	3660935	58%
-	<b>Romanians</b>	4209530	1994058	47%	3017694	72%
-	<b>Foreigners</b>	2066305	365032	18%	643241	31%
<b>Other localities and tourist routes</b>	<b>Total</b>	2340139	1119530	48%	1639042	70%
-	<b>Romanians</b>	2008174	1069945	53%	1535263	76%
-	<b>Foreigners</b>	331965	49585	15%	103779	31%

Source: Author's own processing of INS Romania, Tempo-online data

The smallest decreases were recorded in the coastal resorts, up to 70% in 2020 and 91% in 2021, compared to the 2019 levels, and in the Danube Delta, up to 79%, respectively 74%.

In the mountain resorts, the results recorded were slightly above the national average (decreases to levels of 54% in 2020 and 77% in 2021, compared to 2019), with the observation that here the most significant decrease in the number of overnight stays of foreign tourists was recorded in 2020, reaching only 16%, and in 2021 it rose slightly to 24%, compared to the level reached in 2019.

Table no.2. The evolution of the number of overnight stays in tourist accommodation units, by tourist destinations and type of tourists, in Romania, in the 2019-2021 period

Tourist destinations	Types of tourists	Years				
		2019	2020	Evolution 2020/2019	2021	Evolution 2021/2019
		Number	Number	Change (%)	Number	Change (%)
<b>Total</b>	<b>Total</b>	30086091	14579140	48%	20835314	69%
-	<b>Romanians</b>	24795253	13581775	55%	19002611	77%
-	<b>Foreigners</b>	5290838	997365	19%	1832703	35%
<b>Balneary resorts</b>	<b>Total</b>	4805188	2208832	46%	3361147	70%
-	<b>Romanians</b>	4688161	2187634	47%	3314599	71%
-	<b>Foreigners</b>	117027	21198	18%	46548	40%
<b>Coastal resorts, excluding the city of Constanta</b>	<b>Total</b>	4657955	3267464	70%	4218916	91%
-	<b>Romanians</b>	4534514	3246820	72%	4134964	91%
-	<b>Foreigners</b>	123441	20644	17%	83952	68%
<b>Mountain resorts</b>	<b>Total</b>	4810148	2613246	54%	3707917	77%
-	<b>Romanians</b>	4421424	2552251	58%	3613572	82%
-	<b>Foreigners</b>	388724	60995	16%	94345	24%
<b>Danube Delta area, including the city of Tulcea</b>	<b>Total</b>	380375	299766	79%	281078	74%
-	<b>Romanians</b>	333885	295084	88%	269974	81%
-	<b>Foreigners</b>	46490	4682	10%	11104	24%
<b>Bucuresti and county seat cities, excluding Tulcea</b>	<b>Total</b>	11055160	4119604	37%	6313310	57%
-	<b>Romanians</b>	7028229	3334463	47%	4911497	70%
-	<b>Foreigners</b>	4026931	785141	19%	1401813	35%
<b>Other localities and tourist routes</b>	<b>Total</b>	4377265	2070228	47%	2952946	67%
-	<b>Romanians</b>	3789040	1965523	52%	2758005	73%
-	<b>Foreigners</b>	588225	104705	18%	194941	33%

Source: Author's own processing of INS Romania, Tempo-online data

#### 4.5. The experts' expectations for the evolution of international tourism in 2022

The tourism experts' expectations regarding the destinations they come from, worldwide, in 2022 are relatively optimistic, according to the UNWTO Panel of Experts Survey in May 2022, with 32% of the respondents expecting the situation to be "Much better" and 51% - "Better" and only 9% - "Worse", and according to the world's 5 major tourist regions, the most optimistic expectations wererecorded in the Middle East (with 50% expecting "much better", plus 50% - "Better"), followed by the Americas (89%) and Europe (88%), and the lowestvalue was recorded in Asia-Pacific.

In response to the question "When do you expect international tourism to return to 2019 levels in your country?", worldwide, the response was that this level has already been reached (5% of responses) or that it will be reached during 2022 (3%), another 40% of the responses were that it will be reached in 2023, and 44% that it will be reached in 2024 or later. The most optimistic responses were received for the Middle East and Europe regions, and the most pessimistic expectations were for Africa (UNWTO, 2022a).

#### **4.6. Some concerns about the evolution of tourism in Romania in the coming period**

While the results recorded by the tourist traffic in Romania have been encouraging in the first months of 2022, as we are moving towards the second semester of the year, we can observe a series of worrying developments. Thus, after the two years of the pandemic, when the Romanians had to submit to travel restrictions, being forced to discover or re-discover internal tourist destinations, in 2022 the "great liberation" has come and they want to make up for what they lost, travelling more to foreign destinations, to the detriment of the internal ones, which are recording declines.

Already, at the beginning of July 2022, lower occupancy rates could be observed in the tourist accommodation units on the Romanian coast, compared to the same period of the previous year. Moreover, in the Danube Delta, as well as in the Maramureş area, in the North-West of Romania and in the Bucovina area, in the North-East of Romania, the occupancy rate is very low, due to the fact that these are border areas with Ukraine, a country at war, and the potential tourists, although there are no real, justified reasons for this, consider these to be dangerous areas, perhaps out of excessive caution, therefore preferring to avoid these destinations.

In a recent report, the National Bank of Romania (NBR) pointed out that, even before the pandemic, Romania's international tourism receipts and payments balance was consistently in deficit. The causes for this deficit are mainly related to the tourist offer, being both quantitative causes (the fact that the number of tourist accommodation places has stagnated, or even decreased or it slightly increased in recent years), but mainly qualitative causes, related to the quality of the tourist offer. We could also add the weak, sometimes almost non-existent promotion of Romania's tourist offer abroad in recent years, which has led to a modest occupancy rate of less than 40% of tourist accommodation structures, a much weaker result than that of other countries in the region. In NBR's Annual Report for 2021, the current situation of tourism in Romania is briefly presented, where the domestic tourist demand is partially subsidized by the government, by granting holiday vouchers in the amount of 1,450 RON (a little over 290 EUR) per year for each budget sector employee and with the legal possibility for private sector employees to also receive such vouchers from their employers. Moreover, the report states, the profitability of tourism companies is based on the low level of the salaries paid and on the "approximate" taxation, and the transport infrastructure in the country (road and rail) is still relatively poor, which demotivates and discourages the expansion of tourism activities into their potential level (NBR, 2022, p. 40).

In 2020, the receipts and payments balance of international tourism of Romania recorded a negative balance of EUR 446 million, and in 2021, the negative balance worsened, reaching EUR -1,638 million, while receipts from incoming tourism amounted to EUR 2,782 million, and expenditures of Romanian tourists abroad rose to EUR 4,420 million (NBR, 2022b, p. 74). During the first 5 months of 2022 (January-May), the negative balance of this indicator was already 1,157 million EUR, 78% higher than the one recorded in the similar period of the previous year. This is a worrying trend, with the prospects that the balance will reach, at the end of 2022, the biggest value ever recorded in Romania (NBR, 2022, c).

Starting from the autumn of this year, new restrictions on the movement of people are likely to be introduced, due to the increasing number of infections with new strains of the virus in different areas and countries of the world. In Romania, the sixth wave of the COVID-19 pandemic is underway, in July 2022, with more and more cases of infections and hospital admissions, and the daily and weekly increase in the number of confirmed cases is causing serious concern, as travel restrictions may be imposed very soon.

On the other hand, there is an increasing number of flight cancellations or long flight delays, losses of tourist luggage, due to lack of flight crew and handling crew at airports. Such developments, which are becoming more and more numerous, may cause an increasing number of travelers to cancel or postpone their trips for tourism purposes.

The galloping inflation, from one day to the next, at values not reached for many years, with increases in prices and fees in any area or sector, but especially fuels, natural gas and energy, in general, but also food, have already made the cost of living increase dramatically, so that many people will have to give up tourist trips or reduce the duration of their trips, possibly choosing closer destinations, in their own country or in countries as close as possible to the tourists' place of residence.

After the breakout of the war in Ukraine, not only the very high energy prices are worrying in Romania, but also the fact that in the cold season there are fears that there will not be enough natural gas sources to heat the homes and the tourist reception units, since the European Union is trying to completely eliminate imports of gas, oil and other energy sources from the Russian Federation. It cannot be excluded that some hotels and other accommodation and food facilities may not be heated during winter in different countries and areas of the world.

As far as the tourist offer is concerned, not only the increase in the prices of utilities, food and other goods is leading to the increase in the price of tourist products and services, but also the recent changes in the tax legislation in Romania will have a significant contribution to the increase of prices and fees to be charged, because the VAT on tourism services will increase from 5% to 9%, the tax on dividends from 5% to 8%, and many of the micro-enterprises (companies with up to 9 employees) operating in tourism will change their tax regime from 1% turnover tax to 16% tax on profits (Government of Romania, 2022 b).

The good news for tourism entrepreneurs is the adoption of changes to the legislation on the establishment, with government support, of Destination Management Organizations in Romania at local, county, regional and national level. These would primarily boost the promotion activity of tourism destinations in Romania. The expectations of tourism entrepreneurs from these DMOs are very high, in particular regarding the drawing up, adoption and implementation of tourism promotion strategies at destination level (Government of Romania, 2022 a).

## 5. Conclusions

The COVID-19 pandemic has led to a severe crisis in the tourism sector in Romania, due to the restrictions imposed by the authorities. Internal tourism, although considerably reduced, has recorded slightly better results than the inbound sector, which has been affected the most.

In Romania, as in other countries, some of the measures taken by the authorities seemed to have been sometimes unfounded, illogical, and especially unpredictable, seriously affecting the majority of the businesses in the hospitality sector. Furthermore, the losses suffered by them were not only financial, but also in terms of human resources, as a result of the departure of a significant number of qualified workers to other sectors, where there were no restrictions, or these restrictions were less severe. Tourism proved to be one of the less secure sectors of employment during the pandemic, as restrictions imposed by the authorities led to the closure of establishments or the drastic reduction of some activities. Nowadays, considerable efforts are being made to bring in workers from other countries, especially from Asia, to compensate, at least partially, for the shortage of skilled workers in the Romanian hospitality sector.

Studying the effects of these measures taken by the authorities during the pandemic on tourist traffic can be the basis for more detailed analyses of the causes and especially of the mistakes made during the pandemic, so that, if similar situations occur in the future, their repetition can be avoided. The analysis carried out in this paper can and needs to be deepened, especially regarding tourist destinations.

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# The Role of Financial Indicators in Financial Communication

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## Abstract

*In a highly competitive market, the economic entity is required to perform at all levels, including customer relations, supplier relations, employee relations, shareholder relations, competitor relations, state relations and resource management (raw materials, portfolios of securities, human resources). In this context, communication has become one of the most important components in the success of every activity carried out by economic entities; it is the fundamental tool for communicating the objectives and results of the business to various partners.*

*As a result of the intensification of the globalization process and the development of the complexity of economic and social activities, any entity has realized that it is no longer enough to be known, seen and analyzed financially, but rather to be credible to establish a channel. reliable communication between it and an increasingly demanding and sophisticated audience.*

**Key words:** financial communication, economic entity, investments, financial analysts

**J.E.L. classification:** A11, F64, Q56

## 1. Introduction

The quality of accounting information is more than just a support for the choices of managers; quality can also be highlighted through the interaction and communication between the departments of an economic entity, in particular it reflects the level of collaboration and cooperation in order to implement the decisions and strategies of the entity.

The starting point of this article is the need and importance of analyzing the financial position of an entity. The financial economic analysis was performed in accordance with the European Directives and the International Accounting Standards / International Financial Reporting Standards (IAS / IFRS), researching the financial statements for a period of five years (2017-2021) of SC Șantierul Naval Orșova SA and SC Severnav SA Drobeta Turnu-Severin, ensuring the financial balance and efficiency of the activities of each entity.

## 2. Theoretical background

One of the roles of financial communication is to protect and enhance the value of the entity (Avram et al. 2017). The investor information policy must take into account the different types of shareholders, as the communication of the organization will be affected by the dispersion of shareholders. The purpose of voluntary communication is to increase the awareness of the economic entity.

According to Cavelius (2009), voluntary communication provides investors with information traditionally reserved for the internal use of the manager: information about the results of business lines (or sectoral information), forecast information, non-financial information, which increase the reputation of the economic entity. According to Nejjar (2011), voluntary communication helps the investor to have more confidence in the company and its initiatives by revealing reliable, stable and transparent information, which highlights the company in the market in which it operates. Then, it is a unique lever to give credibility and promote its approach to all its shareholders, as well as to the financial, economic and media communities.



Thus, development by hiring external investors creates a voluntary communication (Healy et al. 1999) and becomes increasingly significant in the management of the company as opposed to foreign and weakly involved shareholders.

The role of financial communication is to increase the company's notoriety and credibility in order to attract investors (Avram, 2017). Managers who anticipate capital market activities are urged to communicate freely in order to reduce the asymmetry of knowledge and, consequently, the cost of external financing (Healy and Palepu, 2001). Based on the data provided by the company, financial analysts observe and forecast the performance of the economic entity, thus responding to the concerns of investors and simplifying the process of making decisions to buy or sell shares. The owners want to follow and lead the actions carried out in the company to ensure that the managers and management tools used by the organization properly serve the interests. Financial communication for financing has become important as a result of this demand, and the aim is to keep shareholders, while convincing institutional investors to invest in the shares of the economic entity. Therefore, the main instrument used in financial communication is annual financial statements, a universal and transparent financial communication medium for supervisors, investors, creditors, tax authorities, suppliers, customers and the general public (Avram et al, 2017).

### **3. Research methodology**

The Drobeta Turnu Severin Shipyard was founded in 1852 as the shipyard of the Austrian shipping company DDSG Later, in 1893, the shipyard was taken over by the Romanian government and renamed the SEVERNAV Shipyard. In 1958, it merged with Dinamica Shipyard, a private company that had been nationalized in 1948. The second company, Orșova Shipyard, was founded in 1890 and enjoyed a constant expansion until 1991, when a restructuring process began. which led to the formation of the joint stock company SC antierul Naval Orșova SA.

The research involves the calculation of financial indicators over a period of 5 years using data from the company's annual financial statements, namely the balance sheet, profit and loss account, statement of changes in equity and cash flow statement, together with the Explanatory Notes and monitoring the effects on the relevance of the accounting information provided ([www.mfinante.ro](http://www.mfinante.ro), [www.bvb.ro](http://www.bvb.ro)).

Starting from the data presented in the financial statements, based on the methods and techniques used by the economic-financial analysis, we obtained information on the performance of the analyzed economic agents.

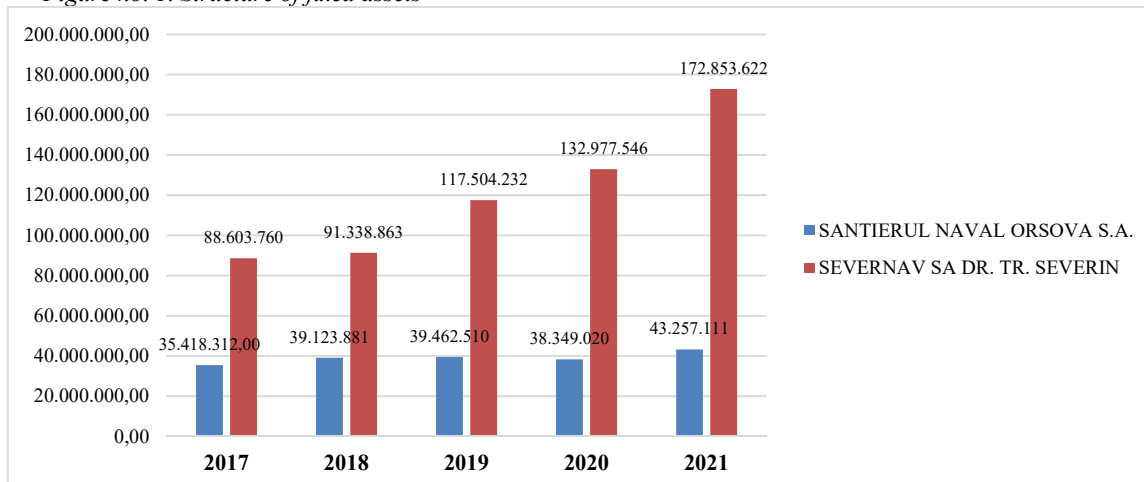
### **4. Findings**

Within the overall analysis of the financial position of SC Șantierul Naval Orșova SA and of SC Severnav SA Drobeta Turnu-Severin, aspects regarding the evolution and structure of the elements of assets and equity are followed. Information on these can be found in the Balance Sheet and in the Explanatory Notes.

According to IFRS (2013, General Framework for the preparation and presentation of financial statements para. 49), assets are a source controlled by the entity as a result of past events from which future economic benefits are expected.

The evolution of the assets for the two competing companies is shown graphically in Figure 1 and Figure 2:

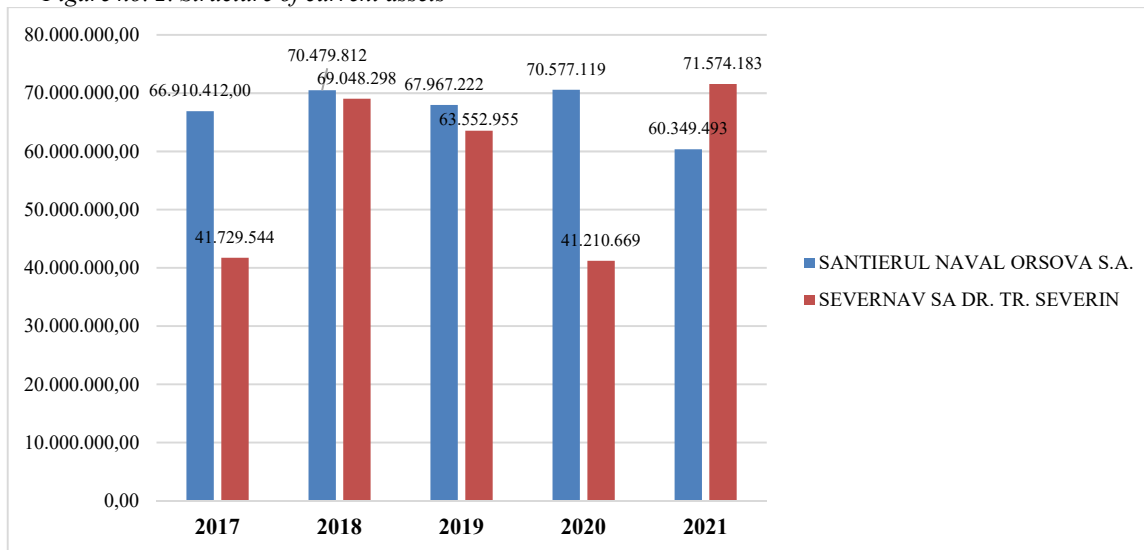
Figure no. 1. Structure of fixed assets



Source: Own processing according to the data present in the financial statements

The main element in carrying out the presented activities is the tangible fixed assets. Following the data analysis, for SC Șantierul Naval Orșova SA, this graph shows an increase in the structure of fixed assets, values much higher than SC Severnav SA Drobeta Turnu Severin. While SC Șantierul Naval Orșova SA registered successive increases of 15,473,314 lei in the period 2019-2020, respectively 39,876,076 lei for the period 2020-2021. SC Severnav SA Drobeta Turnu Severin registered moderate fluctuations, and in the last year it registered an increase of 4,908,091 lei. Following the research, we can conclude that SC Severnav SA Drobeta Turnu Severin has constantly invested in fixed assets as opposed to SC Șantierul Naval Orșova SA

Figure no. 2. Structure of current assets



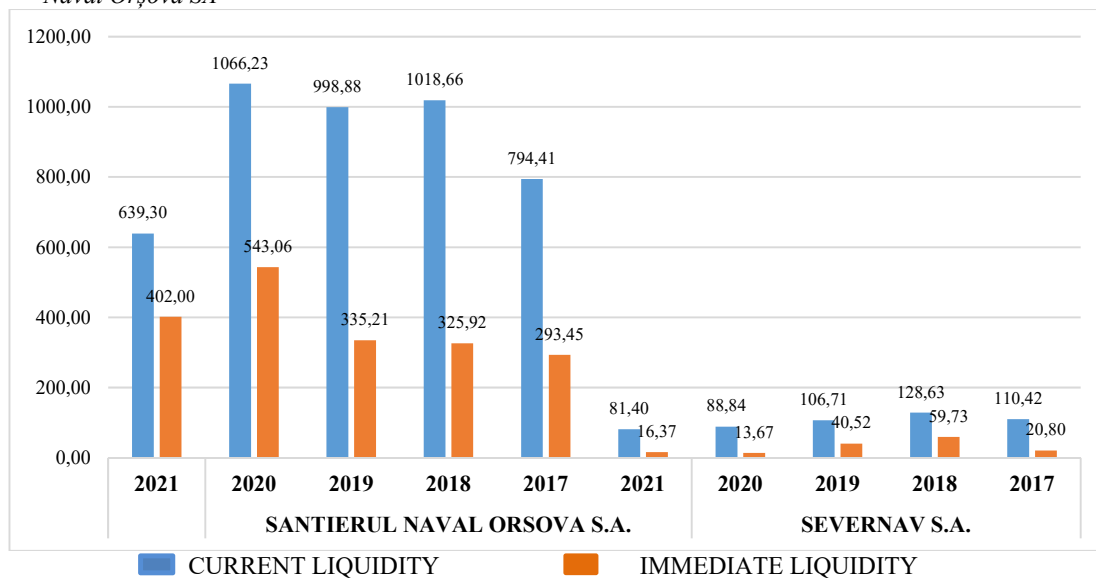
Source: Own processing according to the data present in the financial statements

Regarding the structure of current assets, we observe a trend similar to the structure of fixed assets in the sense that, for the period 2019-2020, SC Severnav SA Drobeta Turnu Severin registered a major decrease, followed by a significant increase of 30,363,514 lei. by SC Șantierul Naval Orșova SA which recorded moderate fluctuations throughout the analyzed period.

**Analysis of the structure of assets and equity within SC Şantierul Naval Orşova SA and within SC Severnav SA Drobeta Turnu-Severin**

According to IFRS (2013, General Framework for the Preparation and Presentation of Financial Statements para. 16), liquidity reflects "cash availability highlighted in the near future, requiring consideration of obligations for this period."

Figure no. 3. Evolution of liquidity rates within SC Severnav SA Drobeta Turnu-Severin and SC Şantierul Naval Orşova SA

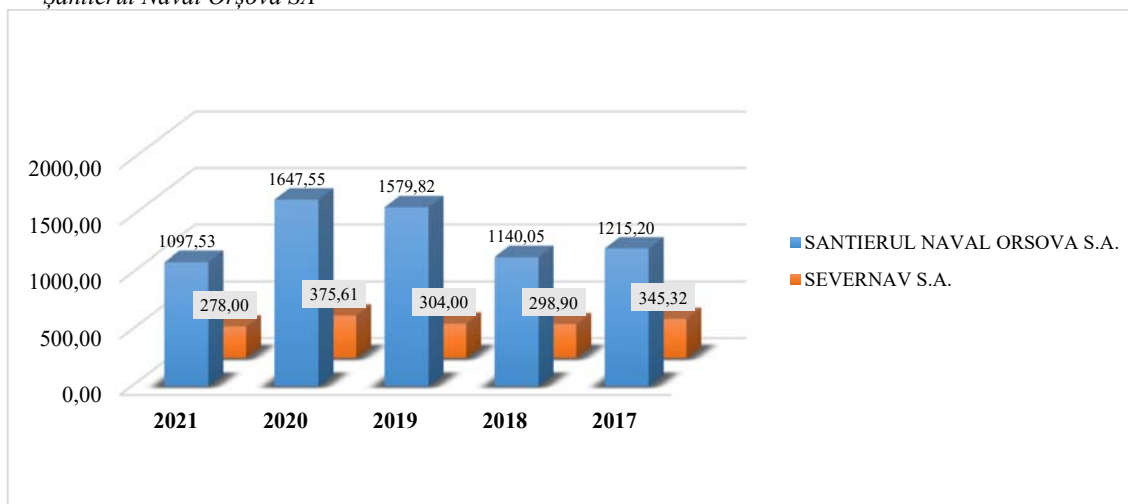


Source: Own processing according to the data present in the financial statements

The evolution of the current liquidity in the case of both companies registers decreasing values, the lowest value registered by SC Şantierul Naval Orşova SA being of 639.30, and the minimum value registered by SC Severnav SA Drobeta Turnu-Severin being 81.40.

Regarding the immediate liquidity within SC Şantierul Naval Orşova SA, there is an increasing trend until 2020, and then a decrease up to 402.00, unlike SC Severnav SA Drobeta Turnu-Severin which records increasing values. lower in the period 2018-2020 and a slight increase in 2021 to 16.37.

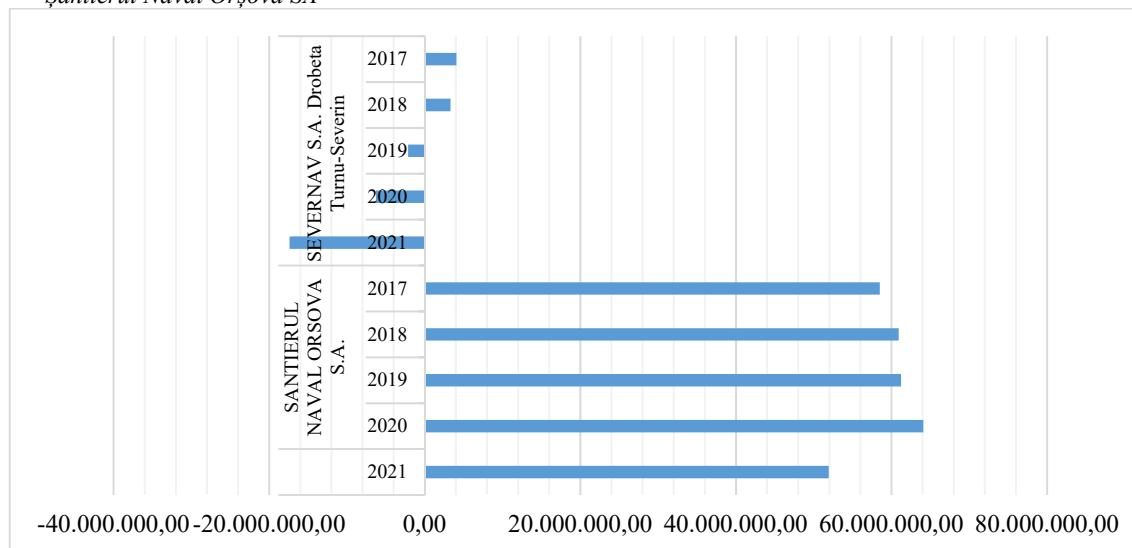
Figure no. 4. Evolution of the general solvency ratio for SC Severnav SA Drobeta Turnu-Severin and SC Şantierul Naval Orşova SA



Source: Own processing according to the data present in the financial statements

According to these results, in 2021, both SC Severnav SA Drobeta Turnu-Severin and SC Şantierul Naval Orşova SA cover their total debts in the proportion of 278% and 1097.53%, respectively, which indicates a good situation of the company.

Figure no. 5. Presentation of the working capital for SC Severnav SA Drobeta Turnu-Severin and SC Şantierul Naval Orşova SA



Source: Own processing according to the data present in the financial statements

For a complete picture of the two companies, we consider it important to analyze the working capital. During the analyzed period, SC Şantierul Naval Orşova SA registers positive values, therefore the permanent capitals cover the full financing of the fixed assets, the surplus being used to insure a part of the current assets. In the case of SC Severnav SA Drobeta Turnu-Severin, the working capital registers decreasing values, reaching in 2021 the lowest threshold of the analyzed period. This observation indicates a state of imbalance that requires thorough research in order to find solutions to balance the indicator.

## 5. Conclusions

Consistency, in our view, is essential for developing and maintaining investor confidence, and it is better to favor a smaller volume of information provided on a solid basis built over time. Economic entities must also be aware of the importance of establishing and maintaining a reputation. The ability to maintain the objectives while being credible, to maintain market commitments and to have a clear and strong voice are undoubtedly the elements of good communication.

The quality of accounting information is more than just a support for managers' decisions; it can also be emphasized by the interaction between the departments of an economic organization, in particular the level of collaboration and cooperation in order to implement the objectives and plans of the entity. The quality of information is assessed using three variables: technical aspects, analysis of the financial image of the economic entity and other qualitative factors.

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# The Impact of Online Classes on Student Performance During the Pandemic Period of COVID 19 in Romania

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## Abstract

*The Covid-19 pandemic has shown that education staff have not been trained at all to digitize the education process. So they did not know what the challenges were. In addition, it has been shown that although students are digital natives, they do not know how to capitalize on the e-learning side of learning.*

*The aim of this paper is to analyze the impact that online classes has had on student performance during the Covid-19 pandemic. In order to carry out this research, we started from the fact that during the Covid-19 pandemic, the transition to online classes led to inequities among students in terms of learning from the Romanian education system.*

*The pandemic education system faced a number of challenges, especially reducing stress among students. In order to reduce the stress level of the students, the intervention of the school psychologist as well as of the teachers was necessary.*

**Key words:** online classes, student performance, performance, Covid-19, pandemic

**J.E.L. classification:** I21, I25, P17.

## 1. Introduction

Shortly after the outbreak of the Covid-19 pandemic, a series of radical changes began to occur in the education system, due to social distancing (Bălăcescu and Badea, 2021). The entire education system has moved online, because it was the only way to ensure the safety of students, teachers, but also other education agents (Bali and Liu, 2018).

According to the data provided by Save the Children, it was found that the closure of schools, at the time of the COVID-19 pandemic, a series of negative consequences appeared in terms of children's educational progress, but also in terms of children's emotional health. At the same time, the issue of their online security has been raised.

## 2. Theoretical background

The Covid-19 pandemic has shown that education staff have not been trained at all to digitize the education process. So they did not know what the challenges were. In addition, it has been shown that although students are digital natives, they do not know how to capitalize on the e-learning side of learning (Bao, 2020).

In Romania, unfortunately, there was a lack of digital infrastructure in rural areas, so learning online was a challenge for them (Bălăcescu and Badea, 2021).

Instead, in Egypt, during the COVID-19 pandemic, the Ministry of Education and Technical Education tried to save the school year by switching to online learning, broadcasting school lessons on national TV, launching a specialized YouTube channel, and providing a library. online. This has demonstrated the effectiveness of the education system, but there are questions about its effectiveness, namely whether students have come to learn what they should have learned (Baradei, 2021).

With the onset of the pandemic in Romania in 2020, the dropout rate has also started to increase. Thus, over 20% of Romanian students dropped out of school in the very first year of the pandemic, when classes began to take place online. The most affected was the rural environment (Edupedu). The same cannot be said for Finland, where the dropout rate is generally less than 1% (Statistics Finland).

In view of these considerations, we further propose to present the research methodology.

### 3. Research methodology

The aim of this paper is to analyze the impact that online schooling has had on student performance during the Covid-19 pandemic. In order to carry out this research, we started from the fact that during the Covid-19 pandemic, the transition to online schooling led to inequities among students in terms of learning from the Romanian education system (Adilova et al., 2020).

Regarding the research design, we used the quantitative research method, based on an online questionnaire administered to teachers in the Romanian pre-university education system.

As for the questionnaires, they were created through Google Forms, so that the data could be collected and centralized much easier and more efficiently than if it had been distributed face-to-face.

We applied a questionnaire with 41 questions regarding the challenges that the Romanian education system is going through, divided into several topics for debate. For this study, we will analyze only the questions related to the impact of online schooling on student performance.

The online questionnaires were completed by 347 pre-university teachers.

### 4. Findings

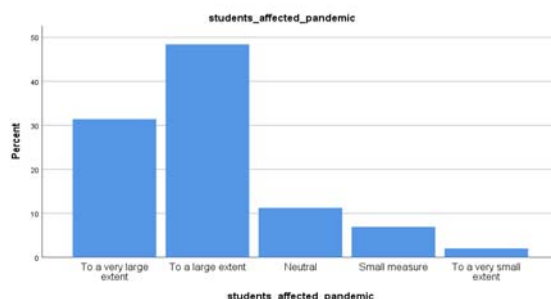
Regarding the question no. 1, how much the online school affected the students during the Covid-19 pandemic, we notice that 48.4% said to a large extent, 31.4% said to a very large extent, 11.2% were neutral, 6.9% said small measure and 2% to a very small extent.

Table no. 1 How online school affected the students during the Covid-19 pandemic

		students_affected_pandemic			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To a very large extent	109	31.4	31.4	31.4
	To a large extent	168	48.4	48.4	79.8
	Neutral	39	11.2	11.2	91.1
	Small measure	24	6.9	6.9	98.0
	To a very small extent	7	2.0	2.0	100.0
	Total	347	100.0	100.0	

Source: Author’s contribution

Figure no. 1. How online school affected the students during the Covid-19 pandemic



Source: Author’s contribution

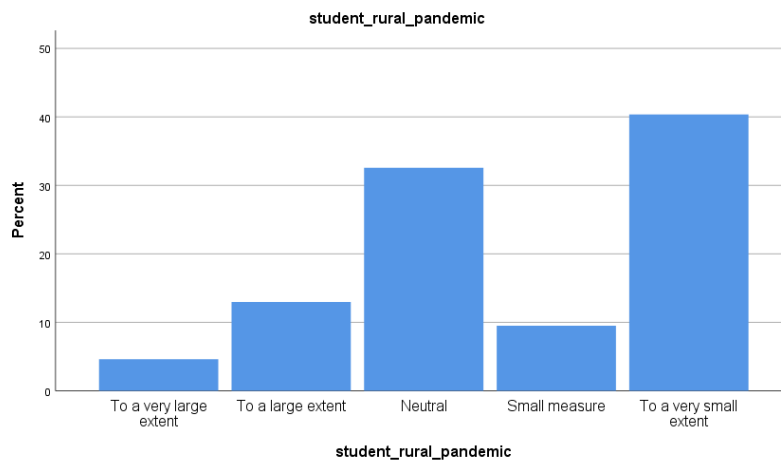
For question no. 2, how much it helped rural students with limited opportunities, online teaching, 40.3% of teachers said to a very small extent, 32.6% of teachers were neutral, 13% of teachers said to a large extent extent, 9.5% of teachers said small measure, while 4.6% of teachers said to a very large extent.

Table no. 2 Online teaching for rural students

		student_rural_pandemic			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	To a very large extent	16	4.6	4.6	4.6
	To a large extent	45	13.0	13.0	17.6
	Neutral	113	32.6	32.6	50.1
	Small measure	33	9.5	9.5	59.7
	To a very small extent	140	40.3	40.3	100.0
	Total	347	100.0	100.0	

Source: Author's contribution

Figure no. 2 Online teaching for rural students



Source: Author's contribution

Regarding question no. 3, considering that the digitalization of schools during the Covid-19 pandemic led to inequities between students who had financial means and those who did not have such financial resources, 75.8% of respondents said no, while 24.2 % of respondents said yes.

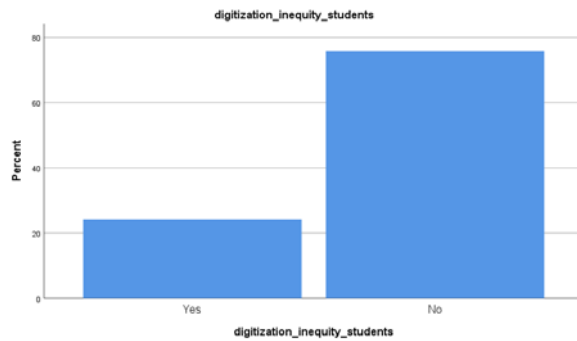
Table no. 3 Digitalization of schools during the Covid-19 pandemic

		digitization_inequity_students			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Yes	84	24.2	24.2	24.2
	No	263	75.8	75.8	100.0
	Total	347	100.0	100.0	

Source: Author's contribution



Figure no. 3 Digitalization of schools during the Covid-19 pandemic



Source: Author’s contribution

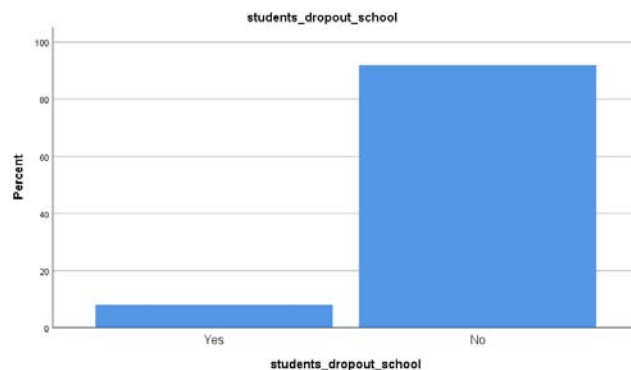
Regarding question no. 4, following the Covid-19 crisis, you had students who dropped out of school, 91.9% of teachers said they did not have students who dropped out of school, while 8.1% of teachers said they had students who dropped out of school.

Table no. 4 Students who dropped out of school

		students_dropout_school			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Yes	28	8.1	8.1	8.1
	No	319	91.9	91.9	100.0
Total		347	100.0	100.0	

Source: Author’s contribution

Figure no. 4 Students who dropped out of school



Source: Author’s contribution

## 5. Discussion

In this study the teachers mentioned that they did not have students to drop out of school, we cannot generalize these data, because even before the Covid period, Romania was on the last places in Europe in terms of dropout rate. school. For example, the dropout rate in 2018-2019 in the case of primary and secondary education was 2% (35.4 thousand students).

Regarding the dropout rate in primary and secondary education, both in urban and rural areas was 1.9% in urban and 2.7% in rural areas. Boys are the ones who give up more unlike girls. Thus we have 2.4% of boys who drop out of school and 2% of girls who drop out of school. If we refer to high school, the dropout rate has been constant over the last 3 years (2.5%). Those in the vocational

and technological fields are the ones who drop out of their studies. And here we are talking about boys who drop out of high school to a greater extent than girls (INSS).

Regarding school dropout in Romania, it produces a number of undesirable effects for society, such as: poverty, unemployment, health problems and social exclusion. The reasons why students drop out of school are: family problems, poor financial situation, health problems, learning difficulties, school atmosphere and the student-teacher relationship (INSS).

In December 2021, the Government of Romania adopted the "National Program for Reducing School Dropout", with a funding amounting to 543 million euros. This means that more than 3,000 schools, which are at a considerable risk of dropping out of school, will receive money in order to significantly reduce this phenomenon (Ministry of Education).

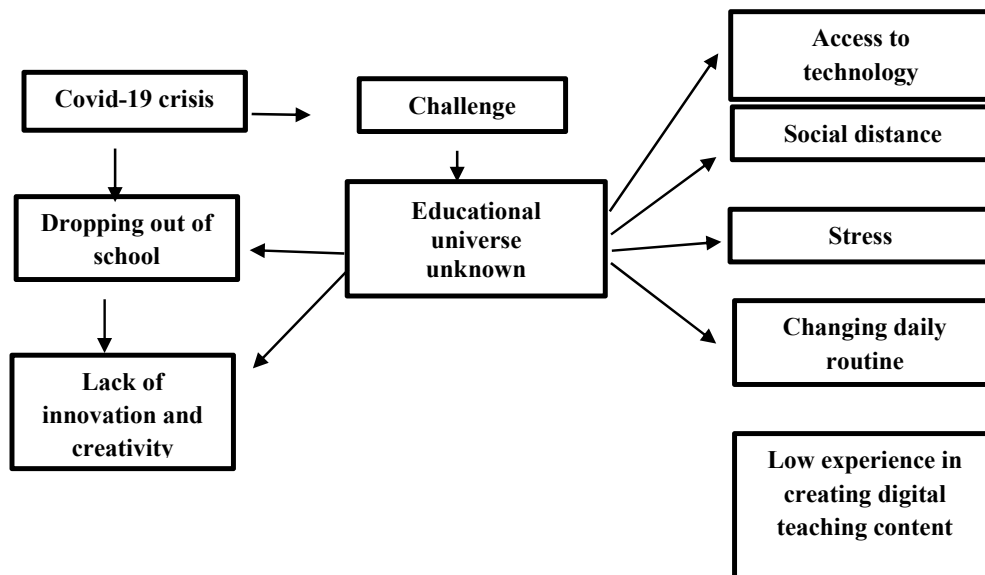
Romania has one of the best internet speeds in Europe, it seems that we are still the last in terms of online teaching.

As far as rural students are concerned, not everyone is privileged to have access to the internet. There are villages forgotten by the world, where the internet connection is taken from a hill or from a tree.

Although funds have been allocated for the most disadvantaged students to receive tablets, another problem that has arisen is that a teaching methodology has not been established for teachers who have been faced with a new situation, namely that of online teaching.

I created the figure no. 5 entitled: The impact of online classes on student performance during the pandemic period of COVID 19 in Romania, as follow:

Figure no. 5 The impact of online classes on student performance during the pandemic period of COVID 19 in Romania



Source: Author's contribution

Romania was not prepared to meet the challenges posed by the pandemic, which led to an even higher dropout rate, and this is due to a lack of innovation and creativity.

Lack of experience in creating digital content and teaching it has had its say.

The pandemic period led to social distancing among students, which meant a very high level of stress because it changed their daily routine.

## 6. Conclusions

The aim of this paper was to analyze the impact that online classes has had on student performance during the Covid-19 pandemic.

The pandemic education system faced a number of challenges, especially reducing stress among students. In order to reduce the stress level of the students, the intervention of the school psychologist as well as of the teachers was necessary.

Following the results obtained, we find that the Covid-19 pandemic did not cause inequities between rural and urban students. This can be attributed to the fact that among the responding teachers there were richer villages that are technologically equipped. The same cannot be said of poor villages that do not have access to electricity, water, gas and sewage. Where these students were in the position of dropping out of school.

The results cannot be generalized.

This study will be useful to researchers, teachers, school principals, school inspectors, as well as other people interested in the situation of the pre-university education system in Romania.

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# The Impact of Online Classes on Teachers' Performance During the Pandemic Period of COVID 19 in Romania

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## Abstract

*The aim of this paper is to analyze the impact that online schooling has had on teachers' performance during the Covid-19 pandemic.*

*Regarding the research design, we used the quantitative research method, based on an online questionnaire administered to teachers in the Romanian pre-university education system in Romania.*

*During the pandemic, teachers faced a major challenge in terms of teaching, namely online teaching, as they were hit by a lack of internet connections, lack of access to technical equipment, lack of experience in creating digital content. in terms of teaching, lack of knowledge for the efficient use of work platforms, but also lacked experience in teaching online,*

*Which led to a series of changes in their professional life and at the same time a high level of stress. Teachers also had problems with communication and organizational issues.*

**Key words:** online classes, teacher performance, performance, Covid-19, pandemic

**J.E.L. classification:** I21, I25, P17.

## 1. Introduction

Teachers are the key factor in ensuring the education of students and it is necessary for them to perform well because the process of teaching students' education depends on the good performance of the teacher (Tehseen and Hadi, 2015).

The pandemic period was a stress factor for teachers because it was a state of uncertainty and was perceived as a threat to the way they were accustomed to teaching. Thus, teachers had to deal with a high level of performance ambiguity due to the new context created by Covid-19, which led to lower stress and lower performance (Pratiwi et al., 2019).

A study conducted in 2021 showed that stressors among high-impact teachers were associated with pandemic concerns as well as work overload, which led to various psychophysical symptoms and burnout (Vargas and Oros, 2021).

Teaching itself can often be an extremely stressful career, but the COVID-19 pandemic has further amplified this (Kaden, 2020).

During the pandemic, teachers also felt exhausted because they had to protect their own health and that of their family. Basically, they were even more concerned about the tasks they already knew (Marshall et al., 2022).

Basically, they had to consider health promotion, but also the measure to prevent the spread of the disease (World Health Organization).

Another stressor was how to teach online, which most teachers have never done before.

However, teachers have reached a high level of burnout, which is a state of exhaustion both physically and mentally and emotionally resulting from prolonged exposure to stressors at work, but also due to demanding work situations. in terms of the emotional plane (Carlotto and Câmara, 2019).

Even before the pandemic, teachers had a high level of stress because they have a certain reluctance to adopt modern strategies, unfortunately the legislation is not adapted to school needs, there are a limited number of performance indicators, there are too much formalism, as well as the lack of interconnection of departments on the side of extracurricular activities. All this creates a level of stress among teachers (Cucoș, 2014),

## 2. Research methodology

The aim of this paper is to analyze the impact that online schooling has had on teachers’ performance during the Covid-19 pandemic.

Regarding the research design, we used the quantitative research method, based on an online questionnaire administered to teachers in the Romanian pre-university education system. As for the questionnaires, they were created through Google Forms, so that the data could be collected and centralized much easier and more efficiently than if it had been distributed face-to-face.

We applied a questionnaire with 41 questions regarding the challenges that the Romanian education system is going through, divided into several topics for debate. For this study, we will analyze only the questions related to the impact of online classes on teachers’ performance.

The online questionnaires were completed by 347 pre-university teachers.

## 3. Findings

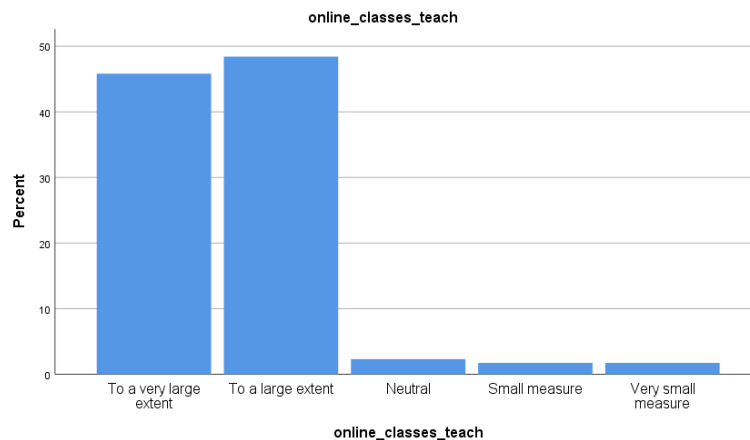
Regarding the question no. 1, to what extent will the online school impact teaching activity, 48.4% of teachers said to a large extent, 45.8% of teachers said to a large extent, 2.3% of teachers said neutral, 1.7% of teachers said small measure and 1.7% of teachers said very small measure.

Table no. 1 Impact of online classes in teaching activity

		online_classes_teach			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	To a very large extent	159	45.8	45.8	45.8
	To a large extent	168	48.4	48.4	94.2
	Neutral	8	2.3	2.3	96.5
	Small measure	6	1.7	1.7	98.3
	Very small measure	6	1.7	1.7	100.0
Total		347	100.0	100.0	

Source: Author’s contribution

Figure no. 1. Impact of online classes in teaching activity



Source: Author’s contribution

Regarding the question no. 2, what difficulties did you face during the pandemic during online teaching hours, 26.8% of teachers said I had problems with how to evaluate students, 21.9% of teachers said I had problems with how to teach students interactively, 22.2% of teachers said lack of

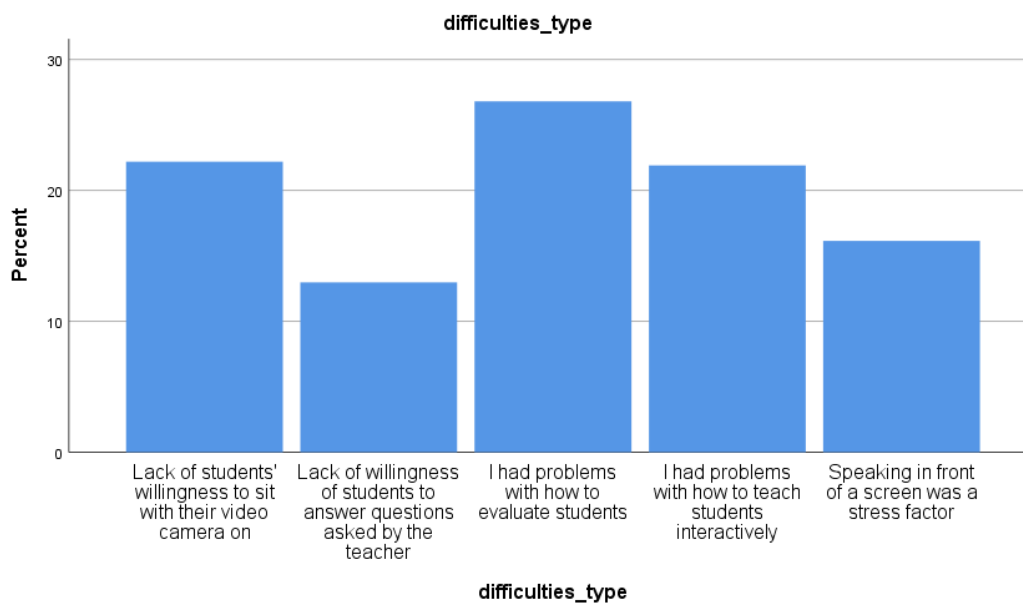
students' willingness to sit with their video camera on, 16.1% of teachers said speaking in front of a screen was a stress factor, 13% of teachers said lack of students' willingness to answer questions asked by the teacher.

Table no. 2 Difficulties during online teaching

		difficulties_type			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Lack of students' willingness to sit with their video camera on	77	22.2	22.2	22.2
	Lack of willingness of students to answer questions asked by the teacher	45	13.0	13.0	35.2
	I had problems with how to evaluate students	93	26.8	26.8	62.0
	I had problems with how to teach students interactively	76	21.9	21.9	83.9
	Speaking in front of a screen was a stress factor	56	16.1	16.1	100.0
	Total	347	100.0	100.0	

Source: Author's contribution

Figure no. 2 Difficulties during online teaching



Source: Author's contribution

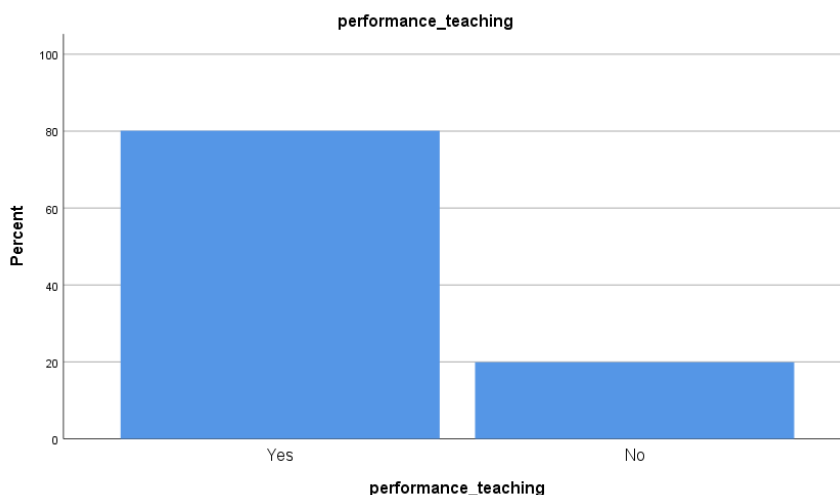
For question no. 3, consider that during your online classes your teaching performance was affected, 80.1% of teachers said yes that their teaching performance was affected during the pandemic, while 19.9% of teachers were affected said no, teaching performance was not affected during online teaching.

Table no. 3 Teaching performance

		performance_teaching			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Yes	278	80.1	80.1	80.1
	No	69	19.9	19.9	100.0
	Total	347	100.0	100.0	

Source: Author's contribution

Figure no. 3 Teaching performance



Source: Author's contribution

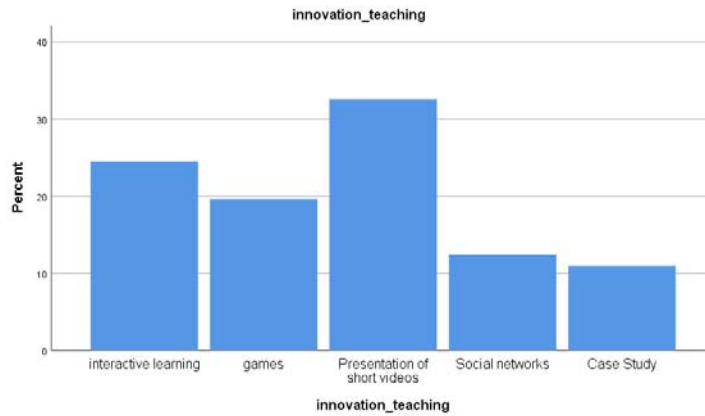
To the question no. 4, what were the ways in which you innovated in the teaching activity in class, 32.6% of teachers said presentation of short videos, 24.5% of teachers said interactive learning, 19.6% of teachers said games, 12.4% of teachers said social networks, 11% of teachers said case study.

Table no. 4 Innovation teaching

		innovation_teaching			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	interactive learning	85	24.5	24.5	24.5
	games	68	19.6	19.6	44.1
	Presentation of short videos	113	32.6	32.6	76.7
	Social networks	43	12.4	12.4	89.0
	Case Study	38	11.0	11.0	100.0
	Total	347	100.0	100.0	

Source: Author's contribution

Figure no. 4 Innovation teaching



Source: Author’s contribution

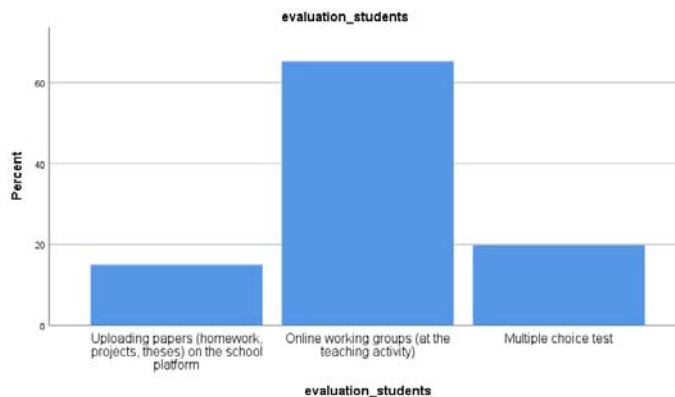
To the question no. 5, which was the way you assessed students during the Covid-19 pandemic, 65.1% of teachers said they assessed students through online working groups (at the teaching activity), 19.9% of teachers said that they evaluated the children through multiple choice test, 15% of the teachers said that they evaluated the students through uploading papers (homework, projects, theses) on the school platform.

Table no. 5 Evaluation students

		evaluation_students			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Uploading papers (homework, projects, theses) on the school platform	52	15.0	15.0	15.0
	Online working groups (at the teaching activity)	226	65.1	65.1	80.1
	Multiple choice test	69	19.9	19.9	100.0
	Total	347	100.0	100.0	

Source: Author’s contribution

Figure no. 5 Evaluation students



Source: Author’s contribution



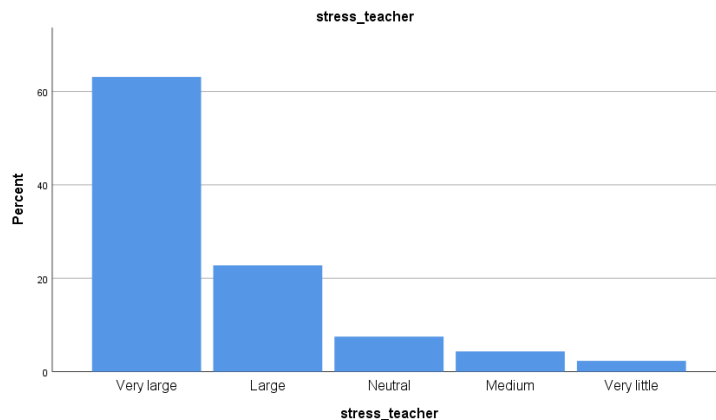
Regarding question no. 6, which was the level of stress you felt in the Covid-19 pandemic, as a teacher, 63.1% of teachers said they had a very large stress level, 22.8% of teachers said they had had a high stress level, 7.5% of teachers were neutral, 4.3% of teachers said they had a medium stress level, while 2.3% of teachers said they had a very low stress level.

Table no. 6 Stress teacher

		stress_teacher			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Very large	219	63.1	63.1	63.1
	Large	79	22.8	22.8	85.9
	Neutral	26	7.5	7.5	93.4
	Medium	15	4.3	4.3	97.7
	Very little	8	2.3	2.3	100.0
	Total	347	100.0	100.0	

Source: Author's contribution

Figure no. 6 Stress teacher



Source: Author's contribution

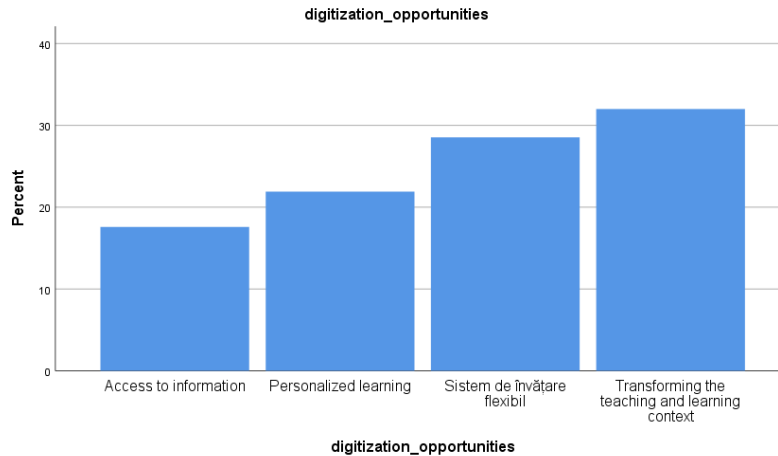
For question no. 7, what do you think are the opportunities that digitalization of schools could offer in the future, 32% of teachers said transforming the teaching and learning context, 28.5% of teachers said flexible learning system, 21.9% of teachers said personalized learning, 17.6% of teachers said access to information.

Table no. 7 Digitization opportunities

		digitization_opportunities			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Access to information	61	17.6	17.6	17.6
	Personalized learning	76	21.9	21.9	39.5
	Sistem de învățare flexibil	99	28.5	28.5	68.0
	Transforming the teaching and learning context	111	32.0	32.0	100.0
	Total	347	100.0	100.0	

Source: Author's contribution

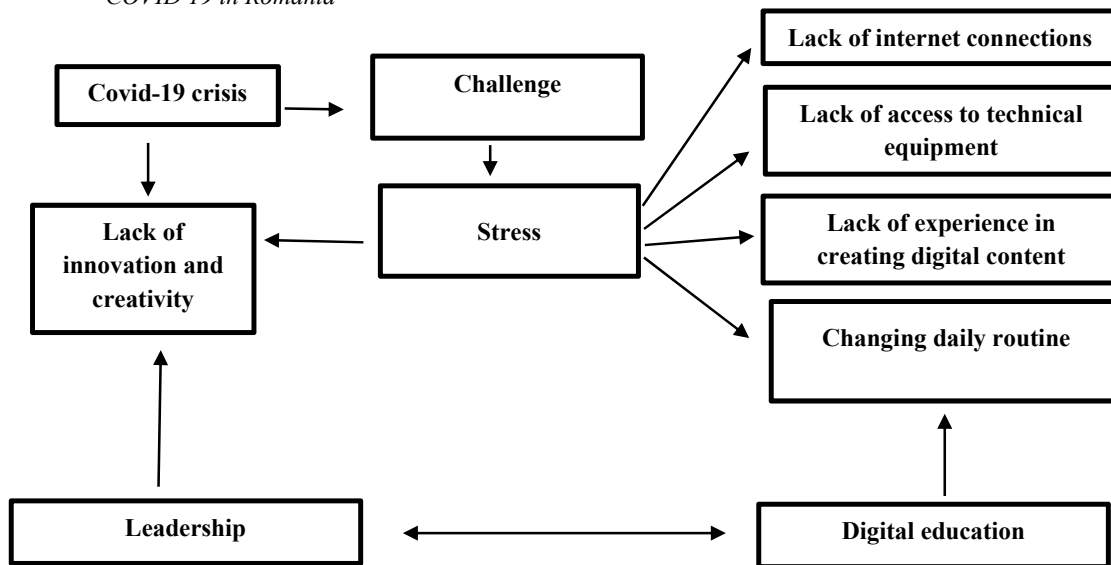
Figure no. 7 Digitization opportunities



Source: Author’s contribution

I created the figure no. 8 entitled: The impact of online classes on teachers performance during the pandemic period of COVID 19 in Romania, as follow:

Figure no. 8 The impact of online classes on teachers performance during the pandemic period of COVID 19 in Romania



Source: Author’s contribution

In this paper we have shown that the pandemic period was not an easy one for teachers, but neither for students and parents.

Following the application of the questionnaires, we could see that the teachers had to come up with innovations in terms of online teaching, in which they went on the presentation of short videos, interactive learning and games. Which took the teachers out of their comfort zone.

In order for teachers to face all the challenges, they need leaders to inspire them, to easily get over the less pleasant events, but also to develop continuously.

Leadership styles inspire people with a broad view of the world, help clarify goals, motivate people, and help them communicate well with their team (Rowley and Sherman, 2003).

We believe that digital education could be a significant factor in reducing stress in terms of teaching activity for teachers, but for this they need to be trained in a timely and appropriate manner.

For example, a study conducted in 2019 that looked at the digitalization of schools and education in Sweden showed that teachers have a positive attitude towards the use of technology, both in the classroom and in their professional activity (Koro, 2019).

With the development of technology and the advent of modern media, the perception of education is changing, and major development centers in the field of education will bring education to another level (Castle and McGuire, 2010).

## 5. Conclusions

The aim of this paper was to analyze the impact that online classes has had on teachers performance during the Covid-19 pandemic.

Following the results obtained, we find that during the pandemic, teachers faced a major challenge in terms of teaching, namely online teaching, as they were hit by a lack of internet connections, lack of access to technical equipment, lack of experience in creating digital content. in terms of teaching, lack of knowledge for the efficient use of work platforms, but also lacked experience in teaching online,

Which led to a series of changes in their professional life and at the same time a high level of stress. Teachers also had problems with communication and organizational issues.

The results cannot be generalized.

This study will be useful to researchers, teachers, school principals, school inspectors, as well as other people interested in the situation of the pre-university education system in Romania.

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# An Overview of Public Sector Performance in Europe

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## Abstract

*The pandemic effects are still being perceived on the worldwide economy and economic growth is projected to slow in 2022 and 2023 compared to 2021. In this "bad" environment, the war in Ukraine severely affected European countries' economies and all world economies as a domino effect. This paper investigates public sector performance in European countries in recent literature by analyzing 2018-2022 published scientific papers. We perform science mapping by using the VOSviewer software to identify networks between keywords and authors. Our results reveal that strong links exist between keywords occurrence, authors' networks, but also between countries and institutions.*

**Key words:** performance, public sector, bibliometric analysis

**J.E.L. classification:** C38, H11, O50

## 1. Introduction

Worldwide, countries are struggling to prevent another significant economic and financial crisis considering the tensions generated from the war in Ukraine. The government plays a vital role in periods of economic and social distress to stabilize the economy and sustain its growth. The COVID-19 pandemic has generated a whole series of changes that have taken place in key areas of the economy: hospitality (Aivaz et Căpățână, 2021; Aivaz et Micu, 2021), information technology (Aivaz1, 2021), support services (Aivaz2, 2021), a whole series of studies capturing the specific challenges that each of these areas must face, identifying possible public policies that can be applied in the immediate and future perspective to improve the situation of these economic sectors, in particular, and of the economy as a whole. Unfortunately, the last years have been characterized by pandemics, war, and economic instability, and the role of decision-maker in one country's economy has rase. In this context, public sector performance has become a topic more and more investigated in recent literature. Thus, another essential research topic should be the quality of this research and the main actors that perform this research. Considering this, we aim to explore the recent literature that assesses public sector performance, focusing on Europe.

Our research is based on science mapping by performing a bibliometric analysis on research papers published and indexed in Clarivate - Web of Science database during 2018 – 2022, investigating public sector performance in European countries. Our results identified 3 clusters of 28 keywords with at minimum 3 co-occurrences and 21 authors if we consider a minimum of 9 citations grouped in 5 clusters. Additionally, 22 countries in 4 clusters generated at least 5 documents, and 14 institutions in 3 clusters fulfilled the requirement of a minimum of 2 documents.

The rest of the paper is structured as follows: Section 2 exposes a brief Literature review, Section 3 describes the research methodology, Section 4 reveals the main findings, and Section 5 concludes.

## 2. Literature review

The literature focusing on public sector performance gathers a large number of studies, especially around periods of "bad times", when governments need to be more active to stimulate and revive the country's economy and, of course, improve the wellbeing of its people. Although there still exists a qualitative problem concerning the computation of public sector performance indicators, special

attention must be paid to the conceptual part. To be more precise, to have a clear definition and understanding of the public sector concept and the measurement of its performance, namely "to determine where government ends and society begins" (Van de Walle, 2008, p. 336). Moreover, Mihiț et al. (2019, p. 11) mentioned that among the problems of measuring public sector performance is the variety of the social and economic environment, but also the fact that unqualified personnel are appointed to measure the public sector performance, while the political influence in government decisions also plays an important role.

Focusing on the bibliometric analysis, we can easily state that this technique has become more and more used in assessing the state of research on different topics. More precisely, its use started to increase during the '90s, when the Web of Science database became accessible online (Szomszor et al., 2021, p. 2). Jappe (2020, p. 10), focusing on papers published from 21 European countries, revealed that bibliometric research assessment is fervently used in Nordic countries, followed by Italy and Netherlands. Moreover, Langfeldt et al. (2020, p. 116) highlight that if once research quality assessment was reserved for professionals, nowadays, it is broadly available.

### 3. Research methodology

We reveal a visual presentation of the recent academic literature on the public sector performance in Europe drawing upon science mapping, namely bibliometric research. To be more precise, we employ the VOSviewer software to identify clusters and networks between authors, considering: keywords, co-citation, and co-authorship. We perform our research on studies accessible on the most recognized database of scientific studies, namely the Clarivate -Web of Science Core Collection database. In order to collect our studies database, we use the following keywords: "public sector", "performance," and "Europe". Furthermore, we restricted the time period to 2018-2022 and obtained a sample of 196 documents. Bibliometrics is a tool through which the global production of scientific literature can measure the level of science and technology. It is a method by which we can establish hierarchies, finding out how one country compares to others, the main keywords, and even researchers and scientists with their scientific communities. Networks generated by maps highlight scientists or publications and key terms and can be built based on co-citation (two articles receiving a citation in the same document), bibliographic links, or co-authorship (number of documents as and co-authors). Maps created, viewed, and explored using VOSviewer include items. To be more precise, items are the objects of interest and can be, for example, publications, researchers, or keywords. A map typically includes only one item type, and there can be a link between any pair of items. A link is a connection or relationship between two elements, and each link has strength. The larger the words and the links, the larger the strength between them. Items and links form a network and are grouped into clusters.

### 4. Findings

In the following, we reveal the results considering: (i) keywords analysis, (ii) authors co-citation analysis, (iii) countries co-authorship analysis, and (iv) institutions co-authorship analysis.

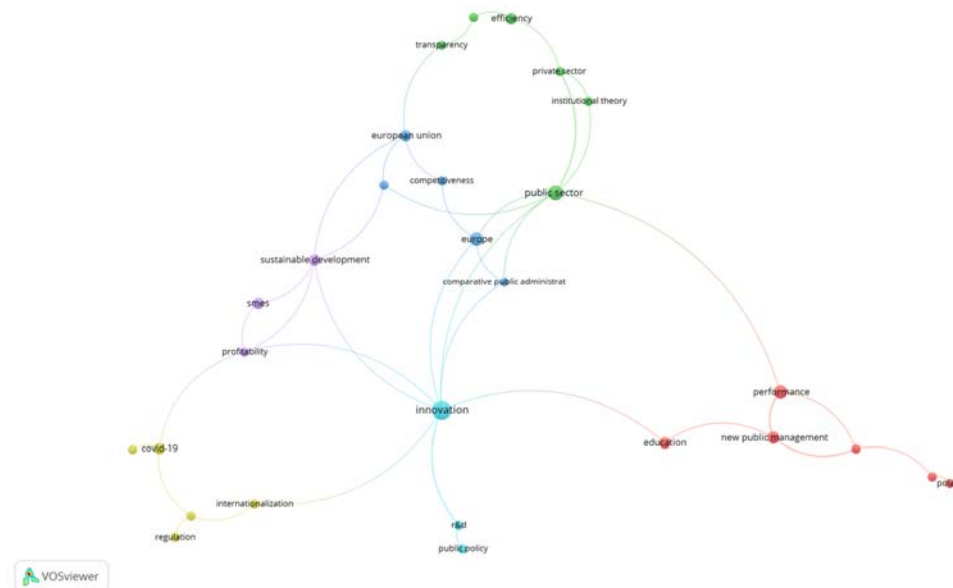
#### 4.1. Keywords Analysis

Figure 1 depicts the keywords co-occurrence after we specify that only the keywords mentioned by the authors should be considered and used a threshold of 3 co-occurrences. The software first identified 847 keywords and reduced the number to 28 keywords grouped in 6 clusters after applying the threshold.

The "performance" (6 occurrences, 4 link strength) keyword leads the first cluster (red) that also contains the following five items: education (4 occurrences, 2 link strength), new public management (5 occurrences, 5 link strength), Poland (3 occurrences, 1 link strength), public administration (3 occurrences, 2 link strength), and public sector reform (3 occurrences, 4 link strength). The second cluster (green) is led by the "public sector" (7 occurrences, 8 link strength), and contains efficiency (4 occurrences, 2 link strength), institutional theory (3 occurrences, 2 link strength), local government (3 occurrences, 2 link strength), private sector (3 occurrences, 4 link strength), and transparency (3

occurrences, 2 link strength). The third cluster (blue) is led by the “Europe” (6 occurrences, 4 link strength) keyword and is also formed from comparative public administration (3 occurrences, 3 link strength), competitiveness (3 occurrences, 2 link strength), economic growth (3 occurrences, 3 link strength), and the European Union (4 occurrences, 4 link strength). Furthermore, the fourth cluster (olive) is led by “covid-19” (4 occurrences, 3 link strength), and is composed of internationalization (3 occurrences, 2 link strength), privatization (3 occurrences, 3 link strength), regulation (3 occurrences, 1 link strength), and Spain (3 occurrences, 1 link strength). The fifth cluster (purple) is led by the “sustainable development” (4 occurrences, 5 link strength) keyword together with SMEs (4 occurrences, 2 link strength) and profitability (3 occurrences, 4 link strength), while the sixth cluster (light blue) is led by “innovation” (12 occurrences, 9 link strength), and is also composed of public policy (3 occurrences, 1 link strength), and R&D (3 occurrences, 3 link strength).

Figure no. 1. Keywords network

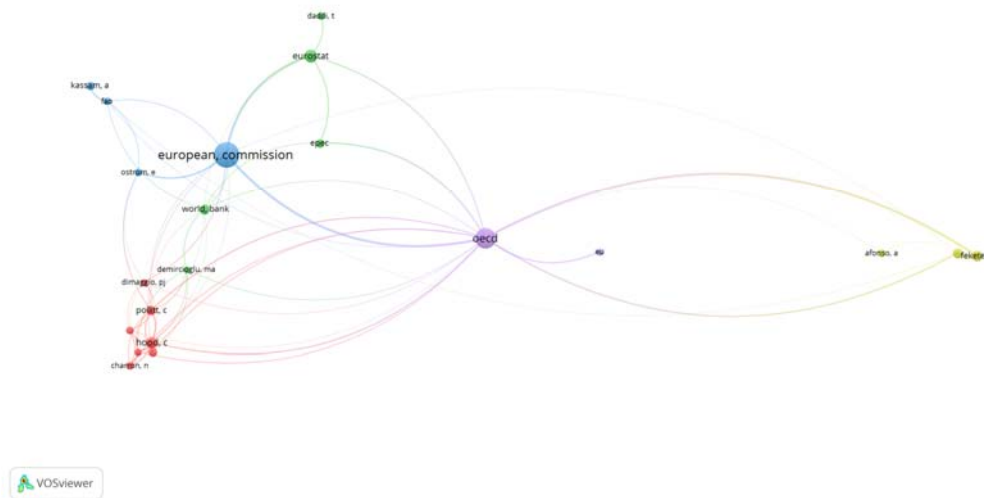


Source: author compilation in VOSviewer

#### 4.2. Authors Co-citation Analysis

This section reveals the research network considering the authors of the sample publications, and the software revealed 8756 authors. For a better map visualization, the threshold was set for 9 citations, and the software selected 21 authors grouped in 5 clusters.

Figure no. 2. Authors network



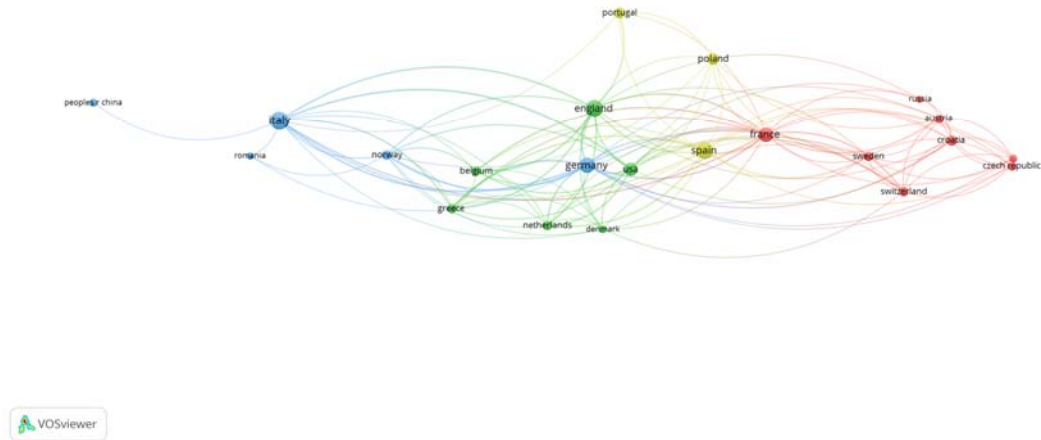
Source: author compilation in VOSviewer

Figure 2. illustrates the five clusters and the link strengths between them. As can easily be observed, the European Commission (103 citations, 168 link strength) is the most cited one on our topic of interest and forms the blue cluster together with Fao (10 citations, 42 link strength), Kassam A. (12 citations, 24 link strength) and Ostrom E. (10 citations, 40 link strength). The purple cluster is led by OECD (65 citations, 266 link strength) together with EU (9 citations, 21 link strength). Furthermore, the red cluster is formed by Charron N. (10 citations, 56 link strength), Christensen T. (13 citations, 61 link strength), Dimaggio PJ. (9 citations, 16 link strength), Hood C. (20 citations, 99 link strength), Perry JL. (10 citations, 25 link strength), Pollitt C. (14 citations, 83 link strength) and Van de Walle S. (9 citations, 62 link strength). Finally, the green cluster is composed of: Daddi T. (11 citations, 9 link strength), Demircioglu MA. (9 citations, 24 link strength), Epec (13 citations, 35 link strength), Eurostat (26 citations, 86 link strength), and World Bank (17 citations, 26 link strength), while the olive cluster is formed of Afonso A. (10 citations, 2 link strength), EC (16 citations, 161 link strength) and Fekete G. (19 citations, 190 link strength).

### 4.3. Countries Co-authorship Analysis

This section reveals the geographical area in which our literature of interest is concentrated. The software identified a number of 55 countries but set a threshold of a minimum of 5 documents per country, and our sample was reduced to 22 countries grouped in 4 clusters. Considering the number of published documents, Italy ranks first (31 documents, 361 citations, 31 link strength) and forms the blue cluster together with Germany (21 documents, 263 citations, 45 link strength), Norway (8 documents, 80 citations, 18 link strength), Peoples Republic China (6 documents, 22 citations, 1 link strength) and Romania (5 documents, 15 citations, 3 link strength).

Figure no. 3. Countries network



Source: author compilation in VOSviewer

Furthermore, the red cluster is led by France (19 documents, 68 citations, 34 link strength) together with Austria (7 documents, 118 citations, 11 link strength), Croatia (10 documents, 23 citations, 12 link strength), Czech Republic (7 documents, 21 citations, 10 link strength), Russia (5 documents, 19 citations, 5 link strength), Slovakia (6 documents, 9 citations, 10 link strength), Sweden (8 documents, 47 citations, 13 link strength) and Switzerland (8 documents, 64 citations, 15 link strength).

#### 4.4. Institutions Co-authorship Analysis

This section depicts the top institutions researching our topic of interest and publishing a paper from our sample of 109 papers. The software identified 418 organizations, but when selecting a threshold of a minimum of two papers per institution, the sample was reduced to 57 institutions. Moreover, Figure 4 depicts the first 14 institutions grouped in three clusters for better visualization.

The red cluster is composed of the European Commission (2 documents, 66 citations, 4 link strength), Norwegian University of Science and Technology (2 documents, 57 citations, 4 link strength), Polytechnic University of Milan (2 documents, 56 citations, 4 link strength), RWTH Aachen University or Rheinisch-Westfälische Technische Hochschule Aachen (3 documents, 62 citations, 4 link strength) and its led by The Technical University of Munich (3 documents, 58 citations, 8 link strength). Furthermore, the green cluster is composed of Cardiff University (2 documents, 28 citations, 3 link strength), The Hertie School (2 documents, 77 citations, 3 link strength), The KU Leuven (2 documents, 28 citations, 3 link strength), The University of Oslo (2 documents, 8 citations, 1 link strength), The World Health Organization (3 documents, 4 citations, 1 link strength). Finally, the blue cluster is composed of the Croatian Forest Research Institute (2 documents, 9 citations, 4 link strength), The Institut National de la Recherche Agronomique (2 documents, 3 citations, 4 link strength), The Swiss Federal Institute of Technology (3 documents, 8 citations, 4 link strength) and The University of Bern (2 documents, 53 citations, 5 link strength).



Figure no. 4. Institutions network



Source: author compilation in VOSviewer

## 5. Conclusions

We performed a bibliometric analysis in order to identify in recent literature (2018-2022) that focuses on Europe the importance of "public sector performance" as a research topic. As a result, we revealed the existence of solid links and identified, among others, the most used keywords on this research topic.

Our sample includes 109 published research papers analyzing public sector performance in Europe. Firstly, when investigating "keywords", we obtained 28 (with a threshold of 3 co-occurrences) grouped in 3 clusters. It can easily be observed from the chart that keywords like "performance", "innovation", and "public sector" are the most common in the analyzed literature. Secondly, when analyzing the author's network, the software identified 21 authors (out of 8756 authors) that fulfilled the requirement of minimum 9 citations, grouped in 5 clusters. Thirdly, when observing the countries that generated research papers on our interest topic, we observed that 22 countries met the threshold of minimum 5 documents per country and were grouped in 4 clusters. Finally, when considering institutions that generated minimum 2 documents, the software identified 14 institutions grouped in 3 clusters.

Considering our above analysis, we can easily conclude that public sector performance is a research topic of interest for academia and major international institutions, thus for the decision-makers.

## 6. Acknowledgement

This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS/CCCDI – UEFISCDI, project number PN-III-P1-1.1-PD-2019-0219, within PNCDI III”.

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## Verbal and Nonverbal Communication in Business Activities

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### Abstract

*When discussing business communication, authors usually approach it from a linguistic, psychological, psycholinguistic or an economic/business perspective. We would like to add another perspective, i.e. communication management. Therefore, this paper consists of three parts. The first one refers to verbal communication and conversation management (i.e., conversational management strategies), the second one deals with nonverbal communication and the last one describes an experiment that is to be conducted for understanding and improving effective communication in a business environment.*

**Key words:** verbal communication, nonverbal communication, business English, conversation management

**J.E.L. classification:** Z13

### 1. Introduction

Since communication is an inherent element in a wide array of environments, which nowadays has been profoundly marked by technological progress (Buzarna-Tihenea, 2019, p. 140), it has been studied by many linguists and psycholinguists (including the field of business communication). Tatiana Slama-Cazacu (1990) considers that psycholinguistics is mainly aimed at tackling the modifications incurred in messages during the actual communication process, triggered by the relationships, the interconnections that are established between the message sender and its recipient, with all the involved elements, such as reciprocal influence, psychic lability, impact of the overall context where it is situated. In this scholar’s opinion, psycholinguistics should focus particularly on the analysis of language facts in terms of living reality, and on the interconnections waved between these speech facts and the contexts where the subjects find themselves (T. Slama-Cazacu, 1991).

### 2. Theoretical background

Communication, including business communication, has been studied by linguists and psycholinguists. Tatiana Slama-Cazacu (1999) considers as the object of psycholinguistics the study of the changes that appear in the message during the concrete act of communication, due to the relationships that are established between the sender and the receiver, with all what they assume, such as psychic lability, mutual influence, influences of the general context in which it is located. Psycholinguistics must study the facts of language as a living reality, the relationships between these speech facts and the situations in which the subjects find themselves (T. Slama-Cazacu, 1991).

The study of the oral language by linguists with the help of the recording technique led to the creation of some valuable corpora of conversation that indicate the existence, importance and main characteristics of the dialogue. We owe the first extensive research on dialogue in the Romanian language, as well as the systematization of data on dialogue, to Tatiana Slama-Cazacu (1999). Dialogue is a form of communication signaled by the real and active presence of at least two partners, who have, alternatively, the role of speaker and receiver/ auditor and who transmit information through the verbal and nonverbal components of communication.

The dialogue is based on the fact that each of the partners is focused on what information they are going to convey, on the interest shown in what the interlocutor is saying, on the adaptation of each partner to the possibilities of understanding of the partner, on the alternative exchange of replies, the proportional dosing of their length so as not to degenerate into a monologue.

The dialogue implies the strict observance of some rules: adapting to the partner and to the known common context, the intention to communicate, listening to the partner's replies, inhibiting one's own reply, mastering affectivity, promptness of the reply, short-term memory, alternating and chained speech (1982, p. 218). Noticing these rules and the close connection between the replies, Tatiana Slama-Cazacu introduced the concept of "dialogued syntax", defined as follows: "the situation in which the lines in the dialogue complement each other, forming a single syntactic unit, (a sentence, a complex sentence)" (Slama-Cazacu 1982, p. 219). Thus, according to the aforementioned scholar, there are links in the sentence that can repeat elements from the previous speech of the partners, links to complement each other in and through sentences, links with the own previous replies, opinions of their own or with previous replies of the partner (for example: "-When are you leaving?/ -When, tomorrow.").

Therefore, the dialogue in oral communication bears features such as: the presence of both partners, the alternative exchange of replies, the exchange of information and the linguistic form in which it sometimes appears, namely the syntactic-contextual chaining between replies (see Slama-Cazacu, 1982).

### **3. Communication management**

In an organization, communication management involves the way of generating, conveying, understanding and interpreting ideas and facts about work performance and organizational efficiency. Both employers and employees need to be able to communicate in a proper manner, by developing their communication skills. Poor communication can lead to misunderstanding and misinterpretation of the messages, orders, recommendations.

The importance of communication management has been stated by some authors. In this paper, we will refer, for example, to Jeffrey F. Anderson et al., who concluded in their study (2010) that the CMC (computer-mediated communication) users appropriated and accustomed several means and procedures (such as turn allocation, turn taking, and explicit interruption management) from person-to-person dialogues in order to contribute to the development of the local management of conversations. The scholars further explain that at that moment "overlapping intermittent talk followed by lengthy strategic pauses" was employed in order to perform turn exchange, although the ideal (oral) conversation model was based on the "no gap, no overlap" principle. According to the scholars' general conclusion, computer-mediated exchanges seemed flexible as far as the modality modification was concerned; moreover, users immediately and even automatically used "both traditional and technical features of conversation management" in a creative manner (see Anderson et al. 2010).

In a different context, Evangelia N. Markaki et al. (2013, p. 319), in "Communication Management in Business. The Latent Power for Career Development", argue that the design of adequate and productive communication plans by employing several "resources" between various team leaders (such as supervisors and managers) and employees is often cumbersome; nevertheless, this approach can also be remarkably beneficial because it favors the understanding of those elements that imprint and shape human evolution. Furthermore, according to the same scholars, it concedes the development and intensification of one's personal aspirations, triggering thus efficient and adequate decisions and professional evolution. In these scholars' opinion, the communication plan provides assistance to "the organization, conservation and dissemination of the communication process".

Karolina Muszyńska and Susanne Marx (2019, p. 331), in "Communication management practices in international projects in Polish and German higher education institutions" discuss the results of their study, highlighting the practices which can improve communication in multilingual teams. They classify these practices into three categories: strategic ("clear lines and responsibilities", "cross-cultural competence", "high-quality communication planning", "adopting common working language among team members"), informational "(shared virtual space/project

knowledge center", "instant messenger, e-mail, GoToMeeting", "traditional phone calls", "communication time schedule", "using various communication channels"), emotional ("regular face-to-face communication", "encouraging team members to share feelings and chat informally", "kick-off meeting, review meetings, stand-up meetings", "frequent visits and staff rotation", "asking team members for advice, opinions, feedback").

#### 4. Nonverbal communication

The consequences of language studying for linguistics, applied linguistics (language teaching) and other fields are of paramount importance. The necessity to tackle and analyze linguistic facts in terms of living reality, encountered in a certain situation or context, impacted by concrete elements, in general, and psychic ones, in particular, represents the foundation of the hypotheses validated by the psycholinguistic research of the last decade. These types of research engendered several consequences, such as: more data have been gathered on spoken language; a great deal of information has been amassed via "ancillary" methods (intonation, gestures, signs, facial expressions, linguistic context, situational correlates, etc.); many more data about conversations have become available. It has become evident that "ideal" speakers cannot be operated with, that real communication cannot be set aside or ignored and that utterances cannot be isolated from communication contexts.

Nonverbal communication comprises signs, gestures, signals, facial expressions, posture, appearance, in other words, the human body and some extralinguistic means. Such elements accompany, replace, repeat or emphasize words, coding and decoding meanings. The significance and role of non-verbal communication was demonstrated by Albert Mehrabian in 1967. In one of his studies, he concluded that only 7% of the message is transmitted through verbal communication while 38% is transmitted through voice and 55% through body language.

Body language can express different states and feelings: interest or boredom, fatigue, fear, anxiety, pleasure or disgust. People move their body during important discussions. Tilting the head, nodding, moving their hands, eyes, all these make us realize that the message of our discussion was successful or not. Experts argue that eye contact is crucial during discussions, conversations.

Nonverbal communication in business can have a crucial role especially when it comes to cultural differences in the same company or during negotiations involving people belonging to different cultures.

Nonverbal communication has the following characteristics: it is unconscious, unintentional (sometimes it betrays our emotions, thoughts); it comprises a number of separate codes that we need to learn, some of them being universal, carrying the same meaning in different cultures; the ability to use nonverbal communication increases with age, with experience. Those who communicate well nonverbally can be successful and build good social relationships. Messages sent by nonverbal communication provide information about personal problems or relationships to other individuals (James, 2008, p. 199). The same author discusses certain behavioral characteristics, such as: Nonverbal behavior always has communicative value; nonverbal behavior is often ambiguous, it expresses attitudes and feelings rather than concepts and ideas (p. 220).

In this way, nonverbal communication links languages and cultures as they often have the same meanings almost everywhere in the world. The expression of happiness, sadness, satisfaction, disgust, anger, agreement, disagreement cross the cultures and languages of the world.

In their work, *The Definite book of Body language* (2004), Allan and Barbara Pease explained the power of using open palms. Throughout history, the open palm has been associated with honesty and truth. They also think that office arrangements are mostly made in a way that shows the boss's power and status. Many people feel overwhelmed and helpless when they come to the employer's office because the atmosphere in the office reminds them of the lower status held by employees.

Besides gestures, eye contact, facial expressions, posture, proxemics, clothing, for example, is the result of personal choice, mirrors the personality of the person, is a sort of extension of the self and, thus, it communicates information. It can even affect behavior. Clothing and other accessories (such as watches or jewelry) can mark either a real or a fake social status. For instance, those persons who hold important management positions are more likely to dress in a special manner,

such as wearing sober suits and carrying briefcases. In addition, personal hygiene also plays a key role, having in view that smell and body odors usually send certain messages to many persons, even without being aware of it. (Mehrabian, 2007, p. 145).

## **5. Research methodology**

In order to highlight the importance of both verbal and nonverbal communication, we propose a type of research that will be implemented in the first semester of the academic year 2022-2033, with the students majoring in Economic Sciences.

The research will be based on the following hypothesis:

In business activities, both verbal and nonverbal communication play a significant role in message comprehension and they should not be separated from one another in the teaching process.

The observation and the experiment will be the main research methods employed.

First, the students will undergo an initial assessment test, in order to establish their English proficiency level. Afterwards, they will be divided into two homogeneous groups with similar proficiency levels (i.e., the control group and the experimental one), based on their initial test results.

The teaching process with both groups will be focused on the same content, i.e., Job Interviews, Business Meetings and Telephone Conversations.

For the control group, traditional teaching methods will be used, with a focus only on verbal communication. Teaching activities carried out with this group will involve reading comprehension exercises, vocabulary and listening exercises and writing of dialogues on the topics of job interviews, business meetings and telephone conversations.

As far as the experiment group is concerned, the focus will fall both on verbal and nonverbal communication. Activities such as role-play, mock job interviews, speaking exercises, writing and performing dialogues will be implemented, focused on both types of communication (verbal and nonverbal). During these activities, students' attention will be drawn to the additional meanings brought to the message by nonverbal communication, such as signs, gestures, signals, facial expressions, posture, appearance. In their activities, students will be encouraged to use nonverbal communication both in conveying and understanding/ deciphering messages. They will also be encouraged to compare the messages transmitted only via verbal communication and those transmitted by both verbal and nonverbal communication and highlight the additional meaning brought to the message by the latter. Moreover, in the development of the students' communication skills, attention will be paid to the impact of specialized terminology and to the features of English business language (see Maruntelu and Galbeaza Buzarna-Tihenea, 2020, p. 48).

At the end of the teaching period, the students will sit for another test that will focus on their understanding of several business dialogues on the taught topics. Both groups will receive identical test items.

## **6. Findings**

We expect that the results of the final test will validate the research hypothesis according to which both verbal and nonverbal communication play a significant role in the comprehension of messages in the business context and, therefore, they should not be separated from one another in the teaching process. When the students' attention is also drawn to the human body and to some other extralinguistic elements, they will become more aware of some hidden meanings carried by the message, which sometimes are essential in fully understanding it and which can also be used by the interlocutor – to his/ her advantage – especially in negotiations.

Moreover, we expect that students will become aware that nonverbal communication also involves the subliminal and unconscious expression of various states and feelings whose understanding plays a crucial role not only in successful business conversations but also in daily ones.

## 7. Conclusions

When teaching business communication, the focus should fall both on verbal and nonverbal communication, as they complete each other when it comes to the correct understanding of messages. Moreover, students should also become aware of the different meanings conveyed by the same gestures or by other extralinguistic elements across cultures, as their misinterpretation can entail communication failure. Therefore, one of the ingredients of success (in one’s professional and personal life as well) – besides excellent verbal communication skills – is represented by exquisite nonverbal communication skills, which always complete the intricate puzzle of messages.

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## Public-private Partnership and Economic Development Implication

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### Abstract

*Starting from the idea that the public-private partnership will become in the near future one of the main ways to finance major infrastructure works in Romania, nationally - regionally - locally, this article aims is to verify this hypothesis by analyzing the importance of the concept of public-private partnership at the international and national level. The analysis performed in this article take into consideration the degree to which it integrates the needs of the community and the interest of the private entities for partnership with public administration. In implementing their economic development plans, the governments of the countries face many challenges starting from the construction of the architecture of those infrastructure investments, continuing with their operationalization and last but not least regarding the securing of financing for the completion and for the project operation.*

**Key words:** public-private partnership, economic development implication, globalization

**J.E.L. classification:** O18, O 44

### 1. Introduction

The concept of public and private partnership (PPP) is a relatively new one worldwide, being implemented in the legislation of several developed countries in the late 80s and early 90s of the twentieth century. The main idea on which the concept of public-private partnership is based is that of contractual collaboration between at least two entities (one public and one private) in order to implement and operate infrastructure or service projects addressed to the population. The oldest form of public-private partnership belongs to the United States of America, which since the second half of the 19th century has implemented principles that are still the basis of PPP, especially in the realization of large railway infrastructure projects, which led to the development of transport, goods and people from the east to the west, making a decisive contribution to the development of the American nation. To implement the public and private partnership can be consider on innovative solutions to strengthen social and economic competitiveness.

### 2. Theoretical background

Related to European Commission, “public private partnerships (PPP) are agreements between government and the private sector for the purpose of providing public infrastructure, community facilities and related services” (Green paper, 2004). There is consider that “PPP concept has been predominantly associated with contracts that leverage the private sector’s capital and innovation capacity to finance and maintain long-term infrastructure projects, in response to a concern over efficiency” (ETF, 2020). The syntagm is currently in use with a variety of meanings, whereas a concrete and universal definition is difficult to underline. Literature provides us with a multitude of definitions for what we call public private partnership.



PPP is an long-term contract signed between a public authority and a private entity, under which the private entity provides and finances public services using a fixed asset, with the associated risk-sharing (OCDE,2012).

PPPs should not be confused with privatization because in the case of PPPs there is no transfer of ownership and the public sector remains responsible for providing that public service, while in the case of privatization the responsibility shifts to the private partner.

Although within PPP private partners are designated following a public procurement procedure, PPP projects should not be confused with a public procurement itself, primarily due to the contractual duration which is a long period of time, usually over 30 years and also due to the fact that the operations underlying a PPP project are complex involving design, logistics, construction, maintenance and everything related to the monitoring and operationalization of the investment.

With the globalization of the world economy, amid rising living conditions, the world's population has doubled in the last 50 years (World Bank Open Data, 2020) which has made most countries, whether developed or developing, know a real the infrastructure crisis, regardless of the field of activity, due to the fact that this infrastructure must keep up with the needs of this demographic explosion. For this reason, PPP projects have emerged as a natural solution for those economies to respond effectively to this "infrastructure deficit", whether we are talking here about transport infrastructure (road, rail, airport or port), social infrastructure (schools, hospitals, etc.) or the utilitarian one (water treatment plants, water / sewerage distribution networks, gas, etc.). In general, the design of an infrastructure objective, regardless of the field, before the 1970s did not take into account the demographic explosion that would occur in the next period, because statistical data at that time indicated a slow and steady population growth. For this reason, starting with the 1990s, all this infrastructure began to be completely outdated, it had to be either modernized or replaced with another that meets the needs.

This has happened in almost all social fields, even at the level of tourism because this economic activity has undergone spectacular transformations in the last 30 years. According to statistics provided by the World Tourism Organization (UNWTO, 2019), the total number of tourists globally reached 1,460 million, compared to 438 million in 1990. The increase is significant, 333% in the last 30 years and it is manifested by a pressure felt on the whole chain of tourist services, starting from the road, railway, airport infrastructure and ending with the infrastructure of tourist accommodation and tourist leisure spaces.

These are also the areas that have close connectivity with other aspects of social life globally and for this reason the PPP projects in the field of tourism aimed at modernizing these outdated infrastructures or developing new ones.

The decision of the governments to focus on domestic economic resources and encourage PPP projects was taken due to the fact that they were aware of the situation where only from taxes and fees the development of infrastructure projects is not possible at the level of applications, and the variant of external loans is an expensive one affecting the economic deficit.

Through PPP projects, the public side accesses private capital, managing to carry out at the same time a whole series of necessary investment projects, which in other conditions could not be implemented. Also, the public part benefits from the know-how of the private party, often the solutions found within a PPP project having an important innovative character, the implemented solutions leading to a sustainable development of the local communities involved.

PPP projects differ from other types of financing by two important characteristics, which belong to the private party within the PPP project: investment delivery in time; framing in the allocated budget.

Both characteristics are important because these two indicators can be easily exceeded, the respective risk being taken over by the private party which has all the determination to complete the investment on time and within the budget in order to move to its operationalization in optimal conditions.

When deciding to launch a PPP project, the analysis prior to this decision must take into account three indicators:

- the way in which the public party obtains as a result of the PPP project lower costs of providing the respective services to the population;

- the way in which the public part obtains as a result of the PPP project higher levels of the services provided to the population
- the way in which the public party manages to diminish the risks assumed in the implementation of the PPP project, the respective risks being taken over by the private party.

### 3. Research methodology

In this paper we used the qualitative method of analysis and interpretation of the international experience related to the implementation of public-private partnerships and subsequently with applicability in Romania. The methodology suited the purpose of exploring the characteristics of PPPs as a collaborative endeavor, the role of various actors, the underpinning governance arrangements and the conditions that support PPPs 'development and progress.

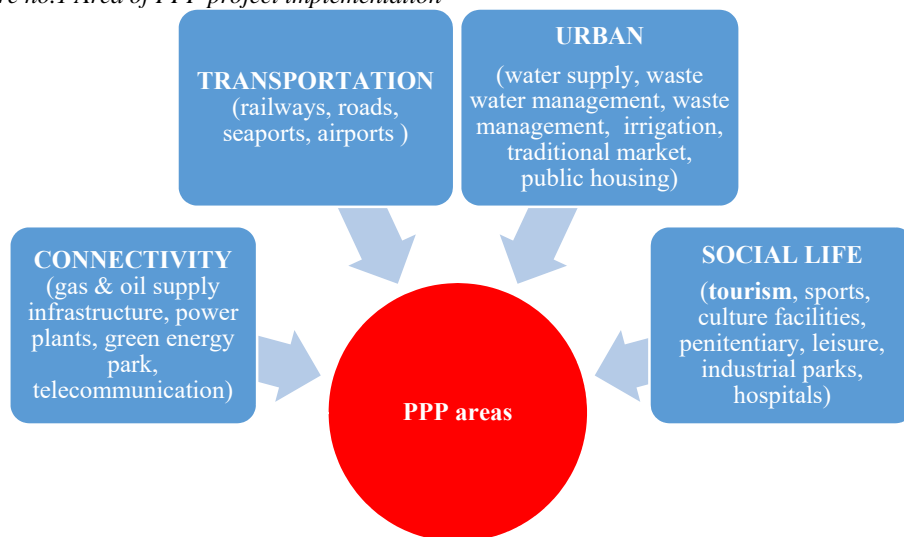
#### 3.1. Public Private Partnership on the international level analyses

The governments around the world are constantly concerned with achieving a level of development of their economies that will enable them to achieve a level of global competitiveness. In this context, given the limited expertise in government know-how and the fact that there are constraints on the level of budget deficit of countries when accessing external financing through loans from various international financial institutions, governments have turned their attention on the resources of the internal environment, in this case on local private sector.

In some countries, the private sector has become an important force in the economy, with know-how acquired and certified over time in its activities and significant financial capital. This private sector is characterized by a specific dynamic and a permanent search for new investment opportunities.

Although from the concept point of view, the public-private partnership is not a new one (incipient forms can be identified in the second half of the 19th century in the USA, where the development of the railways connecting East coast to West coast was achieved through a tool that can be considered as a public-private partnership), the application of PPP has encounter impressive growth since the early 1990s. The pioneering countries in the implementation of PPP projects are Japan, Great Britain and USA. They were immediately followed by Australia, New Zealand, South Africa, Germany, the Netherlands and Canada. Currently, PPP projects are implemented by a large number of countries, because they come to solve a common problem of nowadays economies: infrastructure development by facilitating the access of the private capital in various economic areas and social life, especially in infrastructure and services.

Figure no.1 Area of PPP project implementation



Source: adapted after (OCDE, 2012)

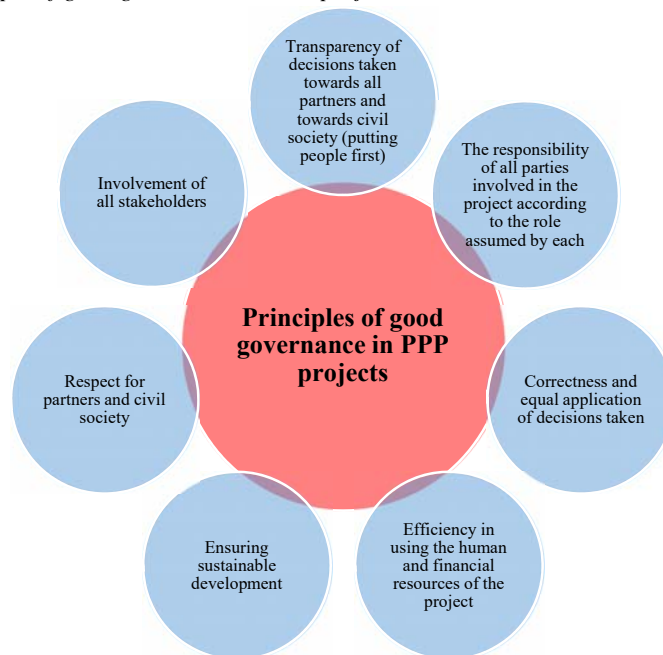
Through public-private partnerships (PPP), governments take advantage of the opportunity to implement new economic infrastructure projects by co-opting private partners. This trend has seen a pronounced accent, increasing on global level during the last 30 years.

According to recent analyzes (Thomas S. Konrad, 2018) there are a number of countries that in the last decade have taken important steps in implementing PPP projects and that come mainly from BRIC countries (Brazil, Russia, India, China). It is no coincidence that these countries are at the top of the list of countries where the needs for private investment are highest in the world. Those countries have climbed one step, being in 2018 in the second phase both in terms of complexity of PPP projects approached, but especially in terms of number of projects implemented or being implemented.

Both the governmental / public side and the private side have well-defined, complementary roles within the public-private partnership. One of the most important roles of the government party in the PPP project is to initiate the project, and this approach is vital for the project that is born.

At the international level (UNECE, 2008) there is a concept of good government practices regarding PPP projects, a concept shared by most states. That concept defines a series of principles and objectives of governance within a PPP project.

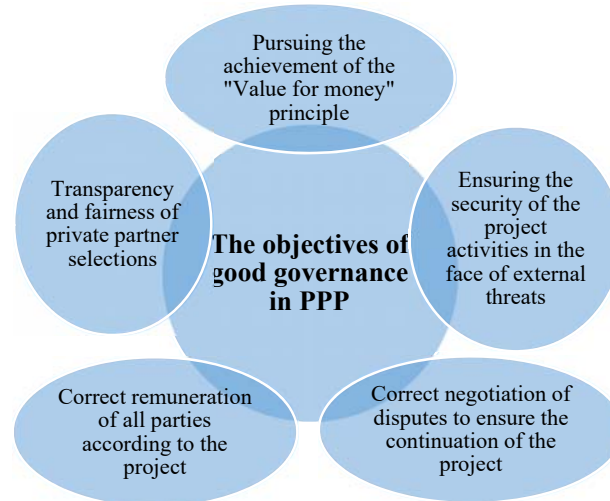
Figure no. 2 Principle of good governance in PPP projects



Source: adapted after (OCDE, 2012)

The 7 principles of good governance in PPP projects can be summarized as follows: in order to have a successful PPP project, you need partners who respect each other, being respectful, correct and transparent about the decisions taken, so that by involving of all stockholders to use efficiently all the resources (financial, human) will be obtained sustainable results in time. In our opinion the stakeholder analysis is very important, as a process of systematically gathering and analyzing qualitative information to determine whose interests should be taken into account when developing and/or implementing a policy or program. Next figure will show the objective of good governance in PPP projects:

Figure no. 3 Objectives of good governance in PPP

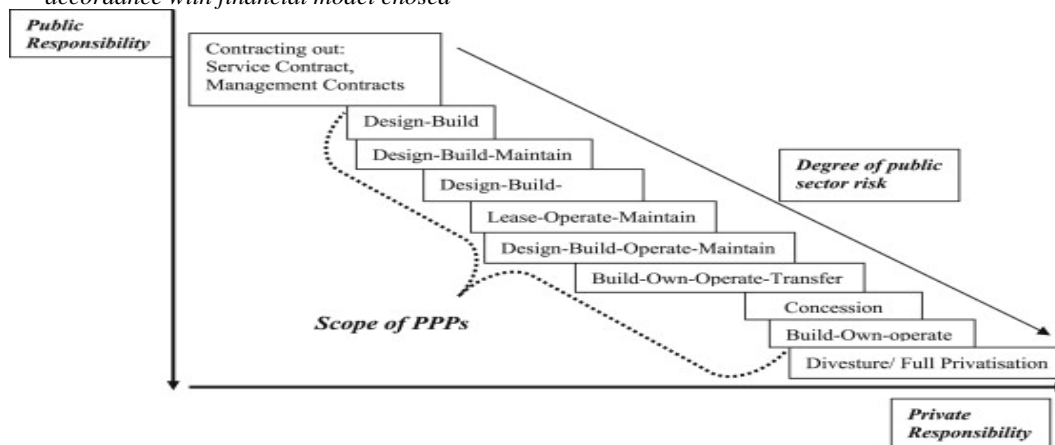


Source: adapted after (UNECE, 2008)

A very important aspect within the PPP projects is the assumption of the risks of the activities within the project. In general, within PPP projects, the assumption of risks is mostly the responsibility of the private party.

The next chart will define the relation of the level of risk transfer between public and private partners in accordance with the model of the PPPs contract.

Figure no. 4 Responsibility and risk transfer between public and private partners inside the PPP, in accordance with financial model chosed



Source: Roehrich, J.K.; Lewis, M.A. and George, G. (2014)

As already stated in the practice of PPP project implementations, the transfer of responsibilities and risks between public and private partners within the project defines the type of association that can be:

- Build-Finance (BF)
- Build-Operate-Transfer (BOT)
- Build-own-operate-transfer (BOOT)
- Build-own-operate (BOO)
- Build-lease-transfer (BLT)
- Design-Build-Finance-Maintain (DBFM)
- Design-build-finance-maintain-operate (DBFMO)
- Design-build-operate-transfer (DBOT)
- Design-construct-manage-finance (DCMF)

### 3.2. PPP's legislation in Romania. Comparative aspects inside national framework legislation. Economic development implication.

The concept of public-private partnership, in its modern sense, has been implemented worldwide for more than 30 years. The Green Paper ("Green Paper on Public-Private Partnerships and Community Law on Public Contracts and Concessions", 2004) is about public-private and Community-wide partnership on public contracts and concessions. This document is the basis for the implementation of the public-private partnership at the level of the European Union, presenting regulations that can take into account the small topics about the national legislation in which that harmonized information existed.

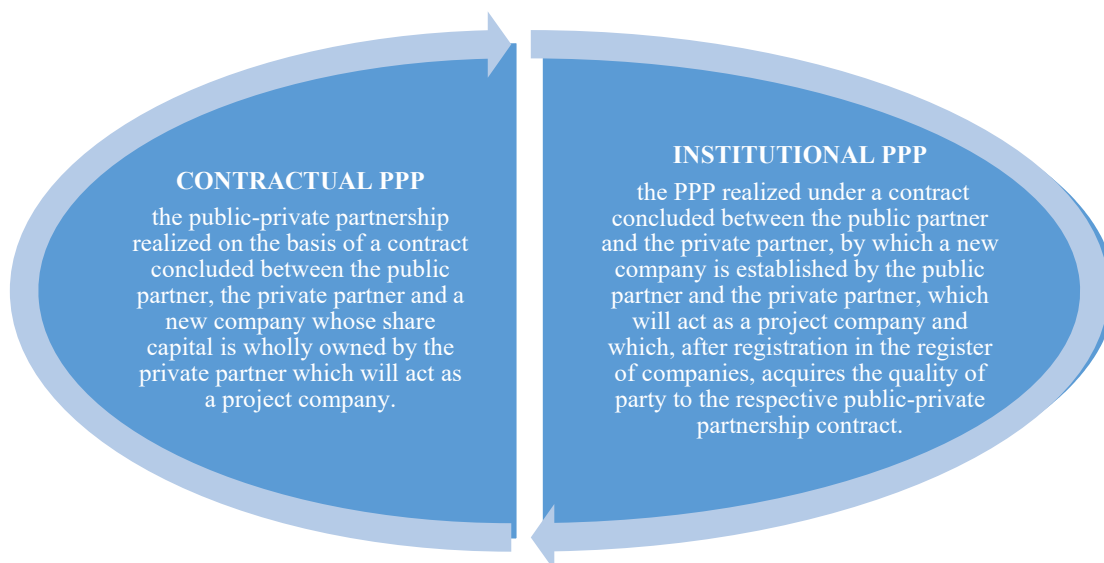
Since 2006 and until now in Romania there have been various intentions of PPP projects regarding the construction of airports, subway lines, hospitals, public parking lots, but also more daring project ideas such as the construction of tourist resorts in Padina and Ciucaș or a Formula 1 circuit in Brasov. Most of these project proposals remained in the early stages for various reasons. Among them we can mention the limitations imposed by the legislation imposed by the Law on public-private partnership no. 178/2010 in the matter of PPP in Romania. This law was intended to provide the general framework to allow the implementation of PPP projects in Romania, trying to harmonize the PPP principles of European legislation with the Romanian economic and political realities.

One of the disadvantages of the law was that private partners did not have access to bank financing to allow a large-scale project and the complexity of PPP projects. Thus, the list of potential private partners who were interested in entering into a public-private partnership was very narrow, the few projects implemented in the end having as private partners strong companies that could provide the cash flow needed to implement the project.

Moreover, some provisions contained in Law 178/2010 overlapped with the previous regulations in the legislation on public procurement and concessions. All these factors led to a modest result regarding the number of projects implemented in the period 2010-2017 when the respective law was abrogated by the provisions of Law 100/2016 on works and services concessions. Following this fact, Law no. 233/2016 on public-private partnership appeared, which was also repealed, leaving the place of a new legislation approved by Government Emergency Ordinance (GEO) no. 39/2018. This is now the normative act that regulates the implementation of projects in public-private partnership in Romania.

The new regulations (GEO 39/2018) refer to two companies that can wear PPPs:

Figure no. 5 Types of PPP under Romanian legislation

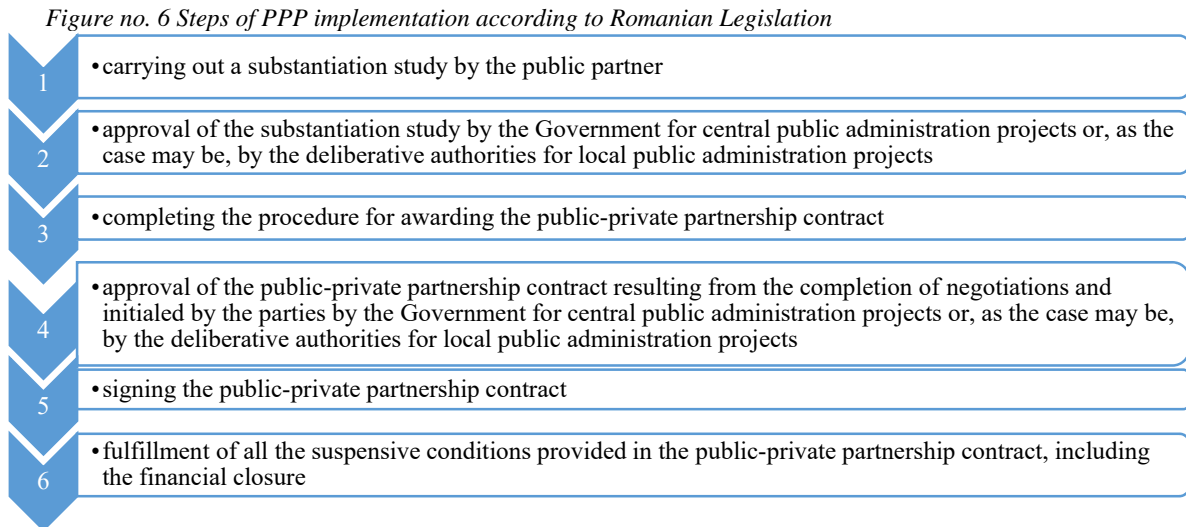


Source: GEO 39/2018

#### 4. Findings - implementing PPP projects in Romania

According to the new law, the awarding of public-private partnership contracts is done through transparent and competitive procedures through public tenders. According to the Law no. 98/2016 which regulates the manner of public procurement, the procedures for awarding public procurement contracts and organizing competitions for solutions, in Article 6 paragraph (2) letter (b) under the incidence of these regulations also enter construction works for hospitals, facilities for sports, recreational and leisure activities, buildings of pre-university and university educational institutions and buildings for administrative use.

Carrying out a project in public-private partnership according to the current legislative regulations includes the following steps:



*Source:* European Commission, 2003

The Romanian Government strategy for the period between 2016-2019, included a series of strategic projects at national level, established by the NCSF (National Commission for Strategy and Forecast). These strategic PPP investment projects, which had been scheduled to be launched after 2019, were established by Government Decision no. 357/2018, were:

- in the field of road infrastructure: Ploiești - Brașov Highway; Bucharest - Craiova - Calafat – Drobeta - Turnu Severin - Lugoj highway and Târgu - Neamț - Iași highway;
- in the field of health "Carol Davila" Medical Complex.

By Government Decision no. 643/2018 the list of the above mentioned projects was completed by a new list of strategic investment projects as follows:

- Bucharest-Craiova / Sofia and Timisoara / Belgrade-Cluj / Budapest high-speed railway;
- Extension of the metro network by building the M7 highway;
- Construction of Bucharest South Airport;
- Moles no. 3 and 4 from the Port of Constanța Sud;
- Completion of the Siret-Bărăgan highway;
- Arrangement of the Argeș river for navigation;
- Turnu Măgurele-Nicopole hydro technical complex on the Danube river;
- Hydroelectric power plant with Tarnița-Lăpuștești lake;
- Construction of a factory of electric means of transport;
- Construction of a system of luxury resorts on the Black Sea - New Costinesti;
- A new tourist complex for skiing in the Făgăraș massif;
- Construction and operation of a national bank of blood, human plasma and stem cells;
- Timișoara Regional Hospital, Brăila-Galați Regional Hospital, Târgu-Mureș Regional Hospital.

It can be easily seen that the Romanian Government PPP strategy between 2016 and 2019, was to start implementing PPP projects in Romania based on the new legislation which was harmonized with the European legislation, through large infrastructure projects, despite the fact that administrative capacity and experience of our country in PPP projects was underdeveloped. Through this strategy of the PPP megaprojects, the infrastructure projects on local and regional level with a lower complexity and which could attract a multitude of private partners were completely neglected and left aside.

At the end of 2019, all this new architecture of the public-private partnership did not produce any effects, the Government of that time recognizing the fact that no contract was concluded due to the lack of application norms. Meanwhile, in December 2019, the Government that initiated the legislative package to regulate the PPP, lost the confidence of Parliament and was changed. In the current conditions of the Romanian political landscape, a recalibration of the public-private partnership cannot be done faster by the new elections in September 2020.

In all this time elapsed since the early 2000s and until now, it can be concluded that the PPP in Romania has had very few achievements at the national level, although it has been used intensively and with notable results in other countries, that have had the same start as Romania, as the main vector for the development of major infrastructure projects in those countries.

The causes of this state of affairs are multiple, their analysis invariably showing that our country has not prepared in detail the appropriate legislative framework (which in some places has been ambiguous and deficient) and at the same time has not taken concrete steps to develop on central and regional/local administrative capacity to ensure the success of the launching and implementation of such PPP projects.

The political changes at the national level that take place once every 4 years or earlier, have even led to a lack of a continued strategy at the national level to boost the PPP, each political entity coming to power having its own vision on the implementation of the PPP. All of this happens to overlap with the insufficient level of Governmental and European funding which are insufficient to cover the current needs of investment in our country.

## 5. Conclusions

The PPP, in its modern form, first appeared in Europe in the early 1990s in Great Britain, where in 1992 the legislative package on the adoption of measures to reduce the public deficit on government loans was adopted, practically putting the legislative bases for the implementation of the public-private partnership. Over the last 20 years, following the example of the United Kingdom, a number of countries globally have adopted legislation to introduce public-private partnerships as a strategic element to enable the implementation of major projects with social impact at their national level. It is interesting to note that Japan has a tradition of public-private partnership since the early 1980s in the operation of public transport lines in rural areas.

In Romania, since the mid-2000s, the public-private partnership has been defined as an alternative to the classic solutions regarding the allocations from government funds. In this sense, the concept of PPP in Romania has taken shape as a national response expressed to the interest expressed at European level on this alternative, through a series of normative acts transposing at national level the recommendations made in 2004 by the Commission's Green Paper European ("Green Paper on public-private partnerships and Community law on public contracts and concessions"). During the over 15 years of preoccupations in order to implement the principles of public-private partnership in Romania, there were several normative acts, among the most important being able to be mentioned:

- the Law of public-private partnership no. 178/2010 (repealed in 2016)
- the GEO (Government Emergency Ordinance) no. 39/2018 which currently regulates the institution of public-private partnership in Romania.

Starting with 2006 and until now, a whole series of projects for the development of various infrastructures such as the construction of airports, metro lines, hospitals, new tourist resorts (in Padina and Ciucaș) have been initiated, with the intention of being carried out in public-private partnership. Although the Law on public-private partnership no. 178/2010 created positive premises for the implementation of the public-private partnership in Romania, most of these projects remained either only at the stage of proposals/project ideas, or in early stages, the amendment of legislation in

2016 and the low level of interest of the private entities involved in these PPP projects making the results modest overall.

The change of legislation in 2018 also failed to bring a new impetus to large investments in the field, especially since it aimed to create a special legislative framework for implementing PPP mechanisms for major road infrastructure projects in Romania. Despite all these shortcomings regarding the architecture and implementation of PPP projects at national level, this type of public-private partnership is the only way in which large infrastructure projects can be successfully implemented, as the involvement of the private entities in such a project is a guarantee of the fact that the project is valuable; the economic principles with which the private entity decides to get involved in such a project as long as it bases its decision on criteria such as “value for money” or “return of investment”.

The actual economic context are key factors in building and involving public and private stakeholders in the shaping of joint solutions to meet the need for a better skilled workforce to increase productivity and competitiveness and pave the way for economic growth.

Public-private partnership projects will continue to be the only opportunity for various infrastructure or service development projects at local/regional level, as long as governmental and international funds have limitations in the amount and level of funding areas that will be analyzed according to priority.

The conclusion of this analyses will bring the fact that Governmental or European funds cannot provide the necessary funds for all of this infrastructure needs in tourism on the local and regional level.

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## IoT Technology Challenges for the Business Media from Suceava

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### Abstract

*Knowing that IoT technologies have the potential to dramatically increase the availability of information, most likely to transform companies and organizations in a practical way, we want to identify the level at which companies in Suceava County are also located.*

*This paper aims to analyze the challenges of IoT Technologies encountered by companies in Suceava County. On the one hand, it is intended to carry out a critical study of specialized literature in order to highlight the current state of IoT technologies at the level of economic operators as well as at that of enterprises. The focus will be on the quantitative approach, but there will also be aspects of the qualitative approach. On the other hand, we will start from the level of IoT technologies outlined on the official platform, reaching the economic level of local companies.*

**Key words:** IoT technologies, business media, challenge, digital, Suceava

**J.E.L. classification:** M15, M16, M21

### 1. Introduction

The Internet of Things (IoT) will allow entry into a new economic era for the entire globe.

A world governed by the Internet of Things is one where appropriate measure are needed, due to the growing economic complexity and the development of the framework that industries and governments have adopted to stimulate economic growth and competition. The Internet of Things will have an impact in every country and economy on the planet, even in the developing world, where the benefits of technological progress have usually been denied. The perspectives offered by IoT relate not only to simple improvements to existing economic processes and models, but rather to the transformation of their scope.

In terms of objects or things, the Internet in IoT currently has different interpretations.

We can think of the current Internet network as the network that supports the remote transport of traffic generated by connected objects or the network of objects in IoT services through special gateways. We can also see it as the IP communication model adapted to manage communication between objects in the object network, as well as in sensor networks. An example of IP adaptation to networks with different needs is IPv6, which is adapted to small devices with resource limitations, especially energy limitations.

### 2. Theoretical background

We can also see IoT as a subset of features developed by the Internet community, such as the appointment resolution service; domain name server that can be used to resolve the mail of an object identifier (for example, radio frequency identification) to certain addresses on the network that could trigger a specific application or service. We can see it as just a buzz word, which refers to the connectivity of objects, but not to the IP model or the current internet network. In this case, IoT could be called a network of objects, because connectivity could follow any existing or future communication model. (Stankovic, A., 2014)

What is IoT (Internet of Things)? According to the authors (Neagu, Vrejoiu, Preda, Stanciu, 2021).

IoT is a network of physical (smart) objects that are interconnected with each other, which have built-in technology they need to communicate and detect data about their internal state, as well as interaction with the external environment. In 2012, Rand Europe defined the Internet of Things in a European Commission research report. This report states that: “The Internet of Things is a development of the Internet achieved by creating a universal network of connected physical objects capable of self-organizing, identifiable and addressable that allow the development of applications in and between key vertical sectors through the use of embedded chips, sensors and actuators and by low-cost miniaturization”.

There are also other definitions of the Internet of Things developed by different international researchers or bodies. Here are some of these:

- the definition developed by T. Lu and W. Neng: “Things have virtual identities and personalities operating in intelligent spaces using intelligent interfaces to connect and communicate within social, environmental and user contexts.”;
- the definition developed by the European Commission: “From a semantic point of view, the expression is composed of two words and concepts: The Internet and The Thing (thing), in which the Internet can be defined as a universal network of interconnected computer networks, based on a standard communication protocol, TCP / IP (Transmission Control Protocol / Internet Protocol), while Thing (work) is an object that is not accurately identified. Therefore, from a semantic point of view, the Internet of Things has the meaning of a universal network of single-addressable interconnected objects based on standard communication protocols.”;
- the definition developed by P. Guillemin and P. Friess: “ The Internet of Things allows people and objects to be connected anytime, anywhere, with anything and anyone, using any path/network, as well as any service.”

The field of technologies IoT has experienced a sensational development both in the last decade and more considerably during the current context (Covid-19).

Thanks to the development of IoT technologies, we decided to carry out statistical research in this regard. The characteristic of this technology, which has attracted our attention is to provide information resources that then take the form of services that beneficiaries (in our case companies in Suceava County) can use the quantity and quality they need from any corner of the world.

Along with other technological developments such as Cloud computing, smart grids, nanotechnology and robotics, the Internet universe of things ensures a huge step towards an economy characterized by increased efficiency, productivity, safety and profit. The interconnection between business and IoT technologies Thanks to IoT technologies, researchers have developed a suite of ways to integrate and develop considerably these opportunities offered by IoT in organizations, with the aim of spending on information technology. Addressing this theme from a commercial point of view, we could see that IoT aims to improve the quality of life, sparing the human resource from effort thus diminishing a certain part of its responsibilities. We chose this theme to demonstrate and confirm the change of vision that IoT brings, namely:

- expanding the diversity of these objects by standardizing communication and interaction solutions;
- harnessing data on the evolution of these objects by purchasing, transmitting and storing them in dedicated, centralized or cloud-based infrastructures, as well as by advanced analysis of these objects, using specialized services, to extract, synthesize and use relevant information.

What directions does IoT prove its usefulness?

Industrial areas / Cities

Smart buildings and care for the environment

Smart housing

Transport, convenience, mobility and dynamics

The healthcare system is consistent with smart homes.

During the course of this study, analyzing the activity of companies in Suceava County, we identified some characteristics of the Internet of things, priority for those companies, these are the following:

- **Distributivity:** The Internet of Things evolves in a highly distributed environment. Data is collected from different sources and processed by multiple entities in a distributed manner;
- **Interoperability:** devices from different suppliers cooperate to achieve common objectives. Systems and protocols shall be designed in a way that allows objects (devices) from different manufacturers to exchange data and work in an interoperable manner;
- **Scalability:** In the Internet of Things systems and applications run at the top of the network and manage an unprecedented amount of data;
- **Resource shortage:** both energy and computing resources are extremely limited;
- **Security:** the existence of an unknown external control that generates frustration among users which would represent a serious impediment to the implementation of the Internet of Things.

Looking at it from a different perspective, all opportunities present a certain level of risk and, in terms of the Internet of things, risks are as important as rewards.

Starting from cyber breaches to the transfer of a ownership problem, businesses cannot afford to enter this new technological world unprepared. For example, any Internet-connected object is an entry point through which cybercriminals can enter a business system of an enterprise. In conclusion, we can say that IoT technologies are a revolutionary transformation, both qualitative and quantitative, of our interaction with the environment in which we are located.

### **3. Research methodology**

Phenomena such as the rapid evolution of technology, the need for adaptive scalability, cybersecurity, easy-to-use design, the length of time for verification, the customization of IoT solutions or projects, are normal in the century in which we live, but they periodically involve large-scale changes. These changes have created the challenges of IoT technologies. The purpose of this study is to identify which of these challenges also applies to firms in Suceava County and the extent to which they apply.

This paper aims to analyze the challenges of IoT Technologies encountered by companies in Suceava County. As such, it is expected to be found ways to harness the power of IoT technologies, considered a factor in the strategic objectives of most firms, regardless of their focus on the industry. In relation to the overall objective, we will outline the operational framework of the research by setting specific objectives, general assumptions, and specific working hypotheses.

Therefore, the use of mixed methodologies in economic research requires an analysis of quantitative and qualitative methods as to their possibilities of being integrated into a coherent whole or system leading to the achievement of a well-defined research objective. Some methods lend themselves better to this process, and others less so. Certain methods are also useful to achieve specific objectives at different stages of complex research (Pintilescu, Muntean 2018).

In this paper, several such methods are investigated, and their selection was carried out in order to achieve a double objective. On the one hand, it concerns the evaluation of specific elements of these methods, in relation to the perspective of mixed methodologies. On the other hand, it is desired to analyse these methods in relation to the empirical part of the work, where they will be used to verify certain hypotheses concerning the use of research methods in the economic field.

Quantitative research is used to test and validate previously constructed assumptions, the results obtained through this type of research are relatively independent of the researcher. The research is carried out via the Internet, the questionnaire being conducted in Google Forms and distributed, by email, social networks with appeal to companies in Suceava County. After the introduction, the first section of the questionnaire follows, consisting of two filter questions "1. Do you know the concept of the Internet of things? (IoT aims to connect any device to the Internet so that these objects can exchange data with each other on a network)" and "2. The company you are currently operating in or operating in Suceava County?", depending on the answer that respondents give to these questions, can continue the questionnaire or be directed to a section that will explain why the questionnaire ends and the assessment that there was the initiative to complete the questionnaire.

The research subjects are employees of 30 companies, namely: directors, managers, who can provide us with the information needed to carry out the research.

In relation to the overall objective, we will outline the operational framework of the research by setting specific objectives, general assumptions, and specific working hypotheses.

*Secondary objectives of the research*

- O1. Identifying the most influential challenges of IoT technologies within Suceava companies
- O2. Identifying the extent to which the challenges that appeared may affect the company's business
- O3. Identifying the readiness and available resources of firms for these new challenges in IoT technologies
- O4. Identifying the most important challenges at the level of the practice of IoT technologies at the level of the companies in Suceava
- O5. Identifying the safety and security of companies in the use of IoT technologies
- O6. Identification of adaptability (to cope with ...)
- O7. Identification of the use of IoT technologies in Suceava County companies
- O8. Identifying the advantages and disadvantages of IoT technologies
- O9. Identification of the most advantageous industries in Suceava County, following the use of IoT
- O10. Make a respondent profile

*Statistical assumptions of research*

- H1: 25% of respondents, working age, between 2 and 4 years;
- H2: 50% of respondents to the questionnaire work in companies with up to 50 employees;
- H3: More than 40% of the population surveyed believe that IoT Technologies greatly influences the company's activity;
- H4: 30% of those evaluated believe that there are difficulties in keeping up with the evolution of IoT technologies;
- H5: The most common in the sample analysed is considered the degree of security between "safe" and "very safe";
- H6: 60% of respondents consider "safe" how IoT technologies develop their safety;
- H7: The most commonly used answer for the question related to this hypothesis is 40% prepared by the firm for that challenge;
- H8: In a proportion of 30/30 % the firms in the sample analyzed consider either "neutral" or "prepared" the firm for customizing IoT solutions or IoT projects.
- H9: On average, the firms in the sample analyzed have responses between 'prepared' and 'very prepared', as regards to the firm, if the following challenge is taken into account: the need for scalability;
- H10: 30% Consider cybersecurity a neutral challenge for the company in which it operates, 30% confirm the company's prepared for this challenge;

#### 4. Findings

The sample is structured as follows: 20% of respondents work in agriculture, 16% in real estate, the rest being in areas such as: construction, transport, media/internet, construction in relatively equal percentages. If we pay attention and experience in the fields in which they work, we note that 30% have experience between 2 and 3 years, 30% less than 1 year, 23% over 10 years, 13.3% 5 years the difference being by those who are 8-9 years old.

By the number of employees, the enterprises are 26.7% in micro-enterprises, 23.3% in medium-sized enterprises with up to 50 employees; 26.7% large enterprises and 24.3% more than 250 employees. It should be noted that 80% of companies use IoT and 14% believe that IoT technologies greatly influence the activity of the company in which they operate.

Among the factors influencing the challenges arising in IoT technologies we recall: 73% responded that the rapid evaluation of technologies, 15% the time for recovery, cybersecurity, customization of solutions or projects, the last place being the easy-to-use design.

Section three of the questionnaire: "Are you having difficulty keeping up with the evolution of IoT (Internet of things) technologies?", the following statistical table was found, according to the indicators of the central trend and the location.

Table 1. Analyse of data

Lim Inf	Lim Sup	Xi	ni	d	N↓	Xi*ni	Xi- X	(Xi- X )^2*ni
1	1	1	7	0	9	7	-2	28
2	2	2	7	0	16	14	-1	7
3	3	3	10	0	26	30	0	0
4	4	4	4	0	30	16	1	4
5	5	5	2	0	32	10	2	8
Total		15	30			77		

Source: (Authors' own research).

It follows from the calculation of the median that about half of the respondents do not see it as difficult in keeping up with IoT technologies, the result being equal to 3, having the expressive equivalence of "neutral / indifferent", according to the questionnaire.

From the calculation of the mode, it follows that the central trend of the sample is equal to the value of 3, so that the vast majority of respondents are neutral in terms of difficulty in keeping up with IoT technologies.

It follows from the arithmetic average calculation that about half of the respondents encounter to a small extent or are neutral about the difficulties in keeping up with IoT technologies, the result being equal to about 2.56, having the expressive equivalence of "to a small extent / neutral / regardless", according to the questionnaire.

It can therefore be observed that there is approximate equality of an equality  $\bar{x} = Mo = Me$  resulting in the distribution of frequencies being symmetrical.

The starting point is section three of the questioner, namely the question: "Assess the degree of security and safety of IoT technologies within the company in which you operate". It follows that more than half of respondents work in firms where there is a degree of safety and security of IoT technologies equal to the value 4, represented by the expression "safe" according to the questionnaire. Thus, there is a symmetry between the distribution of frequencies.

It is apparent from the calculation of arithmetic averages for both coordinates that most respondents work in firms where there is a degree of safety and security of IoT technologies is equal to 3.66 and 3.86 respectively, having the expressive equivalence of "neutral / safe", according to the questionnaire.

Another aspect taken into account is the challenge - Cybersecurity on IoT projects shows that about 40% of respondents are trained in the cybersecurity aspect of IoT technologies, the result being the value 4, equivalent to the same value expressions, according to the questionnaire.

It can be seen that about 30% of respondents are neutral to the ready in terms of the cybersecurity aspect of IoT technologies, the result being equal to 3.47, meaning 3-neutral/4-prepared according to the questionnaire.

Interesting to highlight are the opinions of respondents on IoT technologies:

- I believe that IoT technologies represent the future of a company, enabling communication between people, processes and things. I think it is about communication between the physical and digital worlds, resulting in a level, perhaps the highest to date, of efficiency, competitiveness and communication.
- I believe that we should keep up with new technologies so that we would not fall behind and become a serious problem, due to the increasingly accelerated development of technology.
- I believe that IoT technologies represent the future of mankind.
- I have a good opinion so far, given the development of these technologies. I find many advantages in the use of this technology.
- It's worth investing in.
- In the current context, there is a growing need for automation.
- I am satisfied with her.
- It's a positive one because it guarantees efficiency.
- I'm delighted.
- A step forward towards evolution in any field.
- It is of major help when used for a well-defined purpose.

- IoT technologies help a company a lot if used properly.
- I believe that IoT technologies are of major importance and necessity within companies.
- Facilitates access to various services. It's the future.
- It is important.
- It's a current technology that the vast majority of campaigns need.

Efficient and transparent. Analyzing the indicators used we can conclude the validation of statistical assumptions, therefore 80%, the assumptions have been validated, except for hypotheses 5 and 9 that have been disproved.

## 5. Conclusions

The digital age revolutionized human society in the last century. In fact, the digitization of information processes has led to the design of computers, phones and other machines that offer a lot of applications running on independent computing machines. Then the digitalized information transport developed.

Our society is now completely dependent on the largest network ever, the Internet - one of the most amazing and major human inventions. On this network, most information traffic is created and generated by people via email, web and other user services.

Now, after digitizing information, transportation, and communication, the ubiquitous computer appears. It is based on digitized information from the real environment and allows us to build more task automation to better interact with the real environment. Automated processes are expected to be around us to build the so-called "smart world," where the real and the internet of virtual world sorbes coexist together. Here not only people communicate over the network, but any connected object or thing involved in a particular process, with and without human intervention, will communicate and generate network traffic.

The Internet of Things (IoT) is somehow a driving path to the intelligent world, with computers and ubiquitous networks to ease different tasks around users and provide other tasks, such as easy monitoring of the various phenomena that surround us.

In IoT, the environment and everyday articles, called "things", "objects" or "machines" are enhanced with computing and communication technologies. They join the communication framework, encountering a variety of services based on person-person, person-machine, machine-person and machine-machine interactions using cable and wireless communications. These connected machines or objects/things will be new Internet or network users and will generate data traffic. They will perform new services that will be carried out by the current or future internet.

In summary, a vision of the future is that IoT becomes a utility with increased sophistication in detection, actuation, communications, control and in the creation of knowledge from large amounts of data. This will result in qualitatively different lifestyles than today. Lifestyles would be anyone's guess. It would be fair to say that we cannot predict how lives will change. I didn't predict the Internet, the web, social networks, Facebook, Twitter, millions of smartphone apps, etc., and all of this has qualitatively changed the lifestyle of companies. New research issues arise from the large scale of devices, the connection of physical and cyber worlds, the opening of systems, and ongoing privacy and security issues. It is hoped that there is more cooperation between research communities to solve the multitude of problems earlier, as well as to avoid reinventing the wheel when a particular community solves a problem.

## 6. Limits and future directions of research

Given the polyvalence of the development and use of a mixed methodology, limits are imminent, but also the inconvenience of moving them forward at this stage of the research.

The following are a number of limits captured both methodologically and empirically. From a methodological point of view, only a few more or less classical qualitative and quantitative methods have been analyzed that can be framed in multilateral mixed research strategies. Empirically, an important first limit derives from the small number of respondents who accepted the challenge of answering the online questionnaire, but also from the low level of knowledge about IoT technologies. As for quantitative study, the volume of the study sample may also be a limitation of the research.

On the one hand, the application of the questionnaire online has been an impediment to carrying out the research, in the context that the current situation is such that you end up considering the mails as a whole- spam.

In consonance with the identified limits, as well as with the high dynamics of international research on IoT technologies, we point to a string of future directions opened by this research topic. A first direction envisages the analysis of other quantitative and qualitative methods on their possibilities to be integrated into a whole or a coherent system built on the coordinates of a mixed methodology. The second proposal is empirical and aims to develop this research by applying the questionnaire to a larger sample including specialized respondents from other regions and fields of activity in Romania, as well as by introducing new series of questions in the questionnaire guide to allow surprise and other dimensions to explore on the research issue.

Finally, also with a view to the development of research, other mixed research strategies should be used to assess the use of research methods in the economic field.

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## Can Cyber Risk Affect Financial Stability?

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### Abstract

*This paper addresses cyber risk as a risk that may affect financial stability. Based on the conceptual framework of cyber risk, I've highlighted a number of research papers and reports issued by regulators and supervisors that assess cyber risk in terms of its potential to affect financial stability.*

*In the paper, I described a cyber risk scenario that could, in certain circumstances, become a systemic risk.*

**Key words:** Cyber risk, systemic risk, financial stability, financial market infrastructures, payment systems

**J.E.L. classification:** E50, E58, E59, E71, G28, G41

### 1. Introduction

Digital innovation has significantly reshaped the population's behaviour in its daily life and the way it interacts with financial institutions. It is almost impossible to live in today's world without being connected to the internet, both in our daily office activities and in our private lives, in order to make our lives easier. E-commerce tends to gain more and more value in the life of the modern consumer and, in order to ensure the basis of this way of trade, we must keep in mind the availability of stable, efficient and secure technical infrastructures starting from the merchant's websites, to electronic payment methods, the payment provider's solution, online banking or phone banking applications, payment systems, settlement systems and ending with technical infrastructure within courier companies. Any element in this chain, if vulnerable, would lead to a decline in consumer confidence in e-commerce.

As the use of information technology has become an important part of everyday life, and even more so during the Coronavirus pandemic (COVID-19), the potential disadvantages of a growing dependence on technology have become even more apparent. Thus, it is essential that the technical infrastructure on which critical services are offered to the population, such as the public health system, access to the financial system, utilities are protected from cyber attackers and are available at all times, to ensure the proper functioning of the modern society.

The Covid crisis has forced traditional financial institutions to completely reorganize their operations, having to deal with situations of operational blockages, temporary branch closures, increased demand for online banking services, including the physical unavailability of staff, who have had to work remotely.

Given the current geopolitical context and the recent escalation of cyber attacks, it can be stated that cyber risk is taking on new horizons from the perspective of traders, service providers and regulators, who are stepping up their efforts to ensure consumer safety and maintaining confidence of the population in the financial system.

Recently, national supervisors have considered cyber risk to be particularly important and have consistently assessed it. At EU level, various working groups were set up to assess the potential of cyber risk to affect financial stability.

## **2. Literature review**

According to the European Central Bank, the European financial sector did not suffer major disruptions in the provision of banking services during the health crisis, even if there was a considerable increase in cyber attacks. Cyber risk was considered of major importance in the analysis of all the risks for the financial system that were identified and it was included in the category of major risks. The European Central Bank and central banks members of The European System of Central Banks included analyses regarding cyber risks in their financial stability reports.

Healey et al. (2018b) pointed out that so far no incident has affected financial stability, while stressing the difficulty of measuring the impact of the materialization of a cyber incident that would affect several entities which are directly interconnected with the affected entity. The contagion effect of the entire financial system related to the attacked infrastructure cannot be quantified, taking into consideration that the reaction of the market and the consumers of financial services are not similar from one operational event to another. This risk for the banking financial system is insufficiently examined by the academic literature, by the supervisory authorities, and even by the actors providing financial services. The lack of complex analyzes is, in my view, the result of two key issues, namely the lack of clear information on cyber incidents and the lack of information regarding the technical infrastructure used by financial institutions. The dissemination of this information may pose a major risk for the financial institution, as this information could contribute to facilitating access of the attackers who intend to gain access to the institution's technical infrastructure.

The latest analyzes performed by authorities and academia show that cyber risk has the potential to trigger financial instability. This view is also reflected by recent European regulatory initiatives that address the cyber resilience issues in an increasingly complex way, with an emphasis on the importance of this type of risk.

## **3. Research methodology**

After analyzing secondary data and the relevant literature, I conducted a qualitative research focused on a scenario in which a cyber incident can generate systemic risk.

## **4. Findings**

### **4.1. Systemic cyber risk**

Because cyber risks that affect individual entities have the potential to affect other entities that use similar infrastructures, this risk can become a systemic risk and affect financial stability. For this scenario (in which financial stability is affected) to manifest, some type of amplifier would need to be present, so that the shocks produced at the level of the financial system can no longer be absorbed, causing blockages in accessing liquidity, which would result in diminishing public confidence in the financial system. Such a crisis, generated by an operational incident of a cyber nature, can generate effects similar to those observed in times of a financial crisis, with the potential to generate major negative consequences in the real economy and may even create situations of economic recession.

Taking potential financial losses into account, the uncertainty created by the materialization of a major cyber attack, combined with the loss of public confidence in the financial system, are in my opinion the critical catalysts (amplifiers) in triggering a crisis that would affect financial stability.

Historical data on financial crises has shown that the insolvency of a systemic financial institution or a serious incident at the level of such an institution leading to its total unavailability and the loss of financial data of customers generate a major crisis in the financial system. In these situations, the reaction of other market participants is particularly important in mitigating the effects of temporary economic downturns and in maintaining public confidence in the financial system.

Given the interdependencies in the financial system, in the process of analyzing a major cyber incident that may have an effect on financial stability, all direct and indirect channels through which the shock will have a direct or indirect effect on other institutions from the financial sector must be assessed.

Effective communication and transparency about the real situation have been shown to lead to more effective crisis management.

Lack of transparency or incorrect information's can create panic among other financial market participants, which results in a loss of confidence in other financial market participants, which affects liquidity, especially for smaller market participants.

Thus, for a better management of cyber risk with systemic effects, it is important to understand the nature of the initial incident, the potential areas affected and to estimate the potential financial losses.

A definition of systemic cyber risk is found in a paper published by the World Economic Forum in 2016, which referred to cyber attacks or events that can affect a critical component of an infrastructure and can lead to the unavailability of services, causing losses, which would also affect other entities in the ecosystem where the affected entity operates, having an impact on the safety and health of the population, on financial stability or affecting national security.

In a paper published by Kopp et al. (2017), cyber risk is presented as a potential risk that can generate systemic risk due to the common technical infrastructures operated by the financial sector entities, the interdependencies between them and the contagion effect at the level of the financial sector.

The potential of a cyber risk to have systemic implications is also highlighted by the Office of Financial Research (2017), which highlights the existence of three channels through which a cyber incident can affect financial stability: the lack of substitutability of financial market actors, especially of financial market infrastructures, the loss of confidence of both partner entities and consumers of financial services and the loss of data integrity or unavailability for a longer period of time.

Healey et al. (2018a) argue that at least one channel should be added to the three channels identified by the Financial Research Bureau, namely the lack of substitutability of technical infrastructure. The authors point out that a large (and increasing) share of computing and storage power is provided by a limited number of vendors and given that technical infrastructures in the financial field tend to be extremely similar and use the same security protocols, this makes these infrastructures vulnerable to cyber attackers.

Thus, the risk of a major incident at local level can lead to disruption or destruction at the regional level or even at the level of the entire industry. Also Healey et al. (2018a) identify three main amplifiers for an incident of a cyber nature to generate systemic risk: the moment of occurrence of the incidents, the complexity of the degree of security of the technical infrastructure and the intention of the attacker.

A number of papers address scenarios of unavailability or compromise of data integrity in the financial system, and the scenario of unavailability of a financial market infrastructure as a result of a cyber incident. These scenarios are a real concern for regulators and supervisors and also for the financial sector participants, because all these scenarios can lead to a loss of public confidence in the financial system.

Danielsson et al. (2016) consider that a cyber risk has a low potential to become a systemic risk, but highlight that the situation of simultaneous materialization of a cyber incident with a financial crisis situation can act as a trigger of a systemic crisis.

A particularity of this risk is the possibility of hackers to attack a target over a long period of time, often penetrating systems and gaining access to information managed by these systems, giving attackers the opportunity to assess and identify all features and mechanisms, existing system-level defense before completing the attack and extracting data and information or blocking these systems to subsequently demand money from infrastructure owners.

In many cases, attackers may have financial resources to help them use highly advanced methods of attack, and they may often be motivated to destroy rather than make a profit.

Thus, cyber attacks can be considered a matter of national defense in certain circumstances, involving the financial supervisors together with the national security authorities in carrying out activities that the financial supervisors normally do not consider in their regular activities related to providing the current financial market monitoring.

As a distinct feature of cyber risk, three elements differentiate it from an operational risk, namely the speed of spreading, the extent of the risk and the intention or motivation of the cyber attackers. The interconnection of different information systems facilitates the rapid and widespread reach of cyber incidents, affecting a large number of financial market players.

It can be said that cyber incidents have no borders and can easily spread widely, affecting several sectors beyond geographical borders, including entities that were not targeted by attackers. Cyber incidents are becoming more and more destructive, persistent and rapidly increasing, illustrating the high level of sophistication and coordination that cyber attackers can achieve.

A cyber incident can turn into a systemic crisis when confidence in the financial system is eroded. A critical point in assessing the possibility of escalation of a cyber incident to a systemic financial crisis is whether or not the incident escalates from an operational level to an incident that affects consumer confidence. For a cyber incident to raise systemic financial and trust concerns, it must severely affect the availability of critical functions that support the real economy, with the financial impact being so great that the financial system is no longer able to absorb the shock.

I emphasize two important issues when it comes to cyber risk - firstly, given the speed and magnitude with which a cyber incident can spread, the rapid coordination between the affected entities and authorities is essential in order to minimize the impact of the incident and maintain public confidence in the economy and financial stability. Secondly, the restoration of key economic functions requires detailed planning, involving market authorities, market players, technical infrastructure providers and the availability of financial resources to cover the costs of restoring these functions.

The response of the central bank is essential in addressing such incidents affecting financial institutions, so that such an incident does not trigger a crisis that could affect financial stability.

#### **4.2. Possible scenario for cyber risk to become systemic risk**

Starting from the previously analyzed studies, I developed a scenario that could target a cyber incident at the level of an RTGS-type payment system - System Y, which could significantly affect capital flows in a national economy.

System Y is a high-value payment system that ensures national interbank payments and the final settlement of debt positions within interconnected ancillary systems (low-value payment system, instant payment system, card payment systems and settlement securities systems). The system is used for central bank operations, treasury operations and liquidity facilities provided by the central bank for credit institutions operating nationwide.

In the current geopolitical context, an Advanced Persistent Threat (APT)-type group has attacked and made the core application of the payment system unavailable. The system can no longer be used by participants. The core application is managed by an external provider. A cyber incident occurs in the first part of the day: there is a security breach through which the attackers managed to obtain the source code of the core application of the payment system and other information. Thus, the attackers are able to exploit a security breach that the application administrators were unable to identify.

Once this incident manifests, the local defense team tries to restart the application but finds that the problem persists. The secondary site has the same errors, as it is technically replicating the primary site.

The incident message is sent to the participants and the oversight and intervention authorities are alerted that a cyber incident occurred.

The system administrator issues a press release, announcing that an operational incident has occurred at the level of the Y payment system and the period for remedying this incident cannot be estimated.

The software solution provider is notified to intervene remotely to fix the incident, but it is found that local intervention is needed to rewrite a new version of the application, so that the system's vulnerability is remedied and the attackers that compromised the application lose the access and control they have over it. A new technical infrastructure must be implemented to prevent the recurrence of a similar incident.

As the outage lasts, the effects on the companies that have to make payment transactions begin to materialize and all these transactions are put in queues, as there are no bank correspondent accounts that can not be used either. In order to avoid blockages, credit institutions have to notify all customers that all domestic interbank payment transactions cannot be made due to a Y-system payment incident that ensures the settlement of interbank payment transactions.

Information about this incident is also publicized by the national media. This creates a state of panic among credit institution customers, who massively go to their respective credit institutions' branches where they have opened their accounts, in order to withdraw their money, fearing that not converting scriptural money into cash will cause them to lose money.

At the same time, a series of messages, which were meant to create panic among the population, appear on social networks, conveying the idea that the money of bank customers was stolen by a cybercrime organization from a neighbouring country.

Context: The incident has its roots in the core software of the Y payment system, which ensures the processing and settlement of payment transactions. The software is developed and maintained by a third-party vendor in a foreign country.

The regional geopolitical context, the war at the border of the country and the firm position of the country towards the attacker create the premises for an APT-type attack of a national critical infrastructure in the financial field.

During the morning, after the first hour of operation, the system becomes totally unavailable.

Restarting the system does not bring any improvement to the system after its re-operationalization at the secondary site. Subsequent investigations make it clear that the system is was under a successful cyber attack that blocked the core application.

The incident lasts all day and fails to settle the daily operations of the system, affecting all interbank payments and does not operate the settlement of net positions related to ancillary systems. The operator has a major impact on credibility, the operational risk materializing also from the perspective of the sanctions it will receive from the oversight authority and the potential penalties that participants will request as a result of complaints from the bank customers that were affected.

The application provider is working on the new version of the application but does not know if it will be able to finalize and test this version until the beginning of the next day.

The database is unaffected by this incident and the vendor's response team arrives at the payment systems' headquarters in the second half of the day, after the end of the banking day.

- Shock: the system does not work throughout the banking day, affecting a volume of approximately 20.000 payment transactions and affecting 6 ancillary systems (low value payment system, instant payment system, net positions from card payment systems Visa and Mastercard and securities settlement systems for the processing treasury bills and for the processing of financial instruments traded on the stock exchange). The estimated value of all transactions to be processed during the day is approximately 100 billion.

As there is no bank correspondent relationship between credit institutions at national level and no other system allows for the processing and settlement of these transactions, the interbank payment transactions are not settled at maturity. The State Treasury is affected, considering that at the time of the incident, the payment obligations for companies related to VAT and payroll taxes were due.

- Impact on the operator: the Y system operator is facing a severe reputational impact due to the materialization of this serious operational incident that has temporarily blocked all critical activities and functions of the system. The short-term financial impact is limited to the sanction applied by the oversight authority, the long-term financial (and legal) impact beyond the costs of strengthening cyber resilience is expected to be severe (for example, penalties charged by customers of credit institutions participating in the system and penalties for delay applied by the state treasury for all delays in the payment of taxes and duties due on the date of the incident).

The panic caused by this incident leads to high liquidity pressure, given that many customers want to withdraw their liquidity from the banking financial system. All ATMs are left without cash and there are very long queues at the bank counters. It creates a general state of nervousness given the need for liquidities – cash is not sufficient at the credit institutions' braches to cover all the liquidity needs of customers who want to liquidate their positions.

- Amplification: all interbank payments are blocked nationwide, panic and distrust starts among bank customers, there are penalties for late payment of fees and taxes, lack of liquidity at bank counters and ATMs and distrust of the population in the banking financial system.

- Reputational impact: the panic created in the national financial ecosystem is difficult to quantify and the Y payment system operator shareholders react cautiously and give up all ongoing projects for the development of the company and focus all resources on strengthening resilience. The participants have major grievances because they are waiting for new developments in the payment system so that they can adopt the new messaging standards for complying with the new requirements for anti-money laundering, countering terrorist financing and to implement instant payments.

The value of the shares on the stock exchange decreases by 20% and the monitoring authority calls for the urgent creation of a liquidity fund to ensure immediate investments in ensuring cyber resilience, including an external penetration test and an external audit of the technical infrastructure. Shareholders are unwilling to provide additional liquidity reserves, considering the potential financial losses caused by this incident.

- Operational incident with financial impact: all interbank payments are blocked, there are major difficulties for credit institutions in finding short-term sources of liquidity as the securities settlement system of treasury bills transactions is no longer able to ensure the final settlement of transactions and the central bank conditions the provision of short-term liquidity of REPO-type operations with treasury bills. There are bottlenecks in the economy, especially among small and medium-sized companies that cannot provide the necessary resources for production because they cannot pay for them.

- The incident affects confidence in the financial-banking sector: the panic created by the financial sector is difficult to manage even if the representatives of the central bank make a series of interventions during the day to assure the population that the national financial system is resilient and does not present liquidity problems, but some groups distribute a series of false information on social networks in order to destabilize the financial sector. All these messages are quickly assimilated by consumers of financial services, due to the low level of financial education. All these elements, combined with the inability of System Y and the authorities to remedy the incident in a short time, will lead to a loss of public confidence in the financial sector.

- Systemic event: in this hypothetical scenario, all domestic interbank payments are blocked. Despite continued efforts to remedy the incident and resume business, the system fails to settle due payments by the end of the day.

Shortly after the initial incident, the software vendor discovers that the core application has a security breach that has been exploited by attackers and that a new version of the application needs to be installed from scratch on a new technical configuration in order to remove the attacker from the infrastructure.

Prolonged disruption of the national payment system, combined with uncertainty and the spread of false news on social networks would trigger a crisis in the financial system, affecting financial stability.

A key point to consider in this scenario is the loss of confidence of the financially uneducated population in the ability of financial institutions to ensure the resilience of the financial sector and the security and safety of clients' funds.

The scenario described above illustrates how a cyber incident at the level of a financial market infrastructure (RTGS payment system) would generate a shock for the financial sector. Lastly, I would like to emphasize that such an incident could materialize through a complex attack by APT-type attackers, given the current geopolitical context.

All the elements described above, together with the uncertainty regarding the nature of the incident and the subsequent speculations on social networks, combine to give this operational event the characteristics of cyber stress, in turn contributing to the transformation of an operational risk of a cyber nature into a systemic risk, with impact on the national financial system and the economy as a whole.

## 5. Conclusions

As highlighted in the paper so far, there have been no cyber incidents with systemic impact on the financial system yet, but the scenario described is plausible given the current geopolitical context. However, it is important to note that cyber risk has the potential to have serious, even systemic, financial repercussions, as detailed in the scenario described above.

The modern financial system has a number of vulnerabilities, in the context of the digitalization of financial services, and the exploitation of these vulnerabilities could trigger a crisis situation as a result of the materialization of a successful cyber attack. In the scenario presented above, the biggest impact on the financial system occurred when several amplifiers were activated, which turned an operational incident into a crisis situation that affected the public's confidence in financial institutions, in the ability of the authorities to solve such a crisis and in the national financial system.

A major financial market infrastructure incident should not lead to a crisis situation, but additional elements amplifying the crisis situation have shown that a cyber incident could trigger a crisis situation with an impact on financial stability. The scenario highlights the loss of public confidence in the financial system, the effects of which are difficult to quantify. The restoration of critical activities and functions after the materialization of a systemic cyber crisis are similar to those observed in financial crises and result in large financial losses and a significant weakening of public confidence in the financial system.

The analysis reveals that the exploitation of vulnerabilities, together with the materialization of systemic amplifiers, can conclude in making a cyber crisis potentially become a systemic crisis.

Further efforts are needed in order to reduce the potential impact of such a crisis and the likelihood of it occurring, by ensuring close collaboration between authorities and financial market actors and the adoption of best practices to ensure cyber resilience.

In order to strengthen the cyber resilience of the financial system, both public authorities and private entities are taking a significant number of initiatives to reduce the risks associated with cyber attacks. Although the characteristics of cyber risk make it completely difficult and costly to eliminate completely, there are a number of policy areas that need to be further explored to identify and mitigate systemic cyber vulnerabilities, thus significantly reducing systemic cyber risk, such as shared information and a detailed mapping of the financial system to identify all the interdependencies in the financial sector.

In the current regional context, a deliberate incident which aims to destabilize the financial system would generate a systemic crisis, given the technical and financial capacity of APT-type cyber attackers.

Authorities have repeatedly stressed the need to address cyber vulnerabilities in risk assessment reports and recent regulations, as they create the context for a cyber incident to turn into a serious crisis with the potential to threaten financial stability. A number of common vulnerabilities were identified, such as inadequate supervision of technical solution providers for the financial sector, which are concentrated in a limited number of providers (large technology companies) or “inadequate cyber hygiene” in all financial market players, which are potential gateways for cyber attackers into the financial system.

The general level of awareness of financial institutions about the need to improve cyber resilience, as well as the preparation of business continuity plans from the perspective of cyber incident management, has increased in recent years. However, continued investment is needed, together with complex tests to strengthen cyber resilience, considering technological progress and given the continued diversification of cyber threats.

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## The Digital Leu Challenges and Possible Areas of Implementation

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### Abstract

*The potential implementation of the digital currency issued by central banks (CBDC) in the economy raises a number of challenges, including the idea of decentralization and the loss of the central bank's ability to effectively monitor the payments market and the fear that CBDC could exclude traditional payment solutions. Finding the balance in implementing CBDC-based payment solutions, integrating traditional payment ensuring that all stakeholders benefit from incentives so that they are interested in being involved in the process of distribution, use and processing of CBDC, while increasing financial inclusion and creating a competitive market for private sector payment solutions instruments is the new challenge for regulators. This paper addresses current limitations in implementing a CBDC-based payment solution, the potential risks of using CBDC, reducing the exclusion of traditional payment players and what this type of currency needs to ensure so that the implementation adopted by the users on a large scale.*

**Key words:** digital currency issued by central banks (CBDC), settlement, clearing system, risks, financial stability

**J.E.L. classification:** E50, E51, E58, E59, E71

### 1. Introduction

Payments are vital to our daily lives and for the economy, allowing money to be a medium of exchange and help maintain citizens' confidence in the national currency. Digital innovation has significantly reshaped the world of payments and recent technological developments have changed people's payment habits, by using a card, a phone or a smartwatch to pay. In this new era, a digital currency issued by a central bank (CBDC) would ensure that citizens can maintain permanent access to their own funds at a lower cost, using a simple, universally accepted, secure and reliable means of payment.

The aim of the research is to identify opportunities in the local market that could lead to the implementation of a CBDC project and the benefits of such a project.

### 2. Literature review

Central bank digital currency (CBDC) would be an electronic form of central bank money that could be used by households and companies to make payments and store value, similar to traditional money. This form of money would provide wider access to central bank money and could create new payment opportunities, while helping the central bank maintain monetary and financial stability (Bank of England, 2020).

Digital currency is different from cash in the accounts (scriptural money) and will not allow converting this currency into cash in the form of coins and banknotes. In 2016, Barrdear, J. and Kumhof M. defined CBDC as a digital currency issued by a central bank in the form of an electronic service, permanently available, unanimously accepted, which provides access to the interest rate facility offered by central bank's. A similar definition was stated in the report published by the IMF

in 2018, which referred to this new currency as a new form of money, issued by the central bank and intended to serve as a legal means of exchange (Mancini-Griffoli et al 2018, IMF).

A digital currency would circulate in parallel with the normal currency, with cash, and would not replace its existence. The purpose of creating such a currency is to reduce the use of cash through a payment instrument that provides similar functionality and to ensure better monitoring of cash flows. A digital currency would provide consumers with an additional way to make payments and would be easily accessible to all, including the possibility to be accessed/used in areas where there is no banking infrastructure (rural areas).

There are a number of central banks worldwide that are considering implementing a CBDC-based system. In the first phase, only the central banks would be the entities that will issue a digital currency.

Central banks are considered risk-free financial institutions (Bindseil, U. et al. 2021), with a monopoly position as sole issuers of banknotes influencing physical cash payments. The introduction of digital currency should not have any negative effect on banking lending and may, in certain circumstances, help to promote lending (Andolfatto, D., 2020).

As central banks have no experience in providing digital means of payment directly to the public and also for using the physical network already in place, the relationship between them and the public should be mediated by financial-banking institutions. The supervised financial intermediaries would play an important role in integrating the new digital payment services and providing these solutions to all consumers, as central banks do not manage accounts for individuals and legal entities, so digital currency should not be seen as a competitor to digital payment services, but a competitive and innovative alternative to today's payment services.

Traditional credit institutions are slow, costly and often opaque when it comes to developing low-value payments and remittances, at national level, and especially in cross-border activities. Cross-border payments are currently inefficient, and technology could play a key role in their development, including through the use of CBDC (Aurer R. et al 2021). In addition, there are 1.7 billion people globally who are not banked or do not have access to financial services (G7 report 2019), for whom a digital solution could help increase the financial inclusion.

While financial institutions are constantly constrained by making profits for their shareholders, in the detriment of providing public services to the general public, the approach of central banks is to provide services to the public and to ensure their security, to support low value payments and to promote a competitive and efficient market for payment services that meet all consumer needs, by providing people with money for their payments, trying to reduce the cost of making payments by efficient and secure payment methods, to ensure the integration with traditional financial infrastructure and to reduce costs and pollution related to the use of cash.

In March 2020, the Bank of England released a report outlining the ways in which a CBDC could support the Central Bank's goals of maintaining monetary and financial stability: by developing and ensuring an efficient and resilient payments market, by avoiding the risks of CBDC counterfeiting, by supporting competition, efficiency and payment innovation while meeting the payment needs of consumers in a digital economy, improving the availability of the use of central bank money and decreasing use of cash, while also facilitating cross-border payments.

The rapid progress of technological change is stimulating central banks interest in CBDCs. The last decade has seen a huge increase in the use of electronic payments, and large technology companies are starting to be seen as a real threat to traditional financial institutions.

Central banks are increasingly concerned about the confluence of two trends: technology companies entering the financial world, especially in the field of payments, and the evolution of new forms of digital "money"/crypto assets used to make payments.

Major technology companies issuing their own digital currencies available to the entire network of users can pose a risk to financial stability, as it could facilitate the rapid and widespread adoption worldwide of new "digital currencies" issued by these entities in the detriment of currencies issued by central banks. Given the size of these entities, with very large number of users and given the network externality (the more users a payment solution has, the more incentives the rest of the population who are connected to them has to join), it could potentially have a major effect on the traditional financial system. Digital currency issued by large technology companies can allow these companies to capture a considerable number of consumers and reshape the payment landscape,

affecting the reach of central banks, who will face major difficulties in implementing monetary policy decisions (House of Lords, 2022).

The use of cash is declining in many countries in the world, and some central banks are concerned that this could undermine the public confidence in the monetary system if citizens are not able to convert commercial bank money into cash. Thus, it is essential for central banks to provide the consumer with a digital currency that responds to the technological developments in the field of payments proposed by technology companies. Also, considering the health crisis triggered by the recent pandemic, central banks are increasingly interested in issuing a digital currency as a quick and direct way to provide financial assistance to vulnerable populations during emergencies, including the non-banked category. The CBDC is considered as a means of rapid payment that provides increased health security compared to cash and in line with the need for social distancing imposed as a result of the Covid crisis.

A digital currency could increase cross-border payments and ultimately behave similarly to internet-based communications services. The current money market is based on an interconnection between different banking systems around the globe that operate in different time zones and, to meet the new requirements of consumers of financial services, these services must be reconfigured.

At this time, it is difficult to quantify the benefits of CBDCs and the global payment systems based on them, but from a first analysis, it has been found that they have the potential to increase the efficiency of these types of transactions by flattening account relationships, reduction the number of actors involved in the cross-border payment ecosystem and increasing the speed of remittances.

Digitization will revolutionize the remittance market and, if traditional financial institutions do not innovate in this field, they will lose a large part of their customers who will turn to the services offered by FinTech companies, that are constantly evolving and providing services at a much lower cost than the current financial system. These companies reduce consumers' dependence on traditional payment service providers, expand access to financial services in areas where banking financial infrastructure does not exist, thus promoting increased financial inclusion by providing financial services via mobile phones. At the same time, these service providers offer consumers the opportunity to access complementary services and facilitate access to e-commerce services available on a global scale.

Potential technological developments are also highlighted in the study published by the BIS in 2020 (Boar, C., et al 2020), which increased the interest of central banks to develop analyses in the field of CBDC to keep up with these companies and to maintain the population's confidence in the national currency. Over 80% of the 66 central banks that participated in the CBDC interest study reported that they are conducting studies in this area. According to the Atlantic Council, about 89 countries, which account for more than 90% of global GDP, are evaluating projects related to the introduction of CBDCs as their own form of public digital money. According to this site, 9 countries have launched a CBDC project, the most recent being that of Nigeria e-Naira. A further 14 countries, including major economies such as China and South Korea, are in a pilot phase and are preparing for possible launches. China was the first major economy to conduct a pilot project to issue a CBDC in April 2020 and aims to use e-CNY widely by 2022.

With regard to the need to issue CBDCs, according to the above-mentioned study, central banks have interest in: (i) providing an alternative to cash and ensuring public access to a state-guaranteed means of payment; ii) reducing the cost of handling cash in countries with large or inaccessible territories; (iii) promoting financial inclusion, especially for the non-banked population; and (iv) improving the efficiency and security of internal payments, in particular cross-border payments.

### **3. Research methodology**

After analyzing secondary data and relevant literature, we conducted a qualitative research focused on an explanatory, theoretical “case-study” type of research, as a pilot project of implementing a CBDC-based system has not taken place in Romania.

## 4. Findings

### 4.1. Objectives of issuing digital currency

For CBDCs to be successfully adopted by consumers, they must respond to changing payment preferences and address all the facilities offered by cryptocurrencies so that the latter are no longer used as payment methods, but only for investment/speculative purposes.

Digital currency would be a form of risk-free currency, issued by central banks with legal payment status. People who use a digital currency can have the same level of confidence as in cash, because a central bank ensures their stability. Given that this currency will be issued exclusively digitally, it can be easily confused by financially uneducated people with crypto-assets. Such assets are not the responsibility of any entity that supports their value and protects their direct holders, are currently unregulated, which poses a high risk to users. Their price is very volatile, because crypto-assets have no intrinsic value, which means that they are traded as a speculative asset.

Digital currency could open new horizons for developments in digital payments and financial services by opening the market for new players such as FinTech companies specializing in innovation and digitization, which represent real competition for traditional financial institutions that are quite reluctant when it comes to innovation.

A competitive market will always benefit the consumers, who will have innovative, efficient and secure financial solutions at their disposal.

The implementation of a CBDC-based payment solution at the national level would help maintain or even increase the national autonomy of payments, reducing dependence on major international players in the field (Visa, Mastercard, etc.).

The CBDC would be a quick, easy and secure tool for daily payments, combining the efficiency of a digital payment instrument with the safe use of money issued by central banks. Such an initiative would support the digitalisation of the national economy and actively encourage the innovation of low-value payments and the development of e-commerce.

The widespread adoption of such a currency could reduce the use of cash as a means of payment and ensure better monitoring of capital flows, including better taxation, by clearly highlighting all payment transactions to merchants by synchronizing cash registers with turnovers from accounts and electronic reporting to the tax authorities of all transactions regarding the sales of goods and services.

In order to reduce the use of cash, a digital currency must allow offline payments and be easy to use, especially by vulnerable groups, at no cost of usage for citizens and ensuring the confidentiality of transactions.

Digital currency must be available through standardized solutions and must be interoperable with existing payment solutions, easily accessible to anyone, including people without a bank account, easy to use, similar to payment instruments. Digital currency must coexist with traditional cash and payment instruments.

The current technology used for issuing CBDC could have the effect of reducing the costs paid by the final consumer and would significantly contribute to reducing the level of pollution generated by current payments ecosystem, mainly those generated by the use of cash.

The new financial system must be based on the latest and most efficient technological solutions that minimize the environmental footprint of the current financial ecosystem and to change the behavior of consumers as to make payments digitally, by diminishing the use of cash as much as possible.

Perhaps the most difficult feature of the new digital currency is ensuring the anonymity of payments, similar to cash, in order to protect the confidentiality of the payer and the payee.

At the moment, a limited range of products can offer this facility, respectively prepaid cards or cryptocurrencies, only in certain markets, where these types of products are accepted as a means of payment.

As the pace of digitization accelerates, the international financial landscape is likely to be constantly changing, being increasingly integrated with the digital economy. Technological progress can lead to the rise of new forms of digital currency and the emergence of a new, more efficient and interoperable global financial system that transcends time and space barriers. At the same time, the

effectiveness of monetary policy measures could be affected and the authorities would have to use different policy instruments to ensure financial stability.

For countries adopting the CBDC, the main challenges are how to maintain macroeconomic and financial stability without sacrificing the benefits of more efficient cross-border payments and how to ensure better access to international capital markets. The balance may differ from country to country, depending on the economic development of each state and the maturity of the national financial system, fiscal policy space and the availability of other stabilization tools will also be important.

Countries issuing CBDCs must carefully consider the costs and benefits of allowing non-residents to use their CBDCs. Non-resident access could help companies and households in the issuing country to better manage risks (for example, by issuing debt denominated in their own currency) and to improve the size and depth of the issuing country's financial markets. Unless there is a close link between financial intermediation and economic development at the national level, that state is most exposed to developments in international financial markets with systemic effects on the national economy. These currencies cannot only operate locally, but must ensure cross-border transactions and interconnection between all national payment systems in order to ensure capital flows and e-commerce.

The CBDC should ensure that financial inclusion is stimulated by offering this currency to the public/citizens without the need to open accounts with traditional financial institutions. In our opinion, a mass adoption of this new payment method cannot be ensured if it is accompanied by costs for consumers.

To improve the resilience of the financial system, digital currency must be permanently available to all users, and settlement channels must be efficient and secure, operationally resilient and resilient to concerted cyber attacks. The channels used for digital payments must be completely separated from those used for traditional payments and allow interconnection between these systems in the event of a major incident. The financial system must be resistant to cyber threats and provide a high level of consumer protection against cyber attacks. In case of successful attacks, the recovery time should be short, without blocking the financial system and without affecting the integrity of the data. The digital currency must be secure and efficient, the operational costs of issuing and managing such a currency must be estimated and compared with the benefits of these solutions, also taking into account the costs associated with the traditional financial system.

The financial revolution cannot be achieved in a very short time without taking all the associated risks into account, including the assessment of the tendency of BigTech companies to diversify their activities (the Facebook case with the Libra project being the most eloquent in this regard), including in the field of payments by issuing their own payment instruments addressed in the first phase of their own network of users and the consequences of such initiatives could have systemic effects on small developing economies, including undermining the ability of the central banks in those states to meet their stability goals, financial confidence and confidence in the national currency.

#### **4.2. Possible negative effects**

There is currently no CBDC project that completely eliminates all risks posed to the traditional financial system. Thus, there may be possible negative implications for monetary policy and financial stability given that no complex stress tests have been performed to detect possible negative effects on the implementation of monetary policy decisions. At the same time, it is extremely difficult to quantify the effects of the global adoption of these new payment solutions and how current payment service providers will be affected, as extensive use of digital currency as a form of investment and the associated risk of mass conversion of bank deposits into digital currency is quite difficult to predict, manage and evaluate.

Digital currency would have the status of a legal tender and this could cause panic among financially uneducated consumers, given that the degree of financial education at national level is quite low.

Given the limited capacity of central banks to provide services to the general public, the issuance of digital currency must also be done through the use of supervised intermediaries that do not maintain and do not have the same level of operational security as a central bank. The technology

currently available does not fully cover the availability and security requirements for the implementation of such currencies.

At national level, there is no technical banking infrastructure that can be used to implement such a solution. A possible implementation of this solution could be achieved by involving the Romanian Post Office in the integration of this new payment instrument, given the extensive area of availability of post offices nationwide. Digital currency could be provided as a web service and/or through dedicated physical devices, such as smart cards. There is currently no device that provides complete security for the efficient management of cyber threats. The digital currency needs to be based on an infrastructure separate from the existing payment infrastructure, which comes at an additional cost and risk, but could ensure the resilience of the financial system to extreme events such as cyber incidents and attacks, natural disasters and pandemics.

The issues of countering money laundering (AML) and terrorist financing (CFT) must also be addressed, the Know Your Customer (KYC) requirements must be met, while ensuring the confidentiality of transactions. Currently AML and CFT issues in Romania are managed by another national authority, namely the National Office for Preventing and Combating Money Laundering, and an involvement of the central bank would affect its independence. Effective implementation of a robust anti-money laundering and anti-terrorist financing (AML/CFT) framework is needed in all scenarios to mitigate the risk of the CBDC becoming a tool for supporting/carrying out criminal activities.

The current regulatory framework does not cover all requirements for the issuance of such currency. Updating the regulatory framework is a complex and time-consuming process and there is currently no generalized approach to all the characteristics that such a currency must meet. In order to avoid regulatory arbitrage and to ensure a level playing field, it is essential that issuers and service providers of digital currencies based on the evolution of a significant currency or basket (*stablecoins*) be regulated and supervised at national level, with similar requirements as the digital currency, to fully comply with the Payment Services Directive (PSD2) and the European Commission's legislation on cryptocurrencies (MiCA) and the proposals for digital operational resilience (DORA), anti-money laundering (AML) and counter-terrorism financing (CFT) and Know Your Customer (KYC) obligations. The existing monitoring framework needs to be harmonized to ensure competition and innovation in payments, while limiting the risks that new payment services and new players in the payments market may pose.

### **4.3. The potential design of the digital leu project**

After studying all the exercises for the possible implementation of the CBDC, at national level, we identified an opportunity regarding the implementation of a clearing system in the relationship between the Romanian state (Treoreria Statului) and private companies.

An analysis was carried out by the Romanian Fiscal Council, in which the structure of the arrears of the state companies from 2019 was highlighted, and it resulted that these companies registered debts of over 14 billion lei. In order to reduce the liquidity requirement for the payment of debts, at the level of Romanian companies, we identified the need to implement a clearing system based on CBDC. The need to use CBDC is given by the possibility to use these funds strictly to settle debts between participating entities and protect small companies from the risk of not collecting the value of delivered products or services from general contractors, with the final beneficiary being the Romanian state.

In many cases, Romanian contractors pay their subcontractors with big delays, in the case of implementing public contracts. Failure to collect invoices on time can lead to increased liquidity shocks for companies, including bankruptcy. Thus, a debt clearing system would reduce the liquidity pressure among these companies and could save some of these companies from bankruptcy. At the same time, reducing the need for liquidity would increase the performance of Romanian companies that would not have to use such a large volume of working capital loans to the detriment of investment loans.

As a starting point, the system would be built with the exclusive participation of the National Bank of Romania, the State Treasury and banks operating in Romania. All state and private companies that have a direct or indirect relationship (subcontracting) with the Romanian State would participate in this system through their bank accounts.

The system would be completely independent from the infrastructure of the high value payment system ReGIS and would function as an auxiliary system, with settlement in the central bank money through the ReGIS system. The communication within the system would be carried out through a private network owned by all the entities participating in this system and the message standards would be similar to SWIFT messages, but with a more detailed content of information, including attached documents. Messaging will be encrypted with unique encryption keys available only to system participants.

In order not to induce additional risks in the financial system, the central bank would convert some of the liquidity from the current account of the State Treasury opened at the NBR into CBDC, the conversion being made on principle 1 to 1 (1 leu = 1 digital leu – CBDC). The amount to be converted would be communicated by the State Treasury, according to the maturity of the payment obligations to be paid within one month.

Each company that is in a direct or subcontracting relationship in relation to the Romanian State or with a company in which it is the majority shareholder would send a compensation request to bank where it has opened its account and would send the contract for which it requests compensation, the payment invoice approved by the beneficiary and the payment amounts it has to collect from the consolidated state budget (VAT, income/profit taxes and payroll taxes). The system would centralize all these compensation claims and would clear them with the amounts that the Romanian State has to pay to these companies. The clearing would result in a net settlement position. The instruction would be settled in this system and each company would charge the CBDC for that position. These amounts of CBDC would be shown in the individual accounts of companies opened with commercial banks and will be shown separately from their current accounts. At the same time, these amounts of CBDC could be used strictly to extinguish the obligations in the contractual relations with the subcontracted companies in order to honor the obligations of the contracts with the Romanian state.

After settling all these debts, the companies that would have CBDC would be able to convert them into lei by sending a conversion instruction to the ReGIS system through the bank where it has an opened account and confirming that all debts/obligations have been settled. The debt settlement mechanism would be an automatic one on the principle of delivery against payment, respectively the delivery of CBDC and the settlement of the debt highlighted in the fiscal invoice. This debt settlement would be recorded in the accounting of each company. The conversion of CBDC into lei would be highlighted in the accounts opened with the central bank by debiting the CBDC account of the State Treasury and crediting the lei account of the bank to the beneficiary of the payment. Such a system is similar to the existing systems at the national level before the implementation of electronic payment systems and the need to use CBDC is essential from the perspective of the exclusive use of funds to offset debts between companies.

In order for such a project to be implemented, an update of the regulatory framework and a major involvement of all stakeholders must be made.

## **5. Conclusions**

Digital currency is the new age of digitization, but digital currency needs to be designed to replicate some key features of cash that are useful in the digital economy, such as the ability to make offline payments and ensuring the confidentiality of transactions.

CBDCs have the potential to enable the governments' and central banks' ability to monitor all citizens' payment transactions, which could affect the population's confidentiality of payments, which is currently ensured by cash payments.

Along with coins, banknotes and other payment instruments, digital currency should be accessible to all citizens and provide them with additional payment options. Digital currency should be easy to use, free for consumers, unanimously accepted by the legal tender status of a country. These features must be accompanied by a number of technical features that include holders' privacy, investment features, payment methods that include debit payment functions, including payments without an



internet connection.

The previously opened clearing system can be a first step in implementing a CBDC-based payment solution at national level.

Digital currency would be an adequate option to reduce overhead costs and to reduce the harmful effects on the environment generated by current financial systems.

The widespread adoption of these currencies could lead to the use of this currency at the expense of the normal currency, which could have the effect of reducing the use of the traditional financial system.

The excess of money in a foreign currency diminishes the control of the monetary authorities over the internal liquidity by limiting the use of the national currency over which the authorities have a direct influence.

The cross-border use of the CBDC could affect the monetary policy of the issuing country, which is influenced by changes in the external demand for CBDC and would cause significant movements in capital flows. The capital flows associated with the use of CBDC present challenges for the issuing central bank and are proportionate to the size and development of the country's financial markets.

Thus, the state intervention through the monetary policy that aims at the indirect influence of the aggregate demand, the control of the inflation, the external balance or the evolution of the economic cycle (Isărescu, M., 2006) would be more and more difficult to achieve.

The role of central banks is to ensure that the public has confidence in the national currency and that the digital currency will meet all the requirements of consumers in the digital age. Central banks are responsible for maintaining citizens' confidence in the national currency, including the digital currency.

The negative effects on the central banks' ability to implement monetary policy decisions are difficult to assess, given that there is no one-size-fits-all solution on the market that meets both the needs of payment service consumers and the independence of central banks.

At the same time, this type of currency, which would be issued exclusively digitally, would be permanently exposed to cyber risks which, in the opinion of many specialists, is the biggest threat to the global financial sector.

It is premature to talk about the final form of a digital currency. It must not be a parallel currency, but must be issued and controlled by the central bank. Currently, it is difficult to identify all the levers through which central banks can create new monetary policy instruments whose effects on the economy would be effective over time. CBDCs can affect the transmission of monetary policy by increasing the money supply in circulation, in particular by increasing foreign exchange reserves, which would require the reshaping of monetary policy strategies.

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# The Impact of Rising Oil Prices on Agricultural Products

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## Abstract

*Fluctuations in the price of oil have increased the cost of production all over the world, putting several industries in difficulty. One of the most important pillars of economy is agriculture, due to its crucial role and ability to grow food and sustain life. The purpose of this article is to observe the influence of the price of oil on the level of agricultural production in Romania. Using the Least Squares method was established the direct and positive influence of oil price over cereal production in Romania. The main conclusion reached by this article is the major impact that the price of oil has on agricultural products in Romania suggesting the importance of the policy that cap the price of oil and allowances to reduce the agricultural production cost.*

**Key words:** price of oil, agricultural products, agriculture sector.

**J.E.L. classification:** Q10, Q18.

## 1. Introduction

Recent socio-economic events have made the cost of living quite high, and the speculation about rising food prices is a reality. At the same time as inflation, the price of oil has risen exponentially, making agricultural production much more expensive. In the current context, there is a need for a study on how the price of oil affects agricultural production.

The present paper aims to study this topic due to the importance of agriculture in the economy and the research purpose is to study the correlation between the price of oil and agricultural production in Romania.

The paper is structured as follows. The theoretical background presents some important research regarding the link between the price of oil and the influence over the agricultural market. The research methodology deals with the presentation of the research method and data used for empirical study. The findings section exposes the results of the econometric study and the final section are presented the main conclusions of the paper and offers new trajectories to be addressed in future studies.

## 2. Theoretical background

The importance of agriculture is given by the biological, economic, ecological, and cultural role it holds (Andrei et al., 2016). The Covid 19 pandemic has made its presence felt in all economic sectors, including the agricultural sector and the variation of prices in the agricultural sector has a significant impact on the economy of a country (Akpaeti, 2018).

Several authors had studied the impact of the agricultural price on the economy. Adams and Ichino (1995) noted that the presence of shocks and rising world commodity prices, including the agricultural products will have an inflationary effect. On the same note, Akpan and Udoh (2009) showed that the high instability of prices of cereals increases inflation. Durevall et al. (2013) studied the influence of globalization and showed that international prices of food determine the long-term evolution of domestic prices.

Tweeten (1980) argued that monetary shocks have a negligible impact on agricultural prices, but Devadoss and Meyer (1987) highlighted that agricultural prices were influenced by the change in the money supply in the case of the USA. A study made by Robles and Torero showed that when prices rise by 10%, farmers' net income decreases by 2.3% over the next 1-2 years and 1.2% over the long term.

Other authors have researched the relationship between the price of agricultural products and energy price variations. Koirala et al. (2015) established the positive correlation between energy futures prices of natural gas, crude oil, gasoline, diesel, biodiesel, and, futures prices of corn, soybeans, and cattle futures. Similar results were obtained by De Nicola and De Pace (2016) who analyze the link between energy and agricultural goods. As it can be seen, the energy prices influence the prices of the agricultural products, their increase could become a financial burden, especially for poor members of society.

In the context of the recent increases in energy prices, our article aimed to establish the correlation between oil price and agricultural production of cereals in Romania and tried to answer to the question if the oil price is a significant factor in determining the production of cereals in Romania.

### 3. Research methodology

The paper aims to analyze if oil prices have an influence on the agricultural production of Romania, respectively the cereal production. Therefore, the research methods used in this paper are the method of bibliographic study, the method of comparison, the method of synthesis, the graphic method, and the case study.

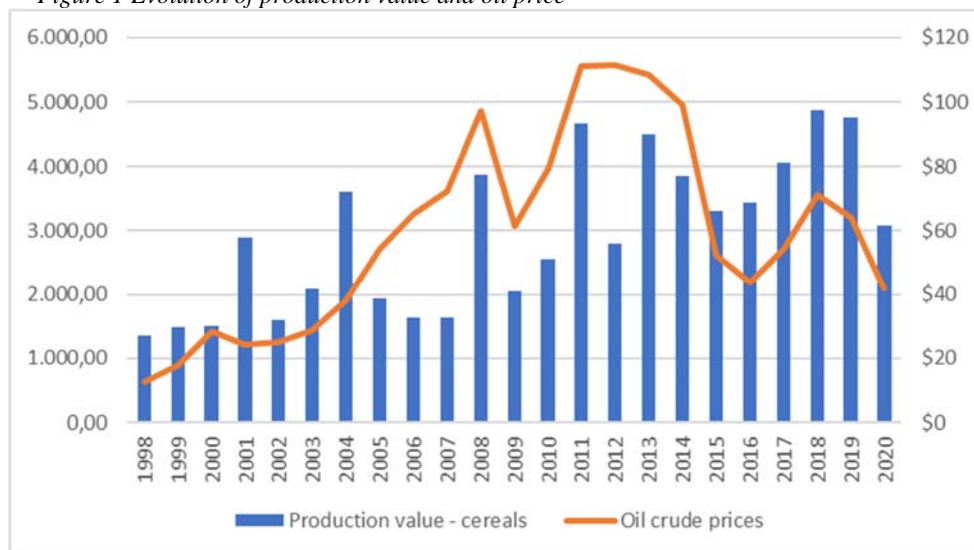
In accordance with the purpose of the paper, it was established the following research hypothesis: *“The oil price is a significant factor in determining the production of cereals in Romania”*. The research method used to test this hypothesis was the Least Squares method using the following regression equation:

$$PROD=C(1)+C(2)*OIL \tag{Eq.1}$$

$$PROD=1659.06856456+21.5873071514*OIL \tag{Eq.1a}$$

The data used for the empirical study was retrieved from the Eurostat database and <https://ourworldindata.org/> for the period 1998 – 2020. It can be observed the increase in the production value of cereals in Romania (+128%), but also the growth of oil price (+229%).

Figure 1 Evolution of production value and oil price



Source: Own processing

The descriptive statistics of the variables reflect the abnormal distribution ( $p > 5\%$ ) with a positive skewness (Skewness  $> 1$ ) and a platykurtic kurtosis (Kurtosis  $< 3$ ).

Table 1 Descriptive statistics of variables

	PROD	OIL
Mean	2939.687	59.32275
Median	2897.640	54.52109
Maximum	4877.450	111.6697
Minimum	1352.930	12.71566
Std. Dev.	1183.745	30.82929
Skewness	0.182043	0.319503
Kurtosis	1.674602	2.003556
Jarque-Bera	1.810522	1.342844
Probability	0.404436	0.510981
Sum	67612.80	1364.423
Sum Sq. Dev.	30827546	20909.80
Observations	23	23

Source: Own processing

#### 4. Findings

The results of the first regression equations reflect the positive correlation between agricultural production of cereals in Romania and the oil price, which means that an increase in oil prices will lead to an increase in the production value of cereals in Romania. Oil price is a significant determining factor of production, having the p-value less than 1%. However, this model is not a significant one, R-squared being only 31,61%, and the Adjusted R-squared being 28,35%.

Table 2. Empirical results

Dependent Variable: PROD				
Method: Least Squares (Gauss-Newton / Marquardt steps)				
Sample: 1998 2020				
Included observations: 23				
PROD=C(1)+C(2)*OIL				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	1659.069	461.1095	3.597992	0.0017
C(2)	21.58731	6.929232	3.115397	0.0052
R-squared	0.316088	Mean dependent var	2939.687	
Adjusted R-squared	0.283521	S.D. dependent var	1183.745	
S.E. of regression	1001.982	Akaike info criterion	16.74029	
Sum squared resid	21083333	Schwarz criterion	16.83903	
Log likelihood	-190.5133	Hannan-Quinn criter.	16.76512	
F-statistic	9.705698	Durbin-Watson stat	1.190857	
Prob(F-statistic)	0.005234			

Source: Own processing

#### 5. Conclusions

The result of the regression confirms the expected hypothesis according to which, in the case of Romania, there is a positive and direct correlation between the production of cereals and the price of oil. And in the event of an increase in the price of oil, the value of cereal production and the agricultural sector, in general, will increase due to the incorporation of this cost in the production costs of cereals. The results of the paper suggest that the authorities should intervene and cap the price of oil similar to other EU countries, or intervene through allowances to reduce the agricultural production cost.

This study is not limited to the research of the influence of oil price on the production of cereals, therefore one of the interesting aspects to study in the future may be the correlation between the price of oil and agricultural production derivatives such as the price of fertilizer. Also, the study can be extended by including other variables such as inflation.

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## CSR and Environment: a Bibliometric Mapping

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### Abstract

*Corporate social responsibility (CSR) is a concept that ensures that a corporation should act responsibly toward its employees, suppliers, customers, shareholders, and other stakeholders when making daily business choices and developing strategies.*

*The study aims to analyze the evolution of scientific publications in the field of CSR and the environment. We examined the most relevant 2390 publications indexed in the Web of Science Core Collection database from 2010 to 2022 and applied a quantitative research methodology. We conducted a bibliometric analysis related to the topics of CSR and the environment based on co-occurrence keywords that highlight the most important connections between these two concepts using the VOS viewer program.*

*The main findings indicate that the scientific interest in the field of the influence of CSR on the environment has progressively increased in the last five years.*

**Key words:** Bibliometric mapping, CSR research, environment, VOS viewer

**J.E.L. classifications:** M14

### 1. Introduction

This article aims to evaluate the current level of knowledge in relation to the Web of Science (WOS) database's research on CSR and environment. By utilizing relational algorithms in the VOS viewer application, we have found the keywords related to CSR and the environment that are used the most frequently in the scientific publications analyzed (van Eck & Waltman, 2010).

The phrases CSR and environment were identified in 2390 scientific papers after searching the Web of Science Core Collection (WOSCC) and using economic criteria. Then, using relational algorithms in the VOS viewer application, we determined which terms were most frequently associated with CSR and environment.

By examining the WOS and Google Academic databases, we found a research gap related to the topic of our analysis. In the period we studied the evolution of research on the topic of CSR and environment, 2010-2022, no similar publications were founded.

Connected topics, such as CSR reporting (Sikacz, 2017), social and environmental accounting research in the public sector (Fusco and Ricci, 2019), CSR and Sustainability (Sánchez-Teba et al., 2021) were discovered to be linked to bibliometric analyses.

The study is divided into the following sections: the article starts with some theoretical elements of CSR and the environment, then presents the research methodology, the next section describes how to conduct a bibliometric analysis, and the final section of the article focuses on the study findings and conclusions.

### 2. Literature review

As the importance of CSR in business has increased, the subject of CSR is getting more attention in the research literature. CSR is the process through which businesses integrate economic, environmental, and social issues into their values, decision-making, and strategy, to create wealth and improve their performance.

The World Business Council for Sustainable Development describes CSR as representing an organization's contribution to economic development on sustainable criteria, being founded on compliance with regulations and legislation, in other words, "the commitment of business environments to contribute to sustainable economic development by working together with employees, their families, the local community and society as a whole to improve their quality of life" (Hohnen, 2007). The council highlights that CSR is a concept that refers to the contribution that any company must make to the development of modern society. CSR could also be perceived as based on personal social responsibility, on the care and willingness of each individual to build a living in close connection with the environment, in the context of finding in the values promoted by companies (<https://www.wbcsd.org/>).

The European Commission defines CSR as a phenomenon whereby companies voluntarily decide to contribute to a better society and a cleaner environment. According to the definition given by the European Commission, in order to be socially responsible, a company must integrate into its actions and strategies the social and environmental problems related to the interactions in which it engages (Gheraia et al., 2019).

Firstly, CSR is voluntary, involving moral responsibilities assumed by companies, above those imposed by law. Then, CSR involves creating long-term and equally profitable relationships with the market and the social environment, so more than just the act of philanthropy or donation. Although it requires costs, CSR is a profitable management strategy, insofar as it generates credibility and long-term trust, necessary for a company in its relations with those on which it depends, namely shareholders, business partners, and customers ([https://ec.europa.eu/growth/industry/sustainability/corporate-social-responsibility-responsible-business-conduct\\_en](https://ec.europa.eu/growth/industry/sustainability/corporate-social-responsibility-responsible-business-conduct_en)).

According to Zhang et al. (2019), the notion of CSR is associated with the theory of "triple-bottom-line": economic prosperity, respect for the environment, and respect for improvement of social cohesion. The development of the company, therefore, is highlighted by the following objectives: an economic goal (creating wealth for all, based on the ways of production and sustainable consumption), another ecological (conservation, and management of resources), and a third, social (equity and participation of all social groups).

Researchers have investigated the effect of CSR in integrating environmental indicators into company survival strategies.

Wang et al. (2016) think that CSR can lead to the reduction of environmental effects, while Abbas (2020), Shahzad et al. (2019), and Suganthi (2019) contributed to determining the impact of CSR policies targeted at the development of environmental sustainability.

From an environmental point of view, CSR can consist of:

- limit the company's greenhouse gas emissions;
- save resources such as paper and water;
- to limit energy consumption, whether electricity, heating, or fuel;
- to favor "sustainable" premises;
- to take care to organize the sorting and recycling of waste.

Nowadays, only the largest companies are legally required to communicate about their CSR actions. However, it must be understood that CSR is an ethical approach that aims to reposition the company at the heart of society. Its implementation will therefore be much more effective if it is accompanied by communication actions.

### **3. Research methodology**

The aim of this research is to carry out a bibliometric mapping of the evolution of research in published scientific papers on CSR and environment by using data extracted from the WOS platform. Also, the main purpose of this methodology involves identifying, organizing, and analyzing the interrelation between CSR and environment by searching the most frequently used terms in this specific research field.



We chose a bibliometric analysis because is a set of methods used to study or measure information, especially in big datasets like WOS, and it is a quantitative research assessment of academic output. A bibliometric analysis contains two main procedures: a performance analysis and a science mapping (Cobo et al. 2011).

In the first part of our analysis, we carry out a performance analysis that evaluates groups of scientific actors and the impact of their activity (according to WOS criteria: types of publications, research areas, languages, countries, number of publications - [www-webofscience-com.am.e-nformation.ro](http://www-webofscience-com.am.e-nformation.ro)).

In the second part of our research, the science mapping carried out displays the structural and dynamic aspects of science by representing the cognitive structure of research. Regarding the science mapping, our research examined the architecture of connections but also various components of research, clustering for the analyzed fields, the relevance of the key issues revealed, and their relationships in various settings (clusters).

According to Cobo, the most important steps in conducting a bibliometric analysis are the following:” data retrieval, preprocessing, network extraction, normalization, mapping, analysis, and visualization” (Cobo et al., 2011).

Figure no. 1 Diagram of the methodology used



Source: (Cobo et al., 2011)

In order to carry out the bibliometric analysis of CSR and environment, we used the Web of Science Core Collection database and ran an advanced search on the keywords: CSR Or ”corporate social responsibility” in Title AND environment\* in Topic. The search in WOS was performed on 11 April 2022 with no time limit.

We used the VOS viewer application to generate science mapping by visualizing the networks between CSR and environment in order to build a quantitative analysis of the relevance of CSR and environment in the existing research.

## 4. Findings

### 4.1. The performance analysis

Figure no. 2 Diagram of the performance analysis

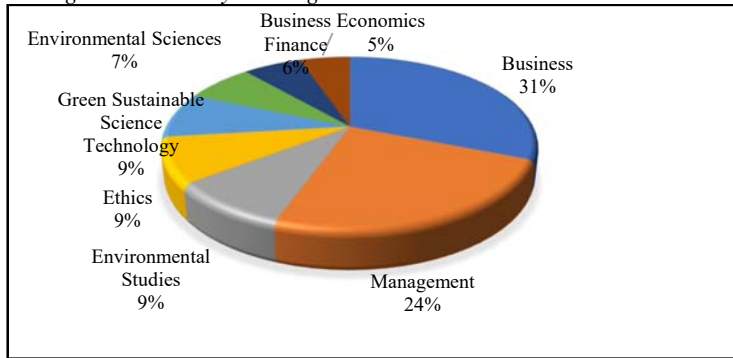


Source: Authors’ own conception

The WOSCC scanned the published studies regarding CSR and environmental. A database query revealed 4322 publications on the subject of the inquiry. After the initial results, the records were filtered by the criteria of the research field (economics, management, business, business-finance, environmental studies), and 3162 results of the most relevant studies were returned.

The scientific literature about CSR and environment research was scanned in the WOSCC. After querying the database, 4322 studies on the topic searched were identified. These publications were filtered again by the research area criteria (economics, management, business, business-finance, environmental studies), so the next result was 3162 records of the most important publications (fig. no.3).

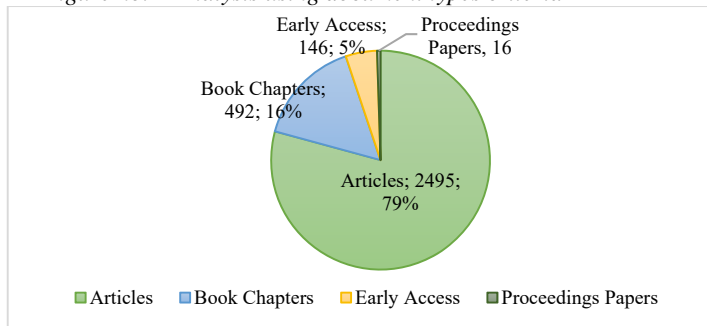
Figure no. 3 Analysis using research areas criteria



Source: Authors' own conception using data from WOS database

From the 3162 records, we filtered the publications by document types, and we analyzed only the 2495 articles, excluding the other forms of publications (proceedings papers, early access, book chapters, review articles, editorial materials, etc. (fig. no.4).

Figure no. 4 Analysis using document types criteria

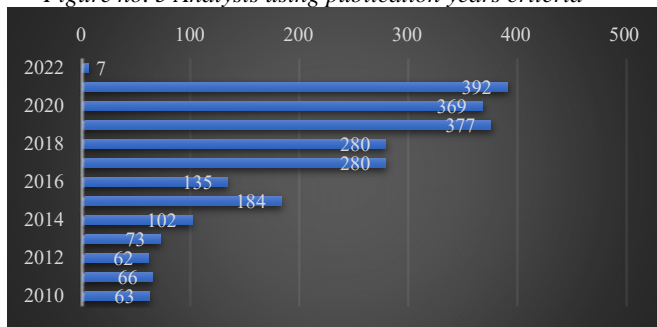


Source: Authors' own conception using data from WOS database

Among these 2495 records, we decided to carry out the bibliometric analysis only with the publications between 2010 and 2022.

The years with the most published articles are 2021 -392, 2019 – 377, 2020 – 3,69, and booth 20217-2018 with 280 publications (fig. no. 5). We can notice that there is a rise in the scientific interest in the field of CSR and the environment, as evidenced by the increasing number of published studies over the previous five years.

Figure no. 5 Analysis using publication years criteria



Source: Authors' own conception using data from WOS database

After we analyzed the country criteria, we remark that the authors writing in the field of CSR mostly belong to the USA (455), England (278) and China (274) (table no. 1). The United States is also the country with the highest number of citations (13.004), the average number of citations per article (28,58) and the highest H-index (60).

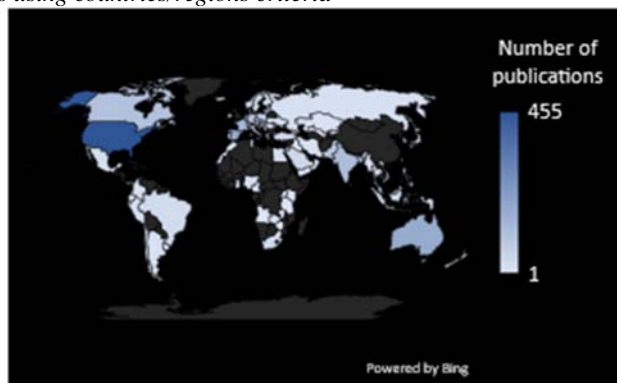
Table no. 1 Ranking 10 countries with the biggest number of publications

No.	Country	Number of publications	Number of citations	Average no. of citations per article	H - index
1	USA	455	13.004	28,58	60
2	ENGLAND	278	5.508	19.81	37
3	PEOPLES R CHINA	274	4.226	15.42	33
4	SPAIN	183	3.197	17.47	33
5	AUSTRALIA	178	3.444	19.35	29
6	FRANCE	138	2.207	15.99	28
7	SOUTH KOREA	128	2.826	22.08	26
8	INDIA	119	1.098	9.23	18
9	ITALY	111	1.785	16.08	21
10	CANADA	106	2.636	24.87	30

Source: Authors' own conception using data from WOS database

Also, 99% of the publications (2368 records,) were written in English, followed by 10 Spanish and 7 French.

Figure no. 6 Analysis using countries/regions criteria



Source: Authors' own conception using data from WOS database

Next, we showed the most productive authors. Thus, table no. 2 displays the main 5 most productive researchers in the areas of knowledge about CSR and environment during the period between 2000 and 2022.

Table no. 2 5 ranking authors

Author	No of publications	No of citations	Average no. of citations per article	First article	Last article	H - index	Country	University
Perez Andrea	18	536	29.78	2012	2020	9	Spain	Universidad de Cantabria
Garcia-Sanchez Isabel Maria	16	536	33.5	2014	2020	12	Spain	University of Salamanca
Kim Jung Sun	16	173	10.81	2017	2021	7	US	University of Nevada Las Vegas
Jamali Dima	14	930	66.43	2010	2019	10	Lebanon	American University of Beirut

Kim Sora	14	298	21.29	2012	2022	7	Peoples R China	Chinese University of Hong Kong Shatin
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Source: Authors' own conception using data from WOS database

The most productive author is Perez Andrea, with a total of 18 articles published during the period analyzed, followed by both García-Sánchez and Kim with 16 publications. Even though the first author has the biggest number of articles, the most cited author is Jamali Dima with 930 citations and a 66 average number of citations per article. Analyzing the data, we can see that Perez Andrea, García-Sánchez, and Jamali Dima have not published research articles in the research area in 2021. Also, the most quality indication in the area of research (H-index 12) was Garcia-Sanchez.

Then, we analyzed the journals with the highest number of published studies on CSR and the environment (table no. 3).

Table no. 3 5 Ranking journals

No.	Journals	Number of publications	Number of citations	Average no. of citations per article	Scimago Journal Rank quartile	H index	Journal Impact Factor	Country
1	Journal of Business Ethics	204	11.621	56,97	Q2	63	6,43	Netherlands
2	Sustainability	196	1.627	8,3	Q2	20	3,25	Switzerland
3	Corporate Social Responsibility and Environmental Management	78	2.478	31,77	Q1	29	8.74	US
4	Journal of Business Research	48	1.932	40,25	Q1	22	7,55	UK
5	Public Relations Review	44	907	20,61	Q3	15	3,38	Germany

Source: Authors' own conception using data from WOS database

Regarding the number of articles published, the Journal of Business Ethics has been the most productive (204), followed by Sustainability (196) and Corporate Social Responsibility and Environmental Management (78). It is observed that the highest journal rank is the one presented by Corporate Social Responsibility and Environmental Management and Journal of Business Research (Q1), followed by both Journal of Business Ethics and Sustainability with Q2.

On the other hand, the biggest journal impact factor has Corporate Social Responsibility and Environmental Management (8,74), followed by the Journal of Business Research (7,55). Similarly, the first journal with the highest H-index in the research area is the Journal of Business Ethics (63), followed by Corporate Social Responsibility and Environmental Management (29).

Also, the Journal of Business Ethics is the scientific journal with the highest average number of citations per article (56,97) and the highest number of citations (11.621).

Finally, it should be highlighted that 86% of the most 5 productive scientific journals belong to European countries, while the remaining 16% are in the US.

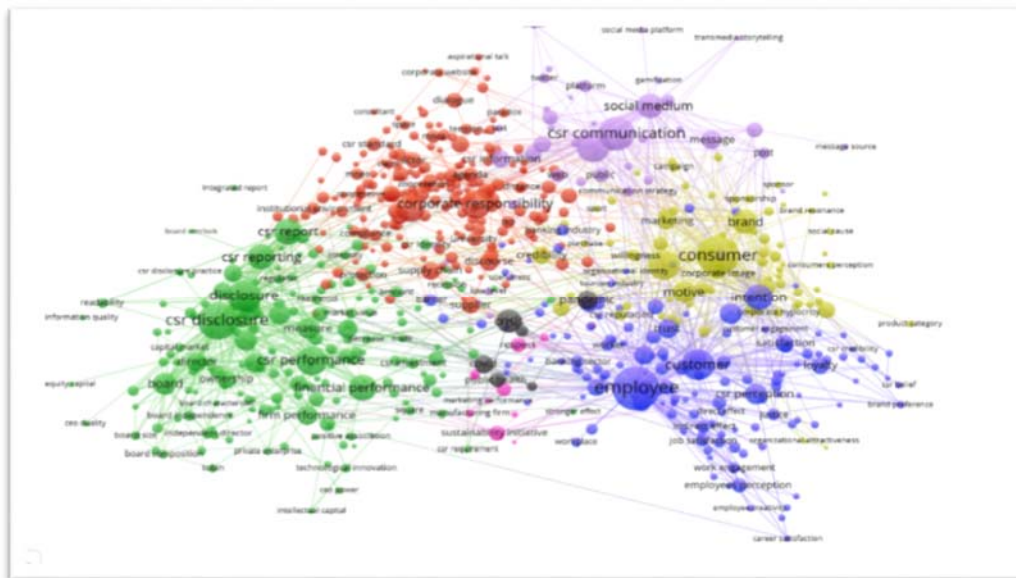
## 4.2. Science mapping

Then, in order to generate a science mapping, the 2390 publications on the concepts of CSR and environment were exported into a plain text format (txt) including full record and cited references, in the VOS viewer software for further analysis, to identify the existing correlations.

From the 2390 publications, the algorithm retrieved 1026 keywords with at least 10 occurrences. From the list of 1026 terms, the program only chose the 60% of terms (615) that were highly relevant to our research and included them in the final analysis. Many other terms were dropped from the list because they were common words, including article, author, data, model, paper, study, theory, value, and year or synonyms (using Thesaurus function).

Colored circles served as labels for the 615 keywords. The number of times a term appears in the titles and abstracts is associated with the size of the letters and circles. The letters and circles get bigger the more frequently a keyword appears (van Eck & Waltman, 2013).

Figure no. 7 VOSviewer network visualization map – association strength of CSR and environment on WOS platform



Source: Authors’ own conception using data from WOS database

The co-occurrence network is grouped into 7 clusters (fig. no. 7) by their relevance, every cluster might be thought of as a topic: CSR, CSR disclosure, CSR communication, employee, consumer, community involvement, and pandemic situation.

Table no. 4 Summary of the co-occurrence network of the most important 5 terms in VOSviewer

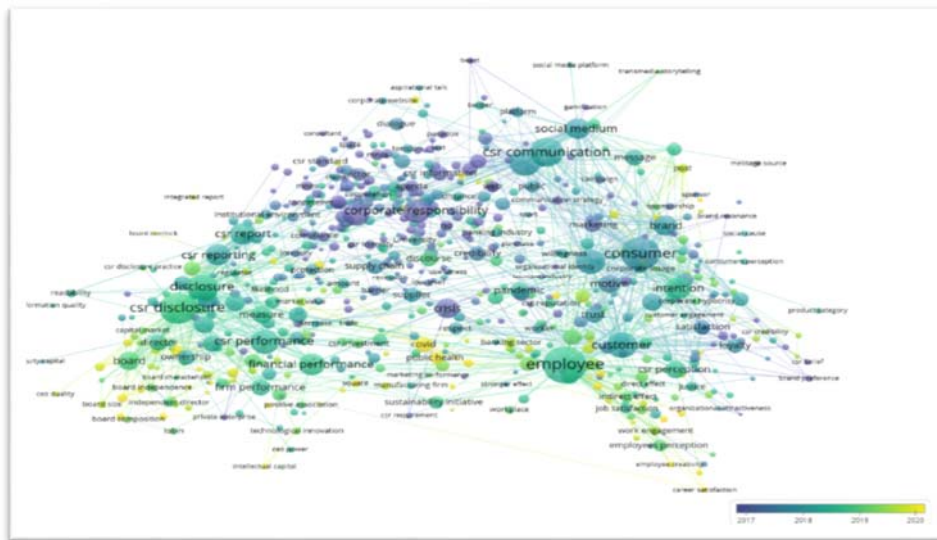
Colour of cluster	Keyword	Colour of cluster	Keyword
red cluster	csr	yellow cluster	consumer perception
red cluster	csr standard	yellow cluster	consumer skepticism
red cluster	csr theory	yellow cluster	csr image
red cluster	csr goal	violet cluster	communication strategy
red cluster	csr impact	violet cluster	csr communication
green cluster	csr disclosure	violet cluster	csr information
green cluster	csr behaviour	violet cluster	csr message
green cluster	csr reporting	violet cluster	internet
green cluster	financial performance	pink cluster	community involvement
green cluster	information quality	pink cluster	interaction effect
blue cluster	employee	pink cluster	philanthropic activity
blue cluster	customer	pink cluster	sustainability initiative
blue cluster	employees perception	pink cluster	respect

blue cluster	work engagement	grey cluster	covid
blue cluster	csr reputation	grey cluster	financial crisis
yellow cluster	consumer attitude	grey cluster	health
yellow cluster	consumer evaluation	grey cluster	pandemic
		grey cluster	public health

Source: Authors’ own conception using data from WOS database

Finally, the next figure (fig. no. 8) identifies the major fields of research for the long-term future by illustrating the main trends in recent years.

Figure no. 8 Evolution of keyword clusters based on co-occurrence.



Source: Authors’ own conception using data from WOS database

## 5. Conclusions

The goal of this article was to analyze the evolution of research articles on CSR and environment on a worldwide scale. The study analyzed 2390 publications from 99 countries, published between 2010 and 2022, which contains the keywords: CSR and environment.

Overall, the research's analysis reveals an exponential rise in the scientific community's interest in CSR and environment, as seen by the consistent growth of publications, authors, and citations. We can also emphasize the increase, in the last five years, in the number of motivated scientific journals, countries, and institutions.

The years with the most published articles are 2021 -392, 2019 – 377, 2020 – 369, and 2017-2018 with 280 publications.

The analysis of the country criteria highlighted that the authors writing about CSR and environment belong to the USA (455), England (278) and China (274). The United States is also the country with the highest number of citations (13.004), the average number of citations per article (28,58), and the highest H-index (60). Also, 99% of the studies (2368 records,) were written in English, followed by 10 Spanish and 7 French.

In what concern the authors, the most productive author is Perez Andrea, with a total of 18 articles published during the period analyzed, followed by both García-Sánchez and Kim with 16 publications. Even though the first author has the biggest number of articles, the most cited author is Jamali Dima with 930 citations and a 66 average number of citations per article. Also, the most quality indication in the area of research (H-index 12) was Garcia-Sanchez.

Regarding the number of articles received, the Journal of Business Ethics has been the most productive (204), followed by Sustainability (196) and Corporate Social Responsibility and Environmental Management (78). It is observed that the highest journal rank is the one presented by



Corporate Social Responsibility and Environmental Management and Journal of Business Research (Q1), followed by both Journal of Business Ethics and Sustainability with Q2.

On the other hand, the biggest journal impact factor has Corporate Social Responsibility and Environmental Management (8,74), followed by the Journal of Business Research (7,55). Similarly, the first journal with the highest H-index in the research area is the Journal of Business Ethics (63), followed by Corporate Social Responsibility and Environmental Management (29).

Also, the Journal of Business Ethics is the scientific journal with the highest average number of citations per article (56,97) and the highest number of citations (11.621).

Finally, it should be noted that 86% of the most 5 productive scientific journals belong to member countries of the European continent, while the remaining 16% are in the US.

This study was only linked to a selected bibliography from the WOS platform, additional databases, such as Scopus or Google Academic, were not included. This last point represents a limitation of the research. Similarly, the analysis has only considered the publishing of scientific papers between 2010 and 2020, disregarding other factors such as proceedings papers, early access, book chapters, review articles, and editorial materials.

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## Environmental Protection Network in the Context of Covid-19

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### Abstract

*The paper proposes a model of dot-matrix approach to financial management as part of an environmental management. Presentation of all the matrices that will lead to development source-destination matrix (matrix funding integrative) constitutes a first attempt to approach the environmental financial management.*

*The paper aims to identify sectoral interdependencies from the perspective of pollution, in terms of environmental costs and investments and the development of a mathematical model in which all links can be established and estimated statistically.*

*The network is an integrated element of communication between interconnected elements in multiple dimensions, and networking is an adaptive response to the need for rapid development. Each node of the network is important because there is no hierarchy in the network, the emphasis being on relationships, not situations, on goals, roles played, on the nature and intensity of contacts between the elements that make up the network nodes. The specificity of the network is to ensure continuity between the micro macro and the world economic level. The negative impact of the COVID-19 pandemic, as well as the policies adopted to combat it, have left their mark on the environment. Network financing is done to balance the damage to the environment.*

**Key words:** environment, negative impact, matrix, management, costs

**J.E.L. classification:** Q01, Q52, Q58

### 1. Introduction

In order to study the financial effects of environmental damage, the network approach of environmental factors, connections and co-determinations of pollutants is used.

The model brings together in a network of environmental protection, environmental factors, pollutants, environmental risks, financial flows, financial instruments of environmental protection as well as decision makers in this field. It offers the possibility to determine the areas of induction of environmental damage as well as the poles for transmitting the negative financial effects, thus ensuring the focus of the instruments and flows involved in environmental protection.

The model, developed as a matrix application, is based on the balance between the costs of pollution (both causal and those induced by one sector to another), on the one hand, and the investments needed to protect the environment, on the other.

This type of matrix approach is increasingly used in developed countries as it is easier to adapt, being applicable both at the level of the national economy and in small areas, respectively at the level of sectors, industries or even enterprises, as the use of sophisticated computers and software makes the analyst's job much easier.

### 2. Theoretical background

In all situations the analysis procedure is similar. The cost of pollution is represented in the form of a vector, which describes in quantitative terms the relationship between the financing need and the funds allocated for this purpose. The interdependence between the different polluting sectors (or industries) is described by a set of linear equations, which expresses the balance between the total cost and the total investment of each sector and as a whole.

The use of the matrix in order to achieve the relevant, was based on the following aspects:

- the matrix is more than a way of presenting or storing information in tabular form, it is above all an analytical tool;

- the analysis with the help of the matrix ensures a relatively easy and pragmatic understanding, proving to be a useful means of evaluating the financial interactions that characterize the economy in general;

- by applying the matrix analysis of pollution costs, the public and private sectors have the opportunity to better assess the repercussions that the decisions and actions of the government, economic agents, etc. They have them on different sectors;

- the matrix captures both the sources of change and the magnitude and direction of change. Changes in pollution costs may be related to changes in environmental conditions;

- the matrix allows the realization of forecasts regarding environmental costs and investments, through a better understanding of the forecasted changes.

The present model is a useful, at least theoretical, way to approach the balance of costs generated in the process of environmental protection and funds from different sources, necessary to cover the costs generated in the process of environmental protection and funds from different sources, necessary to cover costs.

The principles underlying this model are the following:

- The conservation law applies not only to energy but also to pollution, in the sense that if one sector does not pay its pollution debts, another sector must bear at least part of those costs. This is a consequence of the fact that by not acting in the sense of reducing pollution, it is reduced by itself to an insignificant proportion, with air, water and soil having limited self-cleaning capacity;

- The environment is seen as an interconnected system, as are the polluting sectors, so that structural and cost changes have mutual implications.

### **3. Research methodology**

The model takes into account both the direct or causal costs, respectively the costs that the respective sector has to bear in order to reduce the pollution so that it falls within the legal limits, as well as the costs induced by one polluting sector to another sector, due to lack action to limit pollution. The biggest difficulty is probably to assess the extent to which one sector incurs pollution costs for another. To this end, a physical assessment of the level of pollution caused by one sector by another sector would first be required, which would then be expressed in monetary terms.

Next, a matrix model for approaching financial management is proposed as a component part of ecological management. The presentation of the matrix set that will lead to the elaboration of the source-destination matrix (the integrative financing matrix) is a first attempt to approach the matrix of ecological financial management.

With the help of the matrix formalization, an instrumental matrix of the financial network architecture can be made, highlighting on the lines the institutions, on columns the financing sources, and at their intersection representing the existence or non-existence of financing, as well as the intensity of using these sources.

### **4. Findings**

Formalizing matrix the characteristic elements of the attributes of ecological management at the level of each social entity, results the primary matrix (Table no.1) which highlighted the stratified structure of environmental damage (air pollution, water pollution, waste pollution, groundwater and groundwater biosphere pollution), on columns the environmental protection measures, and at their intersection were represented the scores "x<sub>ij</sub>" given to each measure against environmental damage depending on the degree of intensity with which it manifests itself at each level. Such a matrix was exemplified in Table no.1: D- depollution, E- purification, C- collection, R- reduction, G-management).

Table no. 1 Primary matrix

<b>Measuring Environmental factors</b>	<b>D</b>	<b>E</b>	<b>C</b>	<b>R</b>	<b>G</b>
Air	X <sub>11</sub>	X <sub>12</sub>	X <sub>13</sub>	X <sub>14</sub>	X <sub>15</sub>
Water	X <sub>21</sub>	X <sub>22</sub>	X <sub>23</sub>	X <sub>24</sub>	X <sub>25</sub>
Waste	X <sub>31</sub>	X <sub>32</sub>	X <sub>33</sub>	X <sub>34</sub>	X <sub>35</sub>
Ground	X <sub>41</sub>	X <sub>42</sub>	X <sub>43</sub>	X <sub>44</sub>	X <sub>45</sub>
Bios	X <sub>51</sub>	X <sub>52</sub>	X <sub>53</sub>	X <sub>54</sub>	X <sub>55</sub>

Source: author data

Where  $x_{ij}$  = the numerical value of the score of the environmental protection measure "i" at the level of damage status "j",  $x_{ij} = [1,5]$  where the score 1 is given for the low intensity with which the attribute "i" is manifested at the level "J" of damage stratification, and score 5 is given for a strong intensity

Using the measures of ecological management in terms of environmental protection, the weight matrix shown in Table no.2 can be highlighted.

The two primary matrices (Table no.1) and (Table no.2) are the result of some political decisions of the managers at different levels: ministry, local administrations, etc.

At the same time, these decisions are adopted according to the objectives of the environmental protection policy of the respective area, decisions that may vary from one period to another.

Table no. 2 Matrix of instrument weights when carrying out measures for environmental protection

<b>Tools/ Measures</b>	<b>Tariffs and taxes</b>	<b>Pollution permits</b>	<b>Subsidies</b>	<b>Agreements</b>	<b>Consignment systems</b>
<b>D</b>	Y <sub>11</sub>	Y <sub>12</sub>	Y <sub>13</sub>	Y <sub>14</sub>	Y <sub>15</sub>
<b>E</b>	Y <sub>21</sub>	Y <sub>22</sub>	Y <sub>23</sub>	Y <sub>24</sub>	Y <sub>25</sub>
<b>C</b>	Y <sub>31</sub>	Y <sub>32</sub>	Y <sub>33</sub>	Y <sub>34</sub>	Y <sub>35</sub>
<b>R</b>	Y <sub>41</sub>	Y <sub>42</sub>	Y <sub>43</sub>	Y <sub>44</sub>	Y <sub>45</sub>
<b>G</b>	Y <sub>51</sub>	Y <sub>52</sub>	Y <sub>53</sub>	Y <sub>45</sub>	Y <sub>55</sub>

Source: author data

$Y_{ij}$  = the share of environmental protection instruments "i" in the implementation of environmental protection measures "j"

By multiplying the two matrices (Table no.1) and (Table no.2) the derived matrix will be obtained (Table no.3- intensity matrix), the coefficients of the matrix "z<sub>ij</sub>" highlighting the value of the intensities with which the ecological management tools "i" are manifested at the stratification level. damage "j".

Table no. 3 Matrix of intensities with which environmental management tools act

<b>Tools/ Hierarchical level</b>	<b>Tariffs and taxes</b>	<b>Pollution permits</b>	<b>Subsidies</b>	<b>Agreements</b>	<b>Consignment systems</b>
Air	Z <sub>11</sub>	Z <sub>12</sub>	Z <sub>13</sub>	Z <sub>14</sub>	Z <sub>15</sub>
Water	Z <sub>21</sub>	Z <sub>22</sub>	Z <sub>23</sub>	Z <sub>24</sub>	Z <sub>25</sub>
Waste	Z <sub>31</sub>	Z <sub>32</sub>	Z <sub>33</sub>	Z <sub>34</sub>	Z <sub>35</sub>
Ground	Z <sub>41</sub>	Z <sub>42</sub>	Z <sub>43</sub>	Z <sub>44</sub>	Z <sub>45</sub>
Bios	Z <sub>51</sub>	Z <sub>52</sub>	Z <sub>53</sub>	Z <sub>54</sub>	Z <sub>55</sub>

Source: author data

$$\text{Where } Z_{11} = X_{11} \cdot Y_{11} + X_{12} \cdot Y_{21} + X_{13} \cdot Y_{31} + X_{14} \cdot Y_{41} + X_{15} \cdot Y_{51}$$

$$\dots\dots\dots$$

$$Z_{55} = X_{51} \cdot Y_{15} + X_{52} \cdot Y_{25} + X_{53} \cdot Y_{35} + X_{54} \cdot Y_{45} + X_{55} \cdot Y_{55}$$

The intensities with which the deterioration of the environment manifests itself at different levels of stratification at a given time are reversed as the social entity moves to a new stage of development or changes its objectives in terms of environmental protection.

The illustration of these three matrices (Table no.1, Table no.2 and Table no. 3) was part of a foreground, that of ecological management.

The transition to a secondary plan of financial management will be achieved through the cost matrix, where on the lines are presented the ecological functions, on columns the types of costs involved in performing ecological actions, and at their junction will highlight the share of cost "i" at performing the action "j" in total cost "i" (Table no.4).

Table no. 4 Cost matrix

<b>Cost Activity</b>	<b>Cost de D</b>	<b>Cost de E</b>	<b>Cost de C</b>	<b>Cost de R</b>	<b>Cost de G</b>
D	f <sub>11</sub>	f <sub>12</sub>	f <sub>13</sub>	f <sub>14</sub>	f <sub>15</sub>
E	f <sub>21</sub>	f <sub>22</sub>	f <sub>23</sub>	f <sub>24</sub>	f <sub>25</sub>
C	f <sub>31</sub>	f <sub>32</sub>	f <sub>33</sub>	f <sub>34</sub>	f <sub>35</sub>
R	f <sub>41</sub>	f <sub>42</sub>	f <sub>43</sub>	f <sub>44</sub>	f <sub>45</sub>
G	f <sub>51</sub>	f <sub>52</sub>	f <sub>53</sub>	f <sub>54</sub>	f <sub>55</sub>

Source: author data

Where to fix the share of the cost "i" in carrying out the action "J", in total cost "i".

The result of the multiplication of matrices M3 and M4 will be concretized in the exemplification of the derived matrix M5 (Table no. 5) which will contain on lines the types of social entities, on columns the types of costs required to carry out ecological actions, and at the intersection of lines and columns is the coefficient cost "i" at the hierarchical level "j"

Table no. 5 Cost matrix on hierarchical levels

<b>Cost Hierarchical level</b>	<b>Cost de D</b>	<b>Cost de E</b>	<b>Cost de C</b>	<b>Cost de R</b>	<b>Cost de G</b>
Economical agents	b <sub>11</sub>	b <sub>12</sub>	b <sub>13</sub>	b <sub>14</sub>	b <sub>15</sub>
Local communities	b <sub>21</sub>	b <sub>22</sub>	b <sub>23</sub>	b <sub>24</sub>	b <sub>25</sub>
Regional communities	b <sub>31</sub>	b <sub>32</sub>	b <sub>33</sub>	b <sub>34</sub>	b <sub>35</sub>
County communities	b <sub>41</sub>	b <sub>42</sub>	b <sub>43</sub>	b <sub>44</sub>	b <sub>45</sub>
National Communities	b <sub>51</sub>	b <sub>52</sub>	b <sub>53</sub>	b <sub>54</sub>	b <sub>55</sub>

Source: author data

Where  $b_{ij}$  = the cost coefficient "i" at the hierarchical level "j".

As the ecological financial management is mainly oriented towards the adoption of decisions regarding the financing of ecological activities and actions at the level of each entity, it is necessary to introduce in the presented matrix series a matrix in which the costs of carrying out ecological actions will be highlighted. on columns the financial sources necessary for the financial support of the ecological management.

The conjunction of the lines and columns will lead to the illustration of the coefficient  $c_{ij}$  - the coefficient of the financing source "i" in the cost "j".

Where  $c_{ij}$  = coefficient of the source of financing "i" in the cost "j".

Table no. 6 Matrix of funding sources

<b>Sources Costs</b>	<b>Tariffs and taxes</b>	<b>Pollution permits</b>	<b>Subsidies</b>	<b>Agreements</b>	<b>Consign-ment systems</b>
Cost D	C11	C12	C13	C14	C15
Cost E	C21	C22	C23	C24	C25
Cost C	C31	C32	C33	C34	C35
Cost R	C41	C42	C43	C44	C45
Cost G	C51	C52	C53	C54	C55

Source: author data

Knowing the absolute value of the total sources of financing by categories of origin and the total costs of depollution, treatment, collection, pollution reduction and management, the  $c_{ij}$  coefficient can be determined as follows:  $c_{ij} = (\text{Total source } i) / (\text{Total cost } j)$

The multiplication of the last two matrices (figure 5 and figure 6) will lead to the matrix of the source-destination coefficients illustrated in figure 7. From the "cascade" multiplication of the six matrices resulted the matrix of coefficients, which will contain on social lines funding sources, and at their intersection is the source coefficient "i" at the hierarchical level "j".

Table no. 7 Matrix of coefficients source destinations

Sources Hierarchical level	Tariffs and taxes	Pollution permits	Subsidies	Agreements	Consign-ment systems
Economical agents	S11	S12	S13	S14	S15
Local communities	S21	S22	S23	S24	S25
Regional communities	S31	S32	S33	S34	S35
County communities	S41	S42	S43	S44	S45
National Communities	S51	S52	S53	S54	S55

Source: author data

Where  $s_{ij}$  = the coefficient of the financing source i at the hierarchical level j.

The matrix of the source-destination coefficients, mediates the obtaining of the source-destination matrix (the integrative financing matrix). This matrix is an input-output matrix in which the elements  $x_{ij}$  represent the volume of financing resources from the hierarchical level "i" absorbed - as inputs - by the stratification level "j". The volume of the financing source of level "i" absorbed by the level "j" per unit of financing sources "j" is described by the coefficient  $s_{ij}$  (contained in the matrix M7).

Thus, an instrumental matrix can be made - figure 8, of the architecture of the financial network of environmental protection, highlighting on the lines the institutions and on the columns the instruments, and at their intersection the intensity of using this instrument is obtained.

Table no. 8 The source-destination matrix

Sources Hierarchical level	Tariffs and taxes	Public, central, and local budget	Environmental funds	Grants and loans	Total
Economical agents	x11	x12	x13	x14	X1
Local communities	x21	x22	x23	x24	X2
Regional communities	x41	x42	x43	x44	X3
National Communities	x51	x52	x53	x54	X4
Total	X1	X2	X3	X4	

Source: author data

Where we noted:  $X_j$  = total funding sources at level j,  $s_{ij} = x_{ij} / X_j$  where it follows that  $x_{ij} = s_{ij} \cdot X_j$

By writing the matrix the above relation is obtained:

$$\begin{pmatrix} x_{11} & x_{12} & x_{13} & x_{14} \\ x_{21} & x_{22} & x_{23} & x_{24} \\ x_{31} & x_{32} & x_{33} & x_{34} \\ x_{41} & x_{42} & x_{43} & x_{44} \end{pmatrix} = \underbrace{\begin{pmatrix} s_{11} & s_{12} & s_{13} & s_{14} \\ s_{21} & s_{22} & s_{23} & s_{24} \\ s_{31} & s_{32} & s_{33} & s_{34} \\ s_{41} & s_{42} & s_{43} & s_{44} \end{pmatrix}}_{M_7} \cdot \underbrace{\begin{pmatrix} X_1 \\ X_2 \\ X_3 \\ X_4 \end{pmatrix}}_{X_j}$$

Knowing the matrix M7 and the vector  $X_j$ , the integrative financing matrix is determined.

## 5. Conclusions

The network is a practical solution for adapting to ecological requirements. It is an organizational concept in which are highlighted: the complexity of the network, the asymmetry of the network and the reliability of the network (the ability of the network to connect to other networks within the social network).

The desire to carry out a work that captures the protection of the environment from a completely different perspective from what has been achieved so far, has led to the realization of this model, which has, however, certain limits, objectives and subjective:

- The data underlying the model are insufficient, both in terms of costs and environmental investments, and their quality varies;
- The model implies simplification and as not all data are available, some information will undoubtedly be of a qualitative nature, difficult to express quantitatively;
- Given the various methods of cost evaluation, the results are difficult to compare. Moreover, even the same assessment methods can lead to qualitatively different results, so that the results of a particular environmental cost-investment study cannot be scientifically defended;
- The analysis process through this matrix is expensive, in terms of time and money, as the data underlying the analysis should be obtained either empirically or from the literature;
- The usefulness of the model is limited by the fact that it is limited only to the polluting sectors, so that other pollution factors are omitted
- Setting the limits of the model is arbitrary and controversial, taking into account the fact that the determination of the pollution cost of each sector is made according to all other sectors;
- By such an approach important effect can be ignored and wrong conclusions can be drawn; for example, the indirect effects of reducing pollution costs in a sector may be greater than the direct effects;
- Environmental cost-investment analysis is assumed to be a linear function; thus, when the cost of pollution in a sector change, it is assumed that the investments required to cover the costs change in the same proportion. For example, when the cost doubles, investments must also double; if innovative technologies allow the production of less polluting products or increase the efficiency of "depollution", the assumption of linearity of investments and sectoral costs would be totally wrong;
- The model is a static one, not surprising the dynamics of changing costs and respectively the funds allocated to cover them, which is a major disadvantage in a constantly changing world;
- Overlaps in cost estimation may occur in the model, for example mentioning the same pollution costs for both a certain type of industry and agriculture;
- Given the above-mentioned limits, the practical application of such a model is difficult to achieve, at least in Romania.

This methodology allows an estimate of the environmental costs and the funds intended to cover them at a given time. The model could be improved by introducing more advanced mathematical methods, for example, systems of differential equations, which allow dynamic analysis. years.

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## Effects of Income Inequality on Economic Growth: The Case of the Republic of Moldova

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### Abstract

*As the interdependence between the economic inequality and growth is not straightforward and rather ambiguous, in this article we are testing two hypotheses: the economic growth could be affected by inequality in income distribution and the income inequality is likely to have a negative effect on the economic growth of Moldova. Even though we admit a potential influence of other variables, we conclude that the first hypothesis is true as the econometric measurements have shown a moderate to strong effect of income inequality indicators on the growth variable. At the same time, the analyzed data have shown that with the decrease of inequality, an increasing trend in economic growth is noted. Concurrently, when the inequality expressed by the ratio between the incomes of the population in quintiles I and V increases, we observe a decrease in GDP (PPP) and therefore an economic decline in Moldova, thus proving the second hypothesis.*

**Key words:** economic growth, income inequality, distribution, econometric measurement, income gap  
**J.E.L. classification:** O40, O47, D63, D31, E25

### 1. Introduction

For decades the overall perception has been that by ensuring growth the general well-being, a higher standard of living and prosperity for all might be achieved. However, this seems to be just partly true as very often those at the lower-income levels are likely to hardly benefit from growth if at all.

Generally speaking, the interdependence between the economic inequality and growth is not straightforward and sometimes rather ambiguous as both phenomena depend on different other factors and circumstances (McKnight, 2019, p.2).

If we were to refer to inequality, the interest in this phenomenon can be traced back to Rousseau (1753) who argued that inequality began with the development of the political and legal authority favored by the revolution that resulted from the invention of metallurgy and agriculture (Peterson, 2017, p.3). At the same time, it is believed that the industrial revolution of the eighteenth and nineteenth centuries led to an increase in income of high-income countries, as well as in low- and middle-income countries, which exceeded the basic subsistence level, in spite of a dramatic increase in population. This has also led to greater economic inequality, as industrialization and, subsequently, income and wealth were concentrated in Western Europe and North America, widening the gap between Western Europe and North America and other countries around the world (Peterson, 2017, p.4). However, according to Stone et al. the problem of income inequality (2020), as it is perceived today, arose in the 1970s. Nevertheless, the income inequality gap has been widening since the 1970s, when economic growth stagnated. Income continued to rise for households at the top of the income scale and slowed down for households at the middle and lower distribution levels (Stone *et al.*, 2015 p. 9).

Nowadays, regardless of the level of economic development, the perception of the population on inequality in advanced, emerging and developing countries is similar, i.e. they all recognize that inequality is a major problem. Even in 2013, a survey by the Pew Research Center found that up to 70% of respondents in developing and emerging countries, as well as 74% of advanced economies, believe that the economic system favors the rich (Kohut, 2013, p. 19-20). In the meantime, mitigating inequality has become a central issue in the policy debate under the 2030 Agenda for Sustainable Development,



which, under Objective 10, aims to reduce inequality within and between countries under the motto of "leaving no one behind" (Sachs *et al.*, 2021, p.45).

In fact, inequalities, although multifaceted, involve two distinct concepts, inequality of outcome, which includes income and wealth, and inequality of opportunity. Income inequality refers to the distribution of income among the population, usually at the household level (SG, V.A., 2017, p. 2). Inequality of wealth is the "value of assets owned minus the debts owed" (Eggleston *et al.*, 2020, p. 1). At the same time, inequality of opportunity refers to the disparity between opportunities at birth, choices made in life and luck (SG, V.A., 2017, p. 2). It may seem that the inequality of opportunity is a rather abstract concept, but when translated into concrete indicators and targeted policy objectives, it can take a measurable shape and ensure the achievability of the equality of opportunities.

The topicality of the issue related to reducing inequality, as one of the attributes of ensuring economic growth and especially inclusive growth, has gained ground in the Covid-19 era. According to the World Bank, global inequality has intensified during the pandemic, "partly reversing the decline that was achieved over the previous two decades." Furthermore, inequality between countries is projected to return to the levels observed in 2010 due to the low capacity of emerging markets and developing economies (EMDEs) to address the challenges posed by Covid-19. At the same time, inequality within countries remains high, especially in the EMDE, amid extreme poverty (W.B., 2022, p. 157). And according to the 2022 Global Inequality Report, the calculated averages of how much the population earns or owns hide, in fact, a large inequality gap between and within countries. In concrete terms, with reference to global income, the top 10% of the global population has 52% of the income, while the poorest 50% of the population has only 8.5% of the global income. Meanwhile, the situation with inequalities in the wealth held is even worse: the poorest 50% of the world's population own only 2% of all global wealth, while 76% of total wealth belongs to the top richest 10% of the global population (Chancel *et al.*, 2022, p. 10). At the same time, it is worth noting that Europe has the lowest levels of inequality on a global scale, but despite this, the concentration of wealth is still very high, as the poorest 50% hold 4% of the total wealth, while the richest 10% own 58% of the global wealth (Chancel *et al.*, 2022, p. 11).

As for the impact of economic inequality on growth, it should be mentioned that researchers come up with different and sometimes contradictory results. For example, according to Gulaliyev *et al.* (2020) no trend could be possibly assigned to every country. And, therefore, the so-called *cross-sectional analysis* proposed by Dabla-Norris *et al.* (2015) and *panel analysis* performed by Bouincha *et al.* (2018) provide different results. Cross-sectional analysis shows a negative relationship between income distribution and economic growth according to Dabla-Norris *et al.*, (2015), while the panel analysis indicates that this relationship is negative in some countries and positive in others in line with Bouincha *et al.* (2018). The relationship between inequality and growth varies depending on the level of development, even within the same country according to Barro (2000) and in temporal terms, there is a negative relationship on long term, but a positive in the medium and short term between inequality and growth according to Forbes (2000) (Gulaliyev *et al.* 2020, p. 44). Therefore, the effect of inequality on economic growth is equivocal and depends on a multitude of other associated factors.

## 2. Literature review

As a multidimensional issue, the economic inequality has been analyzed in terms of its various facets and in correlation with other economic and social concepts.

Some researchers have extended the study of the inequality-growth relationship, focusing on inclusive economic growth, which would contribute to a wider segment of the population benefiting from economic growth. For example, some authors studied inclusive growth in the light of strategies to address poverty and inequality. They argue that corporations should change their perspective on regional ecosystems and seek "systemic, multisector opportunities; mobilize complementary partners; and obtain seed and scale-up financing from organizations with a mission to alleviate poverty" and reduce inequality (Kaplan *et al.*, 2018, p.1). Governance has a major role to play in combating inequality to ensure inclusive growth. Thus certain authors analyzed corruption and lack of institutional and human capacity as two main sources of poor governance. They provide an overview of the negative impact of corruption and a lack of capacity of governance, with subsequent repercussions on inclusive growth, poverty and inequality. Some of the policies listed by experts that could improve the state of affairs are

those that focus on structural reform, automation, human resources policies, capacity building, effective anti-corruption systems, transparency, accountability, and inclusive institutions, to support and monitor the policy making process (Ivanyna *et al.*, 2021, p. 4). The trade-offs between boosting growth and reducing inequality and poverty have also been analyzed by certain authors. Researchers conclude that growth can reduce poverty, but the impact of economic growth on inequality depends on the sources of growth. On the other hand, the impact of poverty and inequality on growth is not unique. However, it is clear that poverty and inequality reduce growth in the long run, so the role of policies is to ensure a balance and improve equal opportunities, to increase inclusion and growth (Cerra *et al.*, 2021, p. 31).

Regarding the issue of inequality in the socio-economic context of the Republic of Moldova, this phenomenon was researched *inter alia* in the light of the degree of economic inequality in the well-being of the population of the Republic of Moldova by conducting a comparative analysis with other countries. The results of the referred to research indicate a decrease in the degree of inequality in the well-being of the population of the Republic of Moldova, which was confirmed by the decreasing trend of the Gini coefficient (Ivanov, 2017, p.133). Furthermore, other researchers addressed inequality from the perspective of human development, which encompasses all basic economic and social aspects. The main indicators of inequality and their impact on human development in the Republic of Moldova were analyzed in that study and the results made it possible to assess the losses in human development of the country, caused by the level of inequality in the main components of the human development index, namely in the field of health, education and income (Rojco *et al.*, 2019, p. 255). Furthermore, the inequality was analyzed in other works in terms of factors and trends in income and expenditure of the population of the Republic of Moldova (Colesnicova *et al.*, 2018, p. 76). Other researchers addressed the efforts of the social protection sector in combating poverty and reducing inequality, mainly through "targeted" payments (Sandu *et al.*, 2017, p.5). In a research carried out in the same year, the economic inequality and its link to economic growth were analyzed. The approach used by the researcher in studying this nexus is by distinguishing between normal and excessive inequality. The conclusion of the research was the confirmation of the fact that inequality at a normal level generates economic growth while excessive inequality hinders growth, a fact demonstrated in the case of the Republic of Moldova for 2007, 2008, 2009, 2011 and 2013. While in 2010 and 2014 the GDP growth was accompanied by a decrease in both normal and excessive inequality (Rojco, 2017, p. 42).

Thus, the purpose of this research is to test two hypotheses:

- economic growth could be affected by inequality in income distribution;
- income inequality is likely to have a negative effect on the economic growth of the Republic of Moldova.

### 3. Research methodology

In order to test the aforementioned assumptions, the GINI coefficient as well as the ratio between the incomes of the population in quintiles I and V were selected as indicators of income inequality, whereas for economic growth, GDP adjusted to purchasing power parity (PPP) was selected as an indicator, considered by the author as the most relevant indicator in the context of the inequality - economic growth nexus.

The information base of the research consists of statistical data retrieved from the database of the National Bureau of Statistics (NBS) of the Republic of Moldova and from the IMF database. The methodology used resides in the construction of a simple linear regression and the Pearson correlation for the above-mentioned indicators by processing the data in the JASP 0.16 application. At the same time, the information obtained from data processed in JASP 0.16 is used to analyze how strongly the selected indicators are correlated. Finally, we observe the graph of the variation of GDP (PPP) and GINI and GDP (PPP) and the ratio between the incomes of the population in quintiles I and V for the Republic of Moldova during the years 2014-2020.

The expected result is to prove the existence of a correlation between income inequality and economic growth; to confirm a non-negligible degree of inequality influence on economic growth; and to suggest that income inequality has adverse effects on economic growth in the Republic of Moldova.

#### 4. Findings

In order to observe the relationship between the selected variables and to analyze the effects of income inequality on GDP adjusted to purchasing power parity, we constructed a simple linear regression between gross domestic product (GDP) and GINI and then between GDP (PPP) and the ratio between the incomes of the population in quintiles I and V (Q I-V). By simple linear regression we established the rate of change in the dependent variable explained by the independent variable, as well as quantified the extent to which the independent variable explains the dependent variable.

Table 1. below showing the Model Summary, provides the information needed to determine how well the model fits the collected data.

*Table 1. Model Summary (Simple Linear Regression) - Gross Domestic Product Adjusted to Purchasing Power Parity (GDP (PPP)) vs. GINI, and GDP (PPP) vs. the ratio between the incomes of the population in quintiles I and V (Republic of Moldova, 2014-2020)*

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	RMSE	Durbin-Watson		
					Autocorrelation	Statistic	p
GINI	0.606	0.367	0.241	1.604	0.284	0.885	0.044
QI-V	0.803	0.645	0.573	1.203	-0.030	1.739	0.485

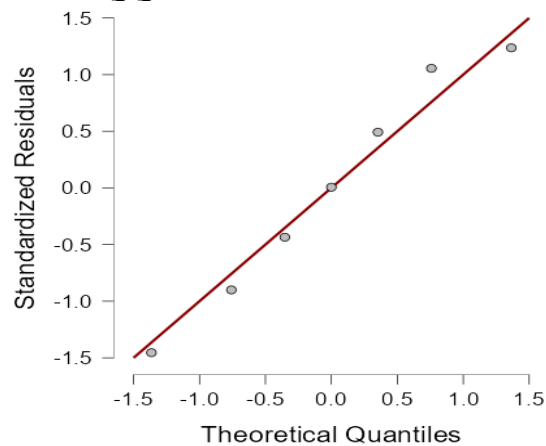
Source: Data retrieved from the NBS of Moldova and IMF database, processed by the author in JASP 0.16

R of the model shows us the absolute value of the correlation between the dependent and the independent variable and indicates how close the association between the variables is. In the case of GDP (PPP) vs. GINI,  $R = 0.606$ , which indicates a correlation of medium intensity and in the case of GDP (PPP) vs. Q I-V this is  $R = 0.803$  which demonstrates a correlation of a strong intensity. At the same time, the Durbin-Watson statistics for the entered data are 0.885 for GDP (PPP) vs. GINI and 1.739 for GDP (PPP) vs. Q I-V. It should be noted that the Durbin-Watson statistics verifies the correlation between residues, which could invalidate the test. For validation we should have values greater than 1 and less than 3, but ideally around 2. We note that in the case of GDP (PPP) vs. GINI, the value is less than 1 which shows the existence of a correlation between the residues, which leads to the invalidation of the Durbin-Watson test, while in the case of GDP (PPP) / Q I-V the value is close to 2 which demonstrates the lack of correlation between residues (error independence) and validates the test for simple linear regression GDP (PPP) vs. Q I-V.

Of greater interest are the values of R<sup>2</sup> which show the proportion of variation in the dependent variable which can be explained by the independent variables. Therefore,  $R^2 = 0.367$  (GDP (PPP) vs. GINI), which assumes that the independent variable (GINI) explains 36.7% of the variation of the dependent variable (GDP (PPP)). At the same time,  $R^2 = 0.645$  (GDP (PPP) vs. Q I-V), which assumes that the independent variable (Q I-V) explains 64.5% of the variability of the dependent variable (GDP (PPP)). However, for an easier correction of the data, an adjusted R<sup>2</sup> value is also provided, which indicates that GINI explains 24.1% and Q I-V at 57.3% the variation of the dependent variable (GDP (PPP)), which according to Cohen's classification 1988, demonstrates a moderate effect in the case of GINI and a strong effect in the ratio of the income of the population in quintiles I and V (Q I-V).

To confirm the normal distribution of the indicators GDP (PPP) vs. Q I-V, we follow the graph QQ Plot produced (Figure 1).

Figure 1. Normal distribution of indicators (GDP (PPP) vs. Q I-V). Republic of Moldova (2014-2020)  
Q-Q Plot Standardized Residuals



Source: Data retrieved from the NBS Moldova and IMF database processed by the author in JASP 0.16

We observe a normal distribution of residues given that the points are aligned along the diagonal line. Even if the points are not perfectly aligned along the diagonal line, they are still sufficiently aligned to indicate the normal distribution of the residue. Given that the linear regression analysis is robust enough, we accept this result which assumes that there is no need to make transformations (i.e. no data normalization is required) and the condition of normality of the residue distribution was not violated.

Next, we follow the data presented in ANOVA on regression and residues (Table 2.).

Table 2. ANOVA. Simple linear regression for indicators (GDP (PPP) vs. Q IV). Republic of Moldova (2014-2020)

Model		Sum	df	Mean Square	F	p
		of Squares				
H <sub>i</sub> (QI-V)	Regression	13.111	1	13.111	9.066	0.030
	Residual	7.230	5	1.446		
	Total	20.341	6			

Note. The intercept model is omitted, as no meaningful information can be shown.

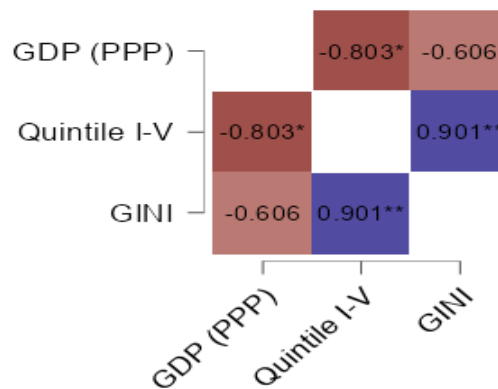
Source: Data taken from the NBS Moldova and IMF database processed by the author in JASP 0.16

The ANOVA table (Table 2.) shows the regression, which represents the model itself, and the residue, which represents the error. F is statistically significant because  $p = 0.03$ . At the same time, it should be noted that the linear relationship hypothesis is correct if the value of the factor "p" is less than 0.05. In this case, where  $p = 0.03$  we can state with a probability of 97% that there are links between the selected variables.

We conclude that the regression model is relevant and statistically significant, where  $F(1, 5) = 9.066$ ,  $p < 0.03$  and  $R^2 = 0.645$ .

Next we aim to observe the degree of interdependence between variables. Thus, for the correlation between GDP (PPP), the GINI coefficient and the ratio between the incomes of the population in quintiles I and V. After processing the data in JASP 0.16 according to the Pearson correlation (Pearson's heatmap, Figure 2.) we obtained the following data on the correlation between the variables.

Figure 2. Pearson correlation between Gross Domestic Product adjusted for purchasing power parity (GDP (GDP)), GINI and the ratio of incomes of the population in quintiles I and V (Republic of Moldova, 2014-2020)



Source: Data retrieved from the NBS Moldova and IMF database processed by the author in JASP 0.16

As can be seen from Figure 2., the strongest link is between the GINI variables and the ratio between the incomes of the population in quintiles I and V (Q I-V), and between GDP (PPP) and Quintile I-V. And the link between GDP (PPP) and GINI is of medium intensity. It should be noted that the correlation coefficient is between 0 and 1 and the closer it is to 1, the stronger the correlation is.

At the same time, the Shapiro-Wilk test (Table 3.) designed to highlight deviations from normality shows that the data have a normal distribution  $p = 0.071$ . An abnormal distribution is when the p-value is less than or equal to 0.05 (Variation. Distribution Analyzer, 2022).

Table 3. Shapiro-Wilk test for deviations from normal for Gross Domestic Product adjusted to purchasing power parity (GDP (PPP)), GINI coefficient and the ratio between the incomes of the population in quintiles I and V (Republic of Moldova, 2014-2020). Assumption checks.

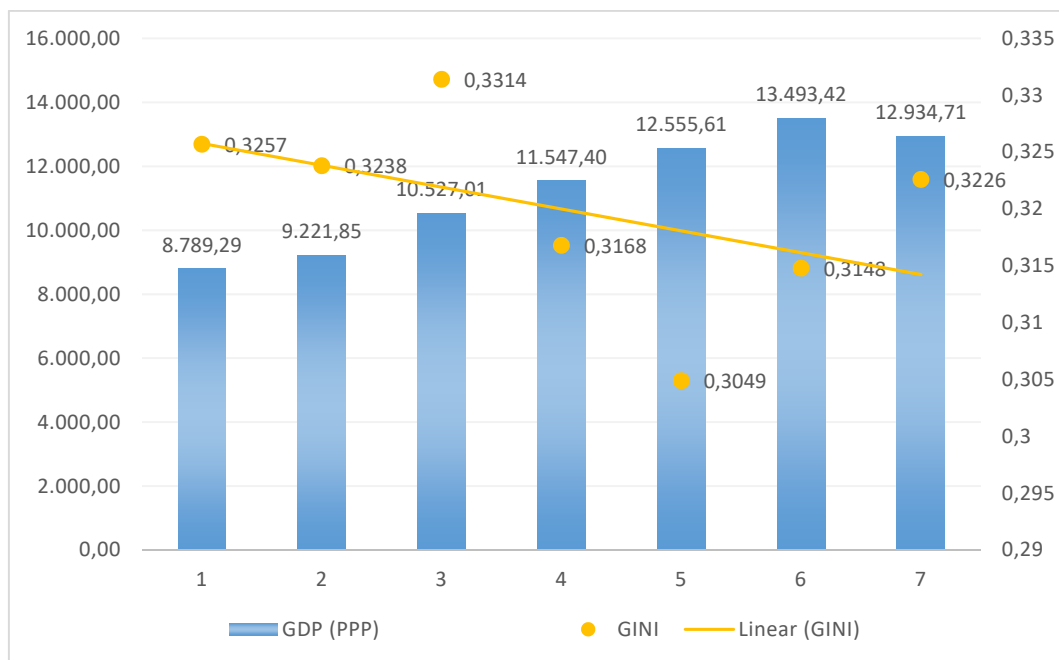
Shapiro-Wilk Test for Multivariate Normality	
Shapiro-Wilk	p
0.824	0.071

Source: Data retrieved from the NBS Moldova and IMF database processed by the author in JASP 0.16

We conclude that the assumption that economic growth is affected by inequality in income distribution proved to be true. The change in economic growth expressed in the present analysis by GDP adjusted to purchasing power parity as a dependent variable is explained (according to adjusted R2) at 24.1% by the GINI indicator and at 57.3% by the ratio between the incomes of the population in quintiles I and V (Q I-V) which represent indicators for measuring inequality. Therefore, the influence of income inequality indicators demonstrates a moderate to strong effect on the growth indicator.

Once the assumption that economic growth is affected by income inequality has been confirmed, we analyze the graph of the change in gross domestic product adjusted to purchasing power parity and the GINI coefficient (Figure 3) and then the graph of gross domestic product adjusted to purchasing power parity and the indicator represented by the ratio between the incomes of the population in quintiles I and V (Figure 4).

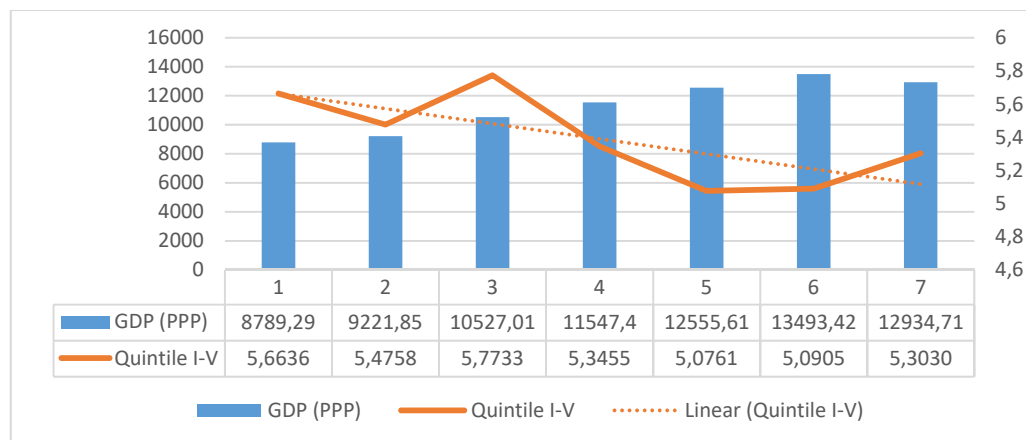
Figure 3. Graph of variation of gross domestic product adjusted to purchasing power parity (thousands, USD) and GINI coefficient, (Republic of Moldova, 2014-2020)



Source: Developed by the author based on data retrieved from the database of NBS Moldova and the IMF.

As can be seen in the graph above, although a certain correlation has been established between these two variables, it seems that not in all the cases the increase in the GINI coefficient results in a decrease in gross domestic product adjusted to purchasing power parity, although in most cases this statement has been confirmed. However, the variation in economic growth expressed in this analysis by GDP adjusted to purchasing power parity as a dependent variable is explained as seen above only at 24.1% by the GINI indicator, thus deviations or lack of proportional variation can be explained by the fact that there are other variables that produce their effect on growth.

Figure 4. Graph of the variation of the gross domestic product adjusted to the purchasing power parity (thousand, USD) and of the indicator represented by the ratio between the incomes of the population from quintiles I and V, (Republic of Moldova, period 2014-2020)



Source: Developed by the author based on data retrieved from the database of NBS Moldova and the IMF

Analyzing the graph above we notice a clearer correlation between the variables, except for one "outlier" (3) which could be explained also by the impact of the banking crisis of 2016 which caused an increase in the income gap. The year 2016 was marked by declining revenues and funding constraints. The budget deficit for 2016 has increased to encourage economic recovery. According to the recommendations of the International Monetary Fund (IMF), fiscal policy has been anchored in a robust medium-term framework and measures have been taken to strengthen the revenue base and to prioritize social and infrastructure spending (IMF, 2016). We could consider that the above could explain the increase in inequality which, yet, did not have an immediate impact on GDP (PPP). At the same time, in the other cases analyzed in the period of 2014-2020, we find that with the decrease of inequality there is an economic growth and when the inequality expressed by the ratio between the incomes of the population in quintiles I and V increases, we are witnessing a decline in GDP adjusted to purchasing power parity and therefore an economic decline. However, we must take into account the fact that up to a certain level inequality has a positive, stimulating effect and that leads to economic growth, and when inequality is in excess it produces adverse effects (Rojco, 2017, p. 42). Although in this research we have not analyzed normal versus excessive inequality, based on other researches, we can assume that another reason why there are inconsistencies in the relationship between growth and inequality is the variation of inequality between norm and excess. Thus when the economic inequality is normal, it leads to economic growth, and when inequality is in excess it has adverse effects (Rojco, 2017, p. 42).

## 5. Conclusions

Admitting that there might be a potential interference with other variables, we conclude that the first hypothesis that economic growth is affected by inequality in income distribution has proved to be true. The variation of economic growth expressed in this analysis by GDP adjusted to purchasing power parity as a dependent variable is explained at 24.1% by the GINI indicator and at 57.3% by the ratio between the incomes of the population in quintiles I and V (Q I-V) which are indicators for measuring income inequality. Therefore, the influence of income inequality indicators demonstrates a moderate to strong effect on the growth indicator.

At the same time, although a certain correlation has been established between the variables, it seems that not in all the situations (year 2016) the increase in inequality leads directly to the decrease in economic growth, even if in the most cases that have been analyzed (for the years 2014, 2015, 2017, 2018, 2019, 2020) an upward trend of GDP (PPP) has been observed once the indicators selected for measuring income inequality decreased, and vice versa. In addition, we conclude that since GDP adjusted to purchasing power parity as a dependent variable is explained only at 24.1% by the GINI indicator, the deviations or lack of proportional variation can be explained by the fact that there are other variables that interfere with this relationship.

At the same time, we observed a clearer correlation between the variables GDP (PPP) and the ratio between the incomes of the population in quintiles I and V, except for one outlier (2016) as in the case of the correlation GDP (PPP) vs. GINI. However, this increase in inequality does not seem to have had an immediate impact on GDP (PPP). At the same time, in the other cases analyzed in the period between 2014-2020, except for 2016, we find that with the decrease of inequality there is an economic growth and when the inequality expressed by the ratio between the incomes of the population in quintiles I and V increases, we are witnessing a decrease in GDP adjusted to purchasing power parity and therefore an economic decline in the Republic of Moldova. Therefore, we can say that the second hypothesis that income inequality has a negative effect on economic growth in the Republic of Moldova has been confirmed, although this correlation remains equivocal and it would be appropriate to analyze the results also obtained by dividing inequality into the normal and the excessive one.

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# Improving the Organizational Resilience during COVID-19. An Analysis of the Romanian Banking Sector

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## Abstract

*Organizational resilience refers to the firm capability to face unexpected shocks and recover after major changes in the business environment. The present paper focuses on the COVID-19 pandemic as the main external shock for the Romanian banking sector, developing a theoretical approach based on the corporate social responsibility mechanism. Starting from the stakeholder theory and the reputational implications of corporate social responsibility (CSR), the main effects of the COVID-19 pandemic for the banking institutions were analyzed. Thus, the stakeholder engagement was used as a prior feature of the resilient banks, suggesting that digital banking services have positively amplified the customer experience in terms of security, efficiency and transparency through CSR. The comparative case study of the Romanian sector leading banks explores the managerial implications of the health crisis for organizational resilience, investigating the CSR practices as response to the pandemic context.*

**Key words:** organizational resilience, corporate social responsibility, stakeholders, digital banking

**J.E.L. classification:** G21, M10, M14

## 1. Introduction

Business environment challenges and external shocks, such as recessions or legislative changes, have highlighted the need to increase the organizational resilience through which firms can respond to the negative externalities without affecting their long-term financial performance. First, the paper explores the theoretical background of the organizational resilience, suggesting a strong relationship with corporate social responsibility through the stakeholder theory. Thus, the stakeholder perspective was depicted according to the materiality analysis of the leading banks from the Romanian banking sector, exploring the CSR practices as response to the pandemic context.

Since the COVID-19 outbreak in late 2019, both social and economic life has been affected by uncertainty, but the impact of the health crisis on the banking sector is particularly important. The COVID-19 pandemic has provided an opportunity for the development of the banking sector through digitization, but few papers have been concerned with the ability of the banking institutions to survive during the pandemic. Banks have an ethical responsibility to be prepared for disasters and to recover quickly. The banking sector plays a critical role in disaster situations as it provides many basic services that help build community resilience. In this context, it was essential to focus not only on the management of banking institutions during the COVID-19 period, but also on the role of these institutions in society through CSR.

## 2. Theoretical background

*Resilience* is an interdisciplinary concept, covering a variety of research fields, from physics and engineering to ecology, economics or psychology, referring to the ability of a system to recover or even overcome its initial state after a moment of discontinuity (Folke, 2006). In the applied sciences the term refers to the property of a material to return to its original shape after being temporarily subject to exogenous forces (Wendong et al., 2019), while new social innovation perspectives define

*resilience* as a long-term growth based on permanent renewal, without a specific moment of discontinuity requiring recovery (Acquaah et al., 2011).

The term *corporate social responsibility* refers to a voluntary corporate action leading to the improvement of social or environmental conditions (Mackey et al., 2007). Although corporate social responsibility is not explicitly required by law, the social good it generates can at the same time bring benefits to the company. Thus, establishing an organizational relationship with a series of stakeholders and creating trust through CSR can contribute to strengthening organizational resilience. The stakeholder theory represents one of the main pillars in the CSR development, which was based on harmonizing the divergent interests of corporations with those of key stakeholders: government, customers, consumer representatives, suppliers, competitors, media, environmental associations, local and business communities (Freeman, 1984).

Corporate social responsibility facilitates organizational resilience through reputation (Gao et al., 2017), increasing the financial performance of a company by improving both customer (Singh, 2016) and employee (Bode et al., 2015) satisfaction. In the same time, the effects of corporate social responsibility translate into strengthening social image (Barakat et al., 2016) and innovative performance (Abdelmoteleb et al., 2018), being seen as a buffer against economic shocks, mitigating the negative impact and financial volatility (Godfrey et al., 2009). The engagement in CSR activities helps companies strengthen their reputation, which acts as an additional resource that activates the conventional resources of companies and allows them not only to mitigate cyclical shocks, but also to create business opportunities that can lead to increased financial performance. Positive relationships with different stakeholders contribute to building a wide network of knowledge, providing the organization with flexibility and efficiency and supporting innovation.

There are different typologies of stakeholders, including consumers, suppliers, community, government, employees, environment and investors. But one of the most common classifications according to the stakeholder theory suggests a distinction between primary and secondary stakeholders (Park and Ghauri, 2015). If the first mentioned category includes internal managers, employees, consumers, suppliers, investors and governments, secondary stakeholders have a strong involvement in increasing the credibility of a corporation: the local community, non-governmental organizations, the competition and the media (Maon et al., 2009).

During the COVID-19 pandemic, a special attention was directed to the rapid digitization of the banking sector as a social responsibility mechanism towards clients through the development of a dynamic portfolio. The digital payments were used even before the health crisis, which only amplified the process. The sudden increase in demand for digital banking services has posed a major challenge to many banks' ability to serve their customers. Focusing on the relationship between corporate social responsibility and customers, the paper explores the organizational resilience of banks in a flexible approach, investigating the CSR practices implemented in line with the need to reduce the negative effects of the coronavirus for the economy.

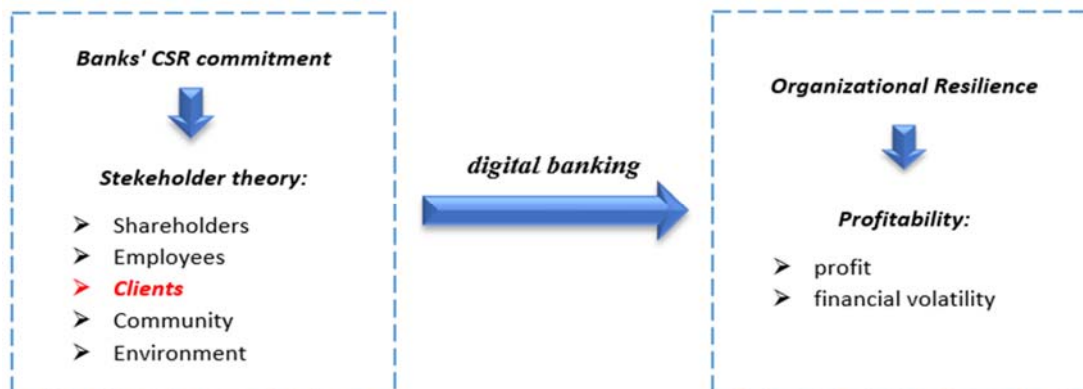
### **3. Research methodology**

During the COVID-19 pandemic, banks mobilized and managed to face the critical periods. Since the beginning of the pandemic, the banks were part of the solution, not the problem, as happened in the previous crisis, and a positive effect resulting from this pandemic was the acceleration of digitization both in the banking field and in the other fields of economy. The COVID-19 pandemic has been a unique shock to the demand for digital banking, driven by a sudden drop in customers' willingness and ability to physically visit bank branches. The widespread mobility restrictions imposed by state and local governments, as well as the risk of infection, have led to substantial barriers to the direct banking services. The use of digital banking has grown substantially during the pandemic, prompting banking institutions to develop robust long-term strategies.

Despite the negative impact of the COVID-19 pandemic on all economic sectors, many banking institutions have engaged in various CSR initiatives and developed their strategies to fight the crisis, showing solidarity within local communities through innovation technology and improving digital services. The theoretical framework of the paper can be represented according to Figure no. 1, which relates the banks' CSR commitment and organizational resilience through stakeholder theory, with an emphasis on commitment to customers. Thus, the research question *What is the specific role of*

*CSR in the banking sector?* has become particularly relevant for two reasons: firstly, in the face of dramatic situations, CSR activities are particularly necessary, and secondly, these practices can contribute to improving the organizational resilience of banks, which is essential for supporting the national economy.

Figure no. 1. The theoretical framework of the paper



Source: author processing

A comparative case study was conducted in order to emphasize the patterns, similarities and differences between Banca Comercială Română S.A. (BCR), BRD – Groupe Société Générale and Raiffeisen Bank. The sample was chosen by applying three filters: (1) the activity sector; (2) the total assets, according to Top 100 SEE - Southeast Europe's Biggest Companies 2021; (3) the option for banks that belong to international financial groups. Thus, considering the findings regarding the banks' resilience during the COVID-19 context and adding the importance given to the reporting of CSR information by financial institutions according to the data provided by the Global Reporting Initiative, the scientific approach will be grouped around the most active banking institutions in Romania that belong to European financial groups.

## 4. Findings

### 4.1. Implications of the COVID-19 pandemic for banking institutions

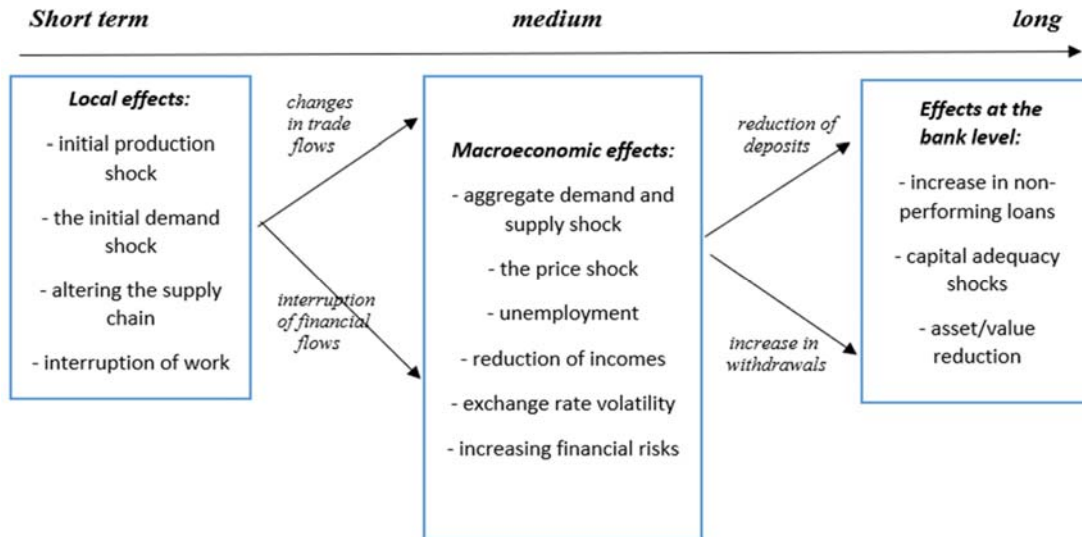
The crisis generated by the COVID-19 pandemic had multiple effects on different levels (social, economic, individual, biological, etc.), most of the measures taken affecting systems from various areas of the economy in a different way and putting banks in a delicate position towards both customers and partners. For banks in particular, the pandemic involves the risk to cause increases in default rates. As the pandemic led to reduced production, trade and economic activity and increased unemployment, financial institutions faced significant risks. Destabilization of macroeconomic indicators has threatened the sustainability of financial institutions and the financial stability of all countries.

Figure no. 2 outlines the possible implications of the health crisis for banking institutions in a scenario marked by no policy intervention. Banks traditionally face a wide range of risks, but the pandemic increases their severity by the liquidity crisis, reducing the credits, investment yields and loans, increasing non-performing assets, lowering market interest rates and inducing the contagion effects. Systemic events could have massive adverse effects on bank performance, leading to bankruptcy in extreme cases. The prolongation of the pandemic may cause a complete shutdown of the banking sector, pushing banking institutions towards a new crisis.

First of all, the pandemic had direct consequences for the population savings, due to the urgent social distancing measures taken by the authorities. Under these conditions, production stopped in some companies, demand for some non-essential goods / services decreased, transports was restricted, offices/factories were closed completely or partially, with direct effects on savings. These measures can generate severe macroeconomic costs, causing large reductions in aggregate demand

and supply, inducing massive price shocks, layoffs and adverse developments of the exchange market.

Figure no. 2. The effects of the COVID-19 pandemic on the banking sector



Source: author processing

The banking sector may experience a substantial rise in default risk due to reduced revenues of their borrowers determined by the economic slowdowns and forced closures, being more severe for the borrowers who rely on exports, as the global economy will feel the effects of the pandemic on a large scale. A similar effect can be also noticed for small businesses that need to generate enough operating cash inflows in order to survive. Under these conditions, banks with substantial exposure to loans offered to companies in export-oriented sectors and SME may experience a substantial rise in default rates. In addition, a liquidity shortage may be caused by the decision of depositors to withdraw their savings in order to support their basic expenses. Income is likely to decline under exogenous shocks due to reduced international trade, foreign exchange transactions and trading services. The cumulative result of the mentioned effects could be represented by increases in non-performing loans and reduction of asset quality for banks. Thus, such a persistent scenario could reduce the value of bank assets. A lower value of assets relative to risk will reduce banks' capital adequacy, threatening banks' financial solvency, but also their survival and sustainability.

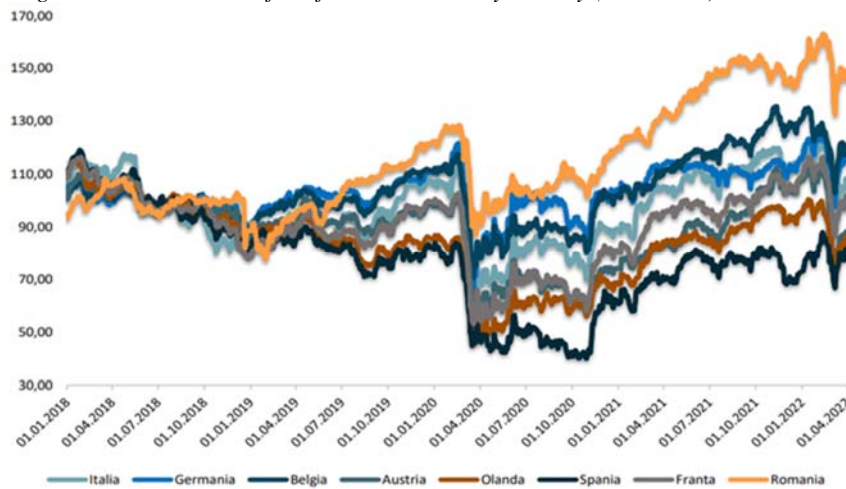
#### 4.2. The resilience of the banking sector during the COVID-19 pandemic

Since the outbreak of the pandemic, the real sector deposits have consolidated their dominant position in the liabilities of credit institutions and represented in September 2021 approximately two thirds of the value of the aggregate balance sheet of the banking sector in Romania, outlining the consolidation process of these sources of financing in the period since the beginning of the pandemic crisis. The banking sector was financed by the real sector at low costs, an aspect determined both by the prudent behavior of depositors and by the reduced role of other sectors in the financial system, which offer less promoted and assimilated investment alternatives by the real sector. Thus, post-pandemic saving has been predominantly focused on deposits at sight.

Based on a consistent stock of liquid assets, credit institutions have been able to manage liquidity shocks and contribute to reducing risks from the real sector. In this context, the share of liquid assets in banks' balance sheets places Romania in the top banking sectors in the EU. Into the framework of the war in Ukraine, the quotations for most banks and financial institutions listed on the European stock exchanges recorded decreases that came close to those recorded during the pandemic. Related to the end of 2021, in March 2022 there were noted important decreases of the stock markets in Austria (-20.94%), the Netherlands (-11.77%) and Belgium (-9.49%). The resilience of the banking

sector in Romania was superior to the other states included in the analysis, even in the context marked by high volatility and uncertainty (Figure no. 3).

Figure no. 3. Evolution of the financial sector by country (2018=100)



Source: <https://asfromania.ro/ro/a/970/rapoarte>

The significant contraction of lending since the outbreak of the pandemic was felt especially in the case of the population's consumer credit balance, with the annual variation entering on a negative territory. Later, the balance of these credits returned to a slightly higher level than the pre-pandemic one. At the start of the economic recovery process and supported by other government measures or programs, it increased to a significantly higher level than that recorded before the pandemic. Since the beginning of the pandemic, the Romanian banking sector has maintained a prudent position from the perspective of the balance sheet structure in order to favor an adequate management of liquidity risk.

#### 4.3. Corporate social responsibility towards clients through digital banking

Since the beginning of the health crisis, the credit institutions have implemented a set of strategies to protect both customers and employees, trying in the same time to continue their business. According to the directions of the European Central Bank (ECB), banks were involved in actions related to: control the COVID-19 infections at the workplace, assessment of IT infrastructure and fraud risks in the field of cyber security. The social distancing measures led banks to promote digital channels and even to start cooperation with a number of Fintech companies in order to support clients. These initiatives can be considered a consistent part of responsibility towards employees, customers and community, given the fact that banking institutions have been implemented CSR initiatives aimed at these categories since the pre-pandemic period.

The health crisis has offered banks the opportunity to develop CSR programs that are truly tailored to the needs of clients caused by the COVID-19 pandemic. This section is based on the analysis of the main measures in the digital banking field implemented by the three best-performing banks in Romania during the COVID-19 pandemic: Banca Comercială Română S.A. (BCR), BRD – Groupe Société Générale SA and Raiffeisen Bank.

BCR recorded a net profit of 1,409.8 million lei (286.5 million euros) in 2021, from 814.1 million lei (168.3 million euros) in 2020. Adaptation and resilience were the dominant words, at the business level, for BCR in 2020, with 1.8 million internet banking and mobile banking users, of which over 1 million active George users, up 43% from of 2019. Thus, George became the digital ecosystem that offered 100% online a set of specific retail banking products. The number of transactions through George increased by 102% in 2020 compared to 2019.

*Casa Mea* (My Home) App, the platform that manages the document flow for standard mortgages from phone or tablet, was used for 40% of *My Home* mortgages in 2020. Thousands of customers received in 2021 financial intelligence advice in direct conversations through a digital platform that helps employees in the network provide personalized solutions. The capacity of the Contact Center has increased by over 50% to respond to requests more quickly, with the migration to a new digital platform and the opening of regional centers in Timișoara, Iași and Bucharest.

In 2020, the entrepreneurial education program BCR School of Business reached 10,000 users that participated on the platform and at the online training sessions. INNOVX-BCR accelerator included 62 start-ups and scale-ups that were incubated / accelerated, from all regions of the country. In 2021, Banca Comercială Română S.A. (BCR) had approx. 2 million internet banking and mobile banking users, of which nearly 1.4 million are active George users, up 33% from 2020. Moreover, approx. 100,000 companies have been enrolled in George for business, a platform that includes a complete package: Digital Onboarding, Digital Overdraft and unique sign-in for business and personal operations. Over 56% of personal loans in 2021 were granted 100% digitally.

BRD achieved a high level of profitability in 2021 by fulfilling the strategic objectives of the BRD Group in the field of digitization. In 2021, BRD developed in-house solutions and launched digital flows to facilitate 100% remote onboarding as a new bank customer, 100% remote lending for personal needs, 100% remote data update process, which were easily accepted by customers, especially in the context of the pandemic. BRD has invested in bringing more functionality to its first fully in-house developed mobile app to give customers better control over their accounts and transactions. YOU BRD has expanded with foreign payments and exchanges between BRD and other banks' accounts, authorized accounts, opening and closing deposits, opening current accounts and savings accounts and many other useful functions to make the application a banking partner of trust. The number of digitally active individual customers was 20% higher in annual dynamics in 2021 and 48% compared to 2019, while the number of transactions was 31% higher than in 2020.

In the field of technology and innovation, together with CSR in the field of financial education, BRD supported the training of key players for a digital society. The projects that BRD has developed focus on education in STEM subjects, R&D in AI, machine learning and tech entrepreneurship. Paper consumption is carefully monitored and specific projects are implemented in order to reduce it. For this reason, a project that promotes the electronic signing of documents and the electronic archiving process has started at the Group level.

In the context of the COVID-19 pandemic, Raiffeisen Bank became the first bank in Romania to fully digitize its relationship with the National Pension House in July 2021, thus meeting the needs of elderly people. In 2021, Raiffeisen Bank's strategy focused on the development of products and services with an emphasis on the digitization side and increased attention to the integration of sustainability and the development of green credits. Starting with the first quarter of 2021, all classic savings products were offered exclusively on digital channels, Smart Mobile and Raiffeisen Online. For the SME segment, Raiffeisen Bank launched the SME current account packages, with flexibility, modularity and adaptability to any customer profile, regardless of the stage of development or the industry it belongs to. In addition to the included trading operations, the new packages have been enriched with digital services such as RaiConnect, the application through which customers can benefit from a dedicated bank advisor, remotely, as well as the internet and mobile banking applications, Raiffeisen Online IMM and Raiffeisen Smart Business.

The process of simplification and digital transformation was also supported by the remote electronic signature solution offered free of charge to the Bank's customers on the Namirial SPA Italy platform, supporting a green alternative for signing documents in relation to the bank. These alternative channels for accessing remote banking services were complemented by the remote interaction solution - Interactive Voice Response through the call center or the ChatBot launched in 2020 and enriched in 2021 with new topics of interest and prompt answers to the SME customers' questions. From December 2021, Raiffeisen Bank offers the opportunity to become a customer of the bank on a 100% online flow, through the Smart Mobile application, without visits to the agencies.

Compared to 2020, transactions made by individuals with cards at merchants increased by more than 30% at the end of 2021, both in number and value. At the same time, the number of payments made by phone increased by 87%. In December 2021, 50% of the bank's individual customers were using Raiffeisen Bank digital banking services (an increase of 29% compared to 2020). Raiffeisen



Bank offers its customers a 100% digital process for contracting a personal loan. The number of customers accessing a digital personal loan increased by more than 100% in 2021 compared to the previous year.

## 5. Conclusions

All banking institutions included in the sample met a series of criteria regarding the visibility of CSR actions in the pre-pandemic period. In order to protect the individual customers, the banks' efforts were directed mainly on updating their online or to launching new versions of them. During the COVID-19 pandemic the banking institutions have been called upon to support efforts to mitigate the impact of the health crisis on both individuals and businesses and to support economic recovery. Before the pandemic, most customers relied, at least in part, on the banks' branches. The sudden increase in demand for digital banking services has posed a major challenge to many banks' ability to serve their customers. The banking sector must adapt to the new circumstances generated by the pandemic and use the necessary tools to allow clients, regardless of education, age, education or digital skills, to access to their services.

The three banks analyzed in this paper are part of the e-learning project developed together with the CPBR (The Council of Banking Employers in Romania) and with the representatives of the Trade Unions whose main objective is to develop the skills of employees so as to allow an easier adaptation to changes in the labor market and to the challenges of the digital future. The main themes that address digital technology in the current period are:

- ✓ Digital skills (digitalization awareness, PC and reporting skills, analytical and numerical skills);
- ✓ Collaboration through digital channels (sales, cashless operations, customer orientation from a digital perspective);
- ✓ Customer satisfaction and approach in the context of digitalization (remote work, messaging and collaboration tools such as video conferencing, distance learning, etc.).

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# Using Digital Banking to Develop Organizational Resilience in Romania: Consumer Attitudes and Perceptions

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## Abstract

*The COVID-19 pandemic has transformed the banking sector through the massive acceleration of digital services, reshaping the experiential factors that influence the customer's attitudes towards digitization. The digital transformation of the banking system is strongly associated with the flexibility features of the banking services, where innovation is a way that increases the added value of financial institutions. The health crisis was an unexpected shock to demand for digital banking services, representing a test for the banks' digital capabilities to adapt and recover after a moment of discontinuity. The COVID-19 pandemic acted as a catalyst between banks and clients, a relationship that gradually became an opportunity for the entire sector. This paper explores the organizational resilience of the banking sector in Romania using a mixed-method approach based on case studies and empirical surveys, conducting a semi-structured questionnaire on 450 respondents. The main findings outline the strong correlation between e-banking security and loyalty towards the provider bank through trust, a relationship that is fully mediated by the customer e-banking satisfaction.*

**Key words:** resilience, consumer, perception, digital banking

**J.E.L. classification:** G21, M10, M14

## 1. Introduction

From a conceptual point of view, the organizational resilience represents the ability of an organization to positively respond to the environmental changes, being usually measurable through the outputs. One significant outcome of the organizational resilience is maintaining a higher level of financial performance in the face of challenging business conditions. Corporate reputation can function as a defense mechanism towards changing business environment, while also becoming an offensive mechanism through which companies can create value. The engagement in corporate social responsibility (CSR) activities helps companies strengthen their reputation, functioning as an additional resource that can lead to increased financial performance.

The term *resilience* is also prominent in the banking sector. According to the Basel Committee report, a resilient banking sector refers to its strong ability to withstand shocks resulting from various financial and economic crises. While the funding structure, low capital ratio and low liquidity ratio can be considered strong determinants of a resilient banking system, the present paper will explore the role of digital transformation to develop organizational resilience for the Romanian banks during COVID-19 pandemic. In this context, the health crisis is seen as a catalyst between banks and clients, a relationship that gradually became an opportunity for the entire sector through the digital banking development. The research study will investigate the consumers' attitudes and perceptions by linking the organizational resilience with the CSR construct through *trust*.

## 2. Theoretical background

A positive reputation increases customer satisfaction (Singh, 2016) and trust, while establishing positive relationships with clients can contribute to a company's product diversification process. A deep social foundation together with goodwill and a network of relationships can act as a barrier that protects an organization from sudden negative events, offering time to absorb shocks and take the appropriate response measures. Innovation has been widely recognized as an essential way for companies to achieve their organizational resilience, as companies can absorb the environmental changes by developing new capabilities and adaptive strategies (Jaaron and Backhouse, 2014).

Winston (2014) outlines that good customer relationship management can provide protection against fluctuations in market demands, as companies can ensure financial stability by actively adjusting and innovating in line with new customer needs. Demmer and Vickery (2011) indicate that resilient organizations tend to integrate early into customer supply chains in order to fully understand customer needs and thereby continuously provide creative, satisfying solutions that distinguish them from their competitors during the economic downturns.

At the end of September 2021, the banking sector recorded increases in net profit up to 6.4 billion lei (an increase of 42% compared to the same period of the previous year) and an ROE indicator of 13.6%, above the European average values (7.4% in the EU27), but lower compared to the average of the sector of non-financial companies in Romania (18.9%, December 2020). The median ROE value of large banks, which concentrate 85.7% of the aggregate positive financial result, has returned to growth, at a higher level compared to European evolutions, while the market share of loss-making banks remains low (0.7%).

The most recent stress testing exercise of the Romanian banks' solvency attests to an adequate resilience of the local banking sector at an aggregate level, due to both a good operational capacity, especially in the case of large banks, and a significant level of solvency at the initial phases of COVID-19 pandemic (December 2020). The exercise covers a three-year horizon (Q1 2021 – Q4 2023) and includes two macroeconomic scenarios (baseline and adverse), suggesting a contraction in both scenarios.

## 3. Research methodology

The main objective of the present paper is to explore the effect of the COVID-19 pandemic on digital banking by using a google form focused on the digitization of the Romanian banking sector in the context of the COVID-19 pandemic. The questionnaire was distributed online on a sample of 450 respondents, in order to identify customers' perceptions of innovative technologies and their attitudes towards the digital transformation of the Romanian banking sector generated by the COVID-19 pandemic. The demographic profile of the respondents was included in the Table no. 1. The factual questions were mixed with the interpretative ones, being formulated both direct questions (*Which bank/banks do you currently collaborate with?*) or open questions (*Please specify the measures taken in this regard*). The themes addressed were organized in order to stimulate the respondent to formulate opinions that support the research hypotheses.

Table no. 1. The demographic profile of the respondents

	Frequency	Percentage (%)
<b>Age</b>		
21-30 years	234	52
30-40 years	121	26.88
41-50 years	72	16
≥ 51 years	23	5.12
<b>Gender</b>		
Male	263	58.44
Female	187	41.56
<b>Education</b>		
Undergraduate	285	63.33
Graduate	146	32.44

Postgraduate	19	4.23
<b>Residence</b>		
Urban	314	69.77
Rural	136	30.23

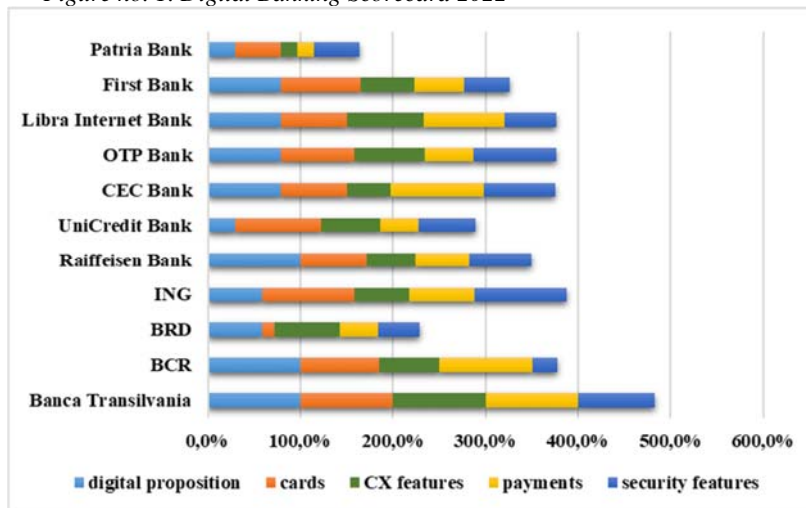
Source: author processing

The questions were also directed to the satisfaction felt by customers in relation to the needs regarding digitalization, the level of trust and knowledges about the actions of corporate social responsibility (*Have you ever heard about corporate social responsibility?*). These were followed by control questions regarding the source of this information (*Where did you first hear the term CSR?*), using single-choice, multiple-choice or Likert-scale items. Moreover, the questionnaire included questions regarding the emotional context (*To what extent do you feel that the bank you work with has adapted its services to your needs in the context of the COVID-19 pandemic?*), expectations (*Do you think the digital banking services will develop in the next three years?*) or respondents' experiences (*How often do you use the following payment methods: cash, debit/credit card, contactless debit/credit card, digital banking?*).

#### 4. Findings

The COVID-19 pandemic has accelerated the digital transformation of the traditional banks, that are offering now at least two mobile payments options for their clients. According to the Digital Banking Scorecard 2022, Banca Transilvania (Transilvania Bank) is the best performer in terms of digital banking, while it's also the best performer in financial terms. Thus, the leading bank from the Romanian banking system ranks best in four analyzed categories (digital proposition, cards, CX features and payments), while for the security features it reached a score of 83.3% (Figure no. 1). For the digital proposition, BCR and Raiffeisen Bank are also best performers, with remote account opening (for both retail and SMEs), digital personal loan and SME digital loan. The second category (cards) has two best performers: Transilvania Bank and ING Bank. These banks offer remote acquisition for debit/credit cards, contactless and virtual cards, but also cardless ATM withdrawal.

Figure no. 1. Digital Banking Scorecard 2022



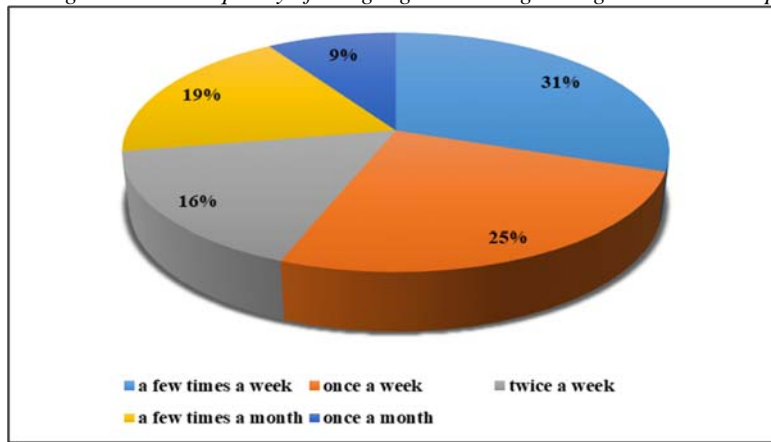
Source: author processing based on DBS2022

Only Transilvania Bank performs best for the CX category and none of the banks included in the analysis has exactly the same set of CX features. The most mentioned features were biometric login, budgeting and categorization, in-app provisioning or automated saving tools. With a maximum score for payments, Transilvania Bank, BCR and CEC Bank perform best, offering own digital wallets, instant payments, direct debit, Google Pay, Apple Pay, Garmin Pay and Fitbit Pay. The last category refers to security features, which is still a sensitive point for most banks included in the analysis. ING

Bank is the best performer for security features, including in-app PIN change, push notifications, location-based security, offering in the same time the possibility to freeze or block the card or to deactivate contactless/online payments, POS transactions or ATM withdrawal.

According to the Figure no. 2, 31% of the respondents have used the digital banking services a few times a week during the COVID-19 pandemic, 25% of them have used digital banking once a week and 16% twice a week. Only 9% of the respondents have used digital banking once a month and 19% of the total respondents have used digital banking a few times a month. More than 25% of the respondents have declared that they have used the digital banking services for the first time during the pandemic. Moreover, digital banking was perceived by the respondents as a form of social responsibility towards clients in the coronavirus context, significantly contributing to reducing the spread of infections during the COVID-19 pandemic waves. Most of the respondents relate *corporate social responsibility* concept with terms like *care* (14.3%), *goodwill* (9.82%) or *charity* (7.51%).

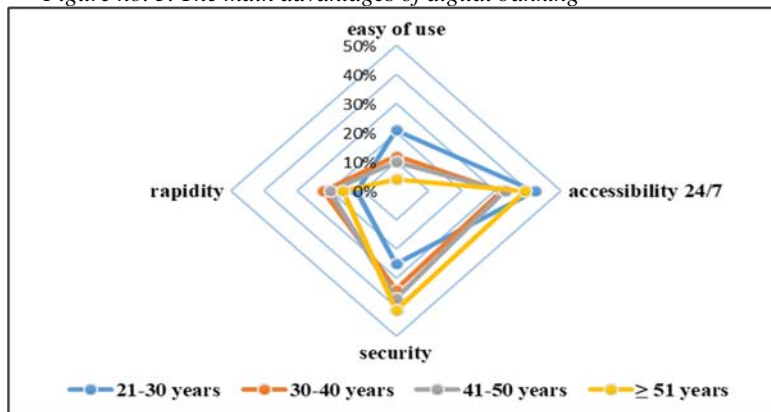
Figure no. 2. Frequency of using digital banking during the COVID-19 pandemic



Source: author processing

There are significant differences between the answers regarding the main advantages of digital banking depending on distribution of the sample by age (Figure no. 3). Young people (21-30 years) find digital banking easier to use than the other groups, while security issues evolve in the same direction as the age of the respondents. However, the accessibility 24/7 is the most important advantage for all respondents, regardless of age category. This feature was also mentioned by 12% of the respondents as a strong argument for using digital banking services after the COVID-19 pandemic. Approx. 36% of the respondents intend to continue to use exclusively digital banking after the pandemic, to the detriment of the physical interaction with the bank.

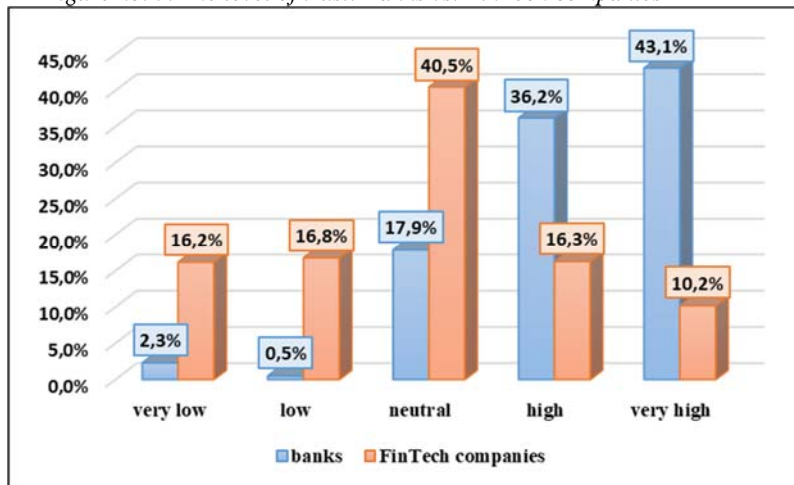
Figure no. 3. The main advantages of digital banking



Source: author processing

There is a very high level of satisfaction related to the digital banking, which has a positive influence on its acceptance after the COVID-19 restrictions. According to the frequency analysis, the majority of respondents mentioned service quality to explain a possible switch from traditional banks to Fintech companies, while price is still important for a significant number of customers (128 respondents). Thus, the role of price as a major determinant for switching from banks to Fintech companies is no longer valid, emphasizing a more sophisticated consumer who can find a balanced ratio between the most significant features of a financial product. The main finding suggests the role of trust (Figure no. 5) and reputation of traditional banks as primary determinant for using digital banking, beyond the cost-centric drivers.

Figure no. 5. The level of trust: Banks vs. FinTech companies



Source: author processing

## 5. Conclusions

Unlike the global financial crisis of 2007-2009, banks entered the COVID-19 pandemic with stronger capital and liquidity positions, adapting to the new circumstances through the rapid digitization and product diversification process. The health crisis was as a catalyst between banks and clients, a relationship that gradually became an opportunity for the entire sector through the digital banking development. According to the clients' opinions, the organizational resilience of the credit institutions was strongly correlated to the CSR concept through trust, digital banking being perceived as a form of CSR directed to both clients and employees in the COVID-19 context, after the restriction measures decided by the authorities.

The data provided by the Digital Banking Scorecard 2022 suggests significant improvements of digital services for all traditional banks included in the analysis, with Transilvania Bank as the best performer both in terms of digital banking and in financial terms. More than 25% of the respondents of the questionnaire have declared that they have used digital banking services for the first time during the pandemic, while more than 35% of the sample intend to use exclusively digital banking after the pandemic, to the detriment of the physical interaction with the bank.

This result is in line with the high level of satisfaction related to the digital banking and the significant level of trust in traditional banks, compared to the FinTech companies. On the one hand, reputation is formed based on satisfaction. On the other hand, reputation is amplified by the corporate social responsibility actions, perceived by the general public. In this sense, reputation was a primary determinant for using digital banking during the COVID-19 pandemic, beyond the cost-centric drivers, leading to a more sophisticated client.

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# Bank Systemic Risk and Macroprudential Policy

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## Abstract

*Since the beginning of the 2008 financial crisis, the term "macroprudential" has appeared more and more often in specialized works and in researchers' discussions. After the 2008 crisis a new global financial stability framework is needed to reduce the probability and severity of a future financial crisis. This paper aims to evaluate the importance of systemic risk analysis and identification for the calibration of macroprudential policies by exploring the extensive literature on systemic risk and macroprudential policies.*

**Key words:** macroprudential, systemic risk, financial crisis, financial system, contagion

**J.E.L. classification:** G01 G21 G32

## 1. Introduction

To maintain a stable financial system and to ensure financial stability in general, risk identification and assessment play a critical role.

What exactly is the systemic risk?

In the framework of our natural environment, the risk of our systems jeopardizing the activities of millions of people pursuing their own interests, has the potential to harm or disrupt the global ecology, resulting in a worldwide catastrophe that would eventually affect everyone. If a risk poses a considerable danger to financial stability and has serious negative effects for markets and the actual economy, it is considered systemic.

There is no universally acknowledged definition of systemic risk at this time. One way to look at it, is as the danger of an experiment in a large-scale systemic event. Several systemically significant intermediaries or markets are harmed as a result of such an incident (including potentially related infrastructures). An external shock (idiosyncratic, i.e., restricted in scope, or systematic, i.e., broad) triggered by events occurring outside of the financial system could be the spark for the occurrence. The event could also happen internally, within the financial system or the economy as a whole. When the intermediaries in question collapse or the markets in question become dysfunctional, the systemic event is severe (in theoretical terms this is often a non-linearity or regime change).

The most significant characteristic of systemic risk is that it spreads through a transmission mechanism from problematic institutions to comparatively healthier organizations. During the Global Financial Crisis, "systemic risk" became a popular term. The probability of an occurrence at the micro level of a single bank or insurance firm causing instability or collapsing an entire industry or economy is referred to as systemic risk. Consider how the financial crisis of 2007 began. It all started with a subprime mortgage crisis in the United States, which led to a liquidity and credit crisis that extended throughout all credit and financial markets as the bubble burst. Both of these reasons resulted in an unexpectedly large economic panic. The economic panic has triggered a recession across the US economy. As a result, global and trade investment has plummeted. The crisis has affected even the most wealthy and advanced countries. With the bankruptcy of investment bank Lehman Brothers, the financial crisis morphed into a sovereign debt crisis and then into a full-fledged worldwide banking crisis. The worldwide financial impact has been exacerbated by Lehman Brothers and other banks excessive risk-taking. All these implications have exacerbated the recession. The Great Recession of 2008-2009, a worldwide economic slowdown, occurred in the wake of the crisis.



## 2. Literature review

In the context of the financial crisis of 2008-2009, the literature has shown an increased interest for the financial stability, this being one of the main responsibilities assumed by the central banks, in order to combat financial crises.

Understanding the nature of systemic risk, according to Jean Claude Trichet (Jean Claude Trichet, 2009), is a prerequisite for restoring economic and financial stability and improving the banking system's future performance. Systemic risk, in the context of the economic environment, is a danger, a threat posed by developments in the financial system, which can result in a blockage, the effective collapse of this system, and the commencement of major real-economy harm. The failure of huge interconnected financial institutions, endogenous imbalances amassed over time, or some unforeseen, large-scale occurrences could all be catalysts for such developments.

Systemic risk is a phenomenon of the economy and financial system (O. de Bandt et al, 2000). In the world of medicine, pandemic diseases are the most expressive manifestation of this principle. In extreme situations, as the Middle Ages Great Plague, widespread infection with an infectious disease can wipe out a large portion of the world's population. Systemic risk is a component of the financial system that is considered in the economic area. Even if contamination can extend to other parts of the economy, the likelihood of it manifesting and being severe in the financial sector is higher. A systemic financial crisis has far-reaching implications for the whole economy.

There are two types of systemic events: weak and strong. In the weak version there are no bankruptcies or market collapses because one or more institutions or markets are not significantly impacted. If the systemic event is strong or severe, at least one institution will go bankrupt because of the shock even if the institution was solvent and would not have collapsed if the event had not occurred.

The systemic event, which is the most important part of the systemic risk concept, is made up of two parts: the initial shock and the transmission mechanism. Individual shocks or groups of shocks can be detected. Individual shocks affect only one institution at a time, whereas systematic shocks affect all institutions at the same time. The first shock is an external one. Contamination occurs when an institution's issues, such as bankruptcy, is transmitted to other institutions via various mechanisms and transmission routes. The danger, according to Borio (Borio, 2003), is endogenous because of the amplification processes, but the original shock is exogenous.

The method by which the shocks are communicated from one bank to another, from one institution to another, is the second key element of a systematic event. There are two factors that cause shocks to spread: The real channel, also known as the exposure channel, refers to the domino effect caused by real exposures in interbank markets and payment systems. Because interbank and even cross-border exposures have grown to significant sizes, issues might spread to other banks in other jurisdictions. Also, in payment systems, if one party fails to meet obligations, there is a possibility that this will affect other system participants; ii) the information channel, which refers to contagious liquidations, or the bank run.

A "bank run" occurs when a large number of a bank's depositors all want payback of their deposits at the same time. This condition leads to a liquidity crisis because banks are not required to hold cash deposits and the vast majority of deposits are borrowed in the form of loans. We have a non-systemic risk if the liquidity crisis is contained to a single bank; nevertheless, if the situation worsens, even a simple rumor about a bank's liquidity concerns can swiftly spread and prompt depositors at other banks to inquire about repayment of deposits.

If the situation is not managed, it can degenerate into a financial panic, resulting in significant deposit withdrawals due to the absence of information about the shockwave that hits a bank (whether individual or systemic) or regarding physical exposures between banking institutions (information asymmetry). This exposes the entire financial system to high risk, which is known as systemic risk.

The risk of a failure that might result in the entire system, or the entire financial market, being shut down is referred to as systemic risk, rather than the failure of separate elements. In the financial context, the risk leads to financial sector cascading failures induced by financial system links, resulting in a severe economic slump.

Over the last two decades, researchers have made great progress in understanding systemic risk, particularly contagion risk.

Systemic risk can also be defined as a specific sort of financial system market failure. Banking panic, banking crises owing to decreasing asset values, contagion, and currency mismatches in the banking system, are all examples of this sort of market failure. We can add systemic liquidity crises to this list, as one of the primary issues during the 2007-2008 financial crisis was bank's accumulation of liquidity while constrained by cash or financing – thus turning financing issues into systemic liquidity risk (Van den End & Tabbae, 2012). However, the literature generally agrees that there are two dimensions to systemic risk: time series size and cross section size.

The National Bank of Romania defines systemic risk as “the risk that a financial market participant or infrastructure market participant failure to participate in an infrastructure will result in other participants and/or the infrastructure manager being unable to meet their obligations” when they become due. Probable contagion effects could jeopardize financial system stability or confidence.

According to the European Central Bank (ECB, 2009), there are two approaches on systemic risk: one “horizontal perspective” on systemic risk, which focuses on the financial system, and another “vertical perspective” on systemic risk, which considers the bilateral interaction between the financial system and the economy as a whole. In an ideal world, the severity of systemic risk and events would be determined by their impact on consumption or overall economic welfare.

Some of the studies discussed key aspects of the situation. However, significant research was needed to construct aggregate modeling frameworks that capture actual elements of financial instability, better explain endogenous accumulation and large-scale imbalances, and estimate the systemic role of intermediaries, among other things.

The fact that there are significant disparities between idiosyncratic and systematic causes, external and endogenous triggers, and sequential and simultaneous effects demonstrates how complicated this phenomenon can be.

### **3. Research methodology**

This article is based on a qualitative empirical analysis that attempts to briefly review the importance of systemic risk, analysis and early identification, for the calibration of macroprudential policies. In this sense, the research, and conclusions of some of the greatest economists and central banks were analyzed and studied.

### **4. Findings**

The possibility of a financial system as a whole can be badly impacted by big and widespread bank exposures, or by an acceleration or transmission process induced by one or more severe individual losses. (Benoit, 2017). Financial integration is responsible for banking institutions highly interconnected structure, and it has a two-fold influence on systemic risk (Cechetti, 2012).

In 2008, Lane and Milesi-Ferretti hypothesized that financial integration and economic progress had a nonlinear relationship. On the other hand, financial integration, according to Candelon (2020), boosts growth but also exposes the economy to severe consequences during crises. Two examples are banking and the stock exchange. Financial integration is both a benefit and a danger to financial stability, and the interbank market's design is “strong but weak.”

There are three primary types of systemic risk in order to limit the size of the combination of these elements: the danger of contagion, the risk of macro-shock generating simultaneous issues, and the risk of releasing accumulated imbalances in time. These three types of risk are not mutually exclusive and can occur separately or in combination.

The term “contagion” usually refers to an apparent idiosyncratic condition that grows in severity as the cross-section size increases, often in a consecutive fashion. A cascading bank failure is however one scenario, in which one bank drives another to fail, even if the second bank appeared to be solvent at first. A large-scale exogenous shock that adversely affects a number of intermediaries and/or markets at the same time is the second type of systemic risk. Banks, for example, have been discovered to be susceptible to economic downturns. The organic accumulation of large-scale

imbalances in financial systems over time, as in the case of a lending boom, is the third type of systemic risk. The subsequent exposure of the imbalance (whether created endogenously or exogenously) might have a negative impact on several intermediaries and/or markets at the same time. The final two types of systemic risk are especially relevant to financial systems' pro-cyclical nature, while contagion can be just as essential.

The size of the systemic risk time series is linked to pro-cyclicality, which is defined as an excessive increase in assets (and risk) during the "growth" phase of the business cycle, associated with a drop in financial institution's capital base. As a result, when a financial crisis occurs, all financial institutions are at risk. The temporal dimension can be thought of as the buildup of systemic risk through time (in aggregate). It refers to the risks that are not primarily determined by a single institution's actions, but instead by group behavior, that further leads to higher volatility in the financial sector and the real economy, risk undervaluation during stages of rapid growth and overestimation during periods of recession, and reduced debt and pro-cyclicality.

"The structural dimension" stands for the allocation of systemic risk and its sources in the financial system over time. The insolvency risks offered by institutions, the concentration (similarities) of risk exposure or financing sources, the size, structure, and level of concentration of the financial system, and the direct and indirect linkages between financial institutions are all aspects to examine. The "interconnection" characteristic of systemic risk might be summarized as follows: financial institutions are so linked that when one fails, it can quickly infect other institutions via several processes, including risk counterparty, emergency asset sales, liquidity problems, and so on.

Systemic risk has two dimensions: transverse and temporal, as we have seen. Each has its own set of political ramifications.

Cross-section exposures / linkages, the first component of systemic risk, describes why a financial system-specific shock may propagate and become systemic. The focus is on how risk is allocated at any one time across the financial system.

There are two types of shocks:

- A network of interconnected balance sheets makes up the financial system. A shock to one institution may propagate to other institutions associated to it, eventually becoming systemic, because of the increased complexity of day-to-day interactions. Because of settlement and interbank links, the failure of one institution can have far-reaching consequences for other, otherwise sound institutions.
- A shock, on the other hand, can have far-reaching consequences and become systemic because of direct exposure. A nationwide decrease in commercial or residential real estate markets has this characteristic by definition. As the recent crises shown, such a widespread exposure can have a significant international impact.

A number of market flaws, including as asymmetric information, externalities and the public benefit of systemic stability, incomplete markets, and so on, lurk behind these forms of systemic risk. Financial systems are more vulnerable than other economic sectors as a result of these factors:

- i) The intensity of information and the temporal sequence of financial contracts.
- ii) The structure of financial intermediaries' balance sheets (which frequently have high leverage and maturity mismatches); and
- iii) the high degree of interconnectedness of financial operations.

When the abovementioned flaws are combined with the three characteristics of financial systems, substantial feedback, amplification, and nonlinear mechanisms emerge. Macroprudential oversight research should capture conditions of real instability, specifically modeling these traits and faults and how they can lead to severe systemic crises.

"Systemically important financial institutions" is another phrase that has to be defined.

The G20 put the issue of systemic institutions on the financial supervisors' agenda during the Pittsburgh Summit in September 2009, recommending the implementation of specific standards commensurate with the cost of a potential breach of obligations, in order to provide a framework for the activity of the world's most important financial institutions. Given the risks they bring to the financial sector and the reality of the economy, the declared goal was to stop the scenario of moral hazard associated with the presence of organizations "too big to fail" or "too interconnected-to-fail." In fact, such organizations may be enticed to take more risks if they expect public backing in the case of a crisis.

SIFIs have been classified as financial institutions whose “disorderly suffering or failure, given to their size, complexity, and systemic interconnectivity, would cause major disruptions to the wider financial system and of economic activity” since 2009. Internally, regionally, and globally, this identification is carried out. The Financial Stability Board has been tasked with identifying systemic entities (banking and insurance firms) on a global scale. CRD IV (Article 131), which states that “Member States shall designate the authority responsible for identifying, on a consolidated basis, institutions systemically important global issues,” has transposed international methodologies for identifying systemically or globally important banks into European law.

## 5. Conclusions

The identification of systemic institutions allows for the transparent implementation of specific supervisory actions targeted at lowering the risks posed by these institutions as well as limiting the moral hazard associated with the implicit public guarantee they receive. As a result, institutions that have been designated as systemic are subject to additional supervisory measures, such as increased capital requirements.

Due to increased moral hazard and the expectation of being rescued, banks can take more risks than usual and this way a growing concentration in the financial system appear and this can lead to the development of systemically significant financial institutions, for example, may stimulate them to take excessive risks, over time. From this we can conclude that systemic risks, both temporal and structural are very connected. Furthermore, excessive borrowing during periods of expansion promotes a risk spike (time size), which can lead to a build-up of bank risk exposures on a micro-scale and their concentration in specific market segments (cross-cutting size) (e.g., real estate market). Pro-cyclicality establishes new, more complex linkages inside the financial system, as well as between the financial sector and the real economy, at the macro level. While imbalances accumulate as a result of excessive lending and the simultaneous accumulation of asset prices, the results of the analysis from each perspective may differ, i.e., as profitability and bank capital increase, strengthening their resilience to shocks.

Due to the discoveries in this field, new institutions have been created both at the European and country level to deal with prudence, such as the European Committee for Systemic Risk or national committees, and, at the same time, it has been proven that an effective macroprudential policy can strengthen the resilience of the financial system.

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## Micro-prudential vs Macro-prudential Regulation

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### Abstract

*The recent global financial crisis was caused, among others, by the interaction of micro and macro elements, so it is important for regulatory policies to cover these interactions as the objective is to decrease future crises or at least to minimize their effects. Macroprudential policies are very useful, but their main objective is not yet well highlighted and quantified, such as price stability in the case of monetary policy, for example. Regulators need to strike a balance between the micro and macro prudential approach to financial stability. The paper looks at the differences and similarities between micro-prudential and macro-prudential from the perspectives of financial regulation.*

**Key words:** macro-prudential, micro-prudential, prudential regulation, supervision

**J.E.L. classification:** G28, E58, G21, G32

### 1. Introduction

In general, when we speak about prudential regulation, we refer to a set of rules (quantitative and qualitative) applicable to the activity of credit institutions, with the purpose of ensuring the financial soundness of each entity (micro-prudential) and financial stability of the banking system (macro-prudential). Micro-prudential and macro-prudential policies use similar tools at the level of each separate financial institution, and, even if they have distinct goals, yet they are connected. The most important difference between the macro-prudential and micro-prudential dimensions is given by the objectives of each.

After it was realized that acts that are appropriate for individual companies might collectively contribute to or worsen financial system issues, macro-prudential rules arose (Isarescu, 2011).

The prefix macro denotes that rules or acts apply to the whole financial system or a large portion of it, rather than to specific financial organizations. Micro-prudential policies, on the other hand, are supervisory or regulatory measures that apply to specific financial firms.

Prudential policies refer to efforts that encourage sound practices and restrict risk-taking, while caution is another preventative measure. As a result, macro-prudential regulations should assist in ensuring that everyone takes a responsible approach to risks that have the potential to become systemic, i.e., hazards affecting the whole financial system.

Micro-prudential regulation and supervision is probably the most logical choice. So, the micro-prudential regulation's objective – the safety and robustness of individual financial institutions – it has been proven that it is insufficient to guarantee the financial system's overall stability, but it is sound and linked to it. A failure of prudential supervision for systemically important institutions (or infrastructures) is the best way to go into a crisis. No matter of how complex the macro-prudential framework is, it is systemic. Furthermore, because macro-prudential policy primarily employs micro-prudential instruments, the toolkits of the two regimes are comparable.

Macro-prudential policy is considered complementary to micro-prudential policy because of the interaction of this policy with various types of economic policies that have an impact on financial imbalances, working to build financial stability, and increasing protection barriers by recognizing and dealing with common exposures, risk concentrations, and contagion risks.

To explain the concept of macro-prudential, it is useful to first explain the concept of micro-prudential, which contrasts. It could be said that micro-prudence describes the conventional ideas behind the political approach to guarantee the stability of the financial system. To keep it simply in another way, micro-prudence is the belief that if individual financial institution management is sound, the whole financial system, which consists of all individual financial institutions, should be stable as well, and that regulation and supervision should focus on achieving solidity at this level.

The sum of micro-prudential risks is less than the systemic risk caused by externalities. Externalities are factors that are usually not taken into account in the risks involved but can have an influence on the stability of the financial system and even on the real economy. One such example of externality is the situation in which the failure of a financial institution has repercussions on other institutions and has serious side effects or even their failure. The micro-prudential approach does not take into account the additional risks that some institutions may have on other institutions or the impact of the failure of one financial institution on others.

At the same time, the idea behind macro prudence is that financial system stability cannot be achieved solely through micro-level efforts, and that it is necessary to assess the risks of the entire financial system, considering the links between economic activities, financial markets, and financial institution behavior, and to act accordingly.

Using only one of the two approaches has been proven that is not sufficient to keep the stability of the financial system. Rather, both approaches are needed, and what we have learned from the 2007-2008 global financial crisis is that we need to pay a lot more attention to the concept of macro-prudential supervision and regulation.

Individual financial institutions are the central pawn of micro-prudential supervision, which seeks to protect them from excessive risk-taking. The financial crisis of 2007-2008 has demonstrated that the resilience of a single financial institution is not sufficient to have a stable financial system at the macro level.

## **2. Theoretical background**

Traditional regulatory frameworks based on fiscal and monetary policy and micro-prudential regulation of the financial system have failed to curb the risks that led to the global financial crisis a decade ago. In his 2008 keynote address, US Federal Reserve Chairman Ben Bernanke called for broadening the field of vision of decision-makers and regulators to incorporate a system-wide perspective to identify and mitigate all potential sources of financial instability (Bernanke, 2008).

According to Andrew Crockett (Crockett, 2002) there is a difference between the micro- and macro-prudential dimensions of financial stability, arguing that, while the micro-prudential objective is to limit as much as it can the failing at the level of individual institutions, the macro-prudential objective can be defined as reducing the costs to the economy from financial distress including those that comes from any moral hazard induced by the policies pursued. To Crockett, the goal of macro-prudential policy is to reduce the chance of failing of considerable parts of the financial system and incurring corresponding costs, or systemic risk.

The macro-prudential goal might be characterized as minimizing the costs to the economy of financial distress, including any moral hazard caused by the measures undertaken. Another argument for this purpose might be to reduce the risk of substantial segments of the financial system failing and incurring commensurate expenses.

This is sometimes referred to as systemic risk management. Instead, the micro-prudential goal might be viewed as reducing the chance of particular institutions failing. This entails, again, reducing idiosyncratic risk. This purpose, according to Andrew Crockett (Crockett, 2002), is to safeguard depositors.

## **3. Research methodology**

In the past, most financial regulations have been assessed at the micro-prudential level, respectively at the level of their interactions with various intermediaries and markets. This paper aims to present the evolution of macroprudential policy and to highlight the link between them

using a qualitative empirical analysis. Macroprudential policies are very useful, but their main objective is not yet well highlighted and quantified, such as price stability in the case of monetary policy, for example.

#### 4. Findings

Andrew Crockett has been officiating the marriage of the micro– and macro – prudential dimensions of financial stability since 2002. With the time passing, one may ask whether it is a happy marriage? This marriage can be really happy, but some considerations must be taken into account.

First of all, there must be a solid framework in which to establish a strategy. Then we need to consider, among other things, the possible interactions between the micro and macro spheres in terms of the objectives of different policies. The side effects of using a particular instrument in other areas should also be studied.

Secondly, endless debates over whether a particular policy is micro, or macro should be avoided. Although it is useful to divide the two categories, this separation is not easy to draw in practice. The same thing happens in a marriage. What matters most is that both members contribute to the overall goals as much as they can.

Third, while their aims may differ in principle, they will frequently overlap in practice. While the micro-prudential strategy focuses on the risks of individual institutions, the macro-prudential approach in many cases tackles the system level approach, micro and macro-prudential policies would utilize similar, if not identical, instruments and complement one other.

For this micro- and macro-prudential policy mix to survive, there is a clear need for coordination and cooperation, even more, as during an economic crisis, this conflicts between micro and macro-prudential measures are more frequent. A hierarchy of macroprudential and microprudential policies is needed, especially in the event of a potential conflict between them in order to survive, collaborate and complement each other.

The coexistence of micro and macro approaches, like any marriage, is not easy. Just like in life, conflicts will arise at some point. But a clear framework, well-defined objectives, proper coordination, and cooperation, as well as an appropriate regulatory framework should help to overcome these difficulties.

In 2011, the International Monetary Fund, the Bank for International Settlements and the Financial Stability Board clearly defined macro-prudential policy as policies that use prudential policies as instruments, supported by governance structures to prevent systemic risk.

Several macro-prudential instruments are closely linked to micro-prudential instruments (ECB, 2014). For example, Table 1 illustrates that the countercyclical capital buffer (macro) is part of a larger (capital) capital adequacy framework, although it has a different underlying objective.

*Table no.1, Countercyclical Capital Buffer*

	<b>Macro-prudential</b>	<b>Micro-prudential</b>
The purpose of the policy	Limiting financial system problems	Limiting the problems of individual companies
The ultimate goal	Avoidance of production costs (GDP) related to financial instability	Consumer protection (depositor / investor / insured)
Risk characterization	Depending on the collective behavior; endogenous	Regardless of the behavior of individual agents; exogenously
Joint correlations and exposures between companies	Important	Irrelevant
Calibration of prudential controls	In terms of system-wide risk. from up to down	In terms of firm risks. bottom up

*Source:* (BIS, 2003).



The two policies are compared from the perspective of objectives, risk and links in the system, as follows: i) micro-prudential policy seeks the protection of depositors and investors by evaluating financial institutions at the individual level. In this case, the risk is exogenous and the connections and exposures between financial institutions are not important; ii) at the macroprudential level, the main objective is the stability at the system level. The risk is endogenous, and the connections and exposures between financial institutions are very important.

As the basic objectives are different, it is important to assign macro and micro-prudential tasks to separate authorities. The macro-prudential authority decides at the macro level (e.g., the size of the countercyclical capital buffer), while the implementation can be carried out later by the micro-prudential supervisor if this is more effective (e.g., the implementation of the general capital adequacy framework). Finally, some macro-prudential instruments may apply to unregulated entities outside the remit of the micro-prudential supervisor. The loan-to-value ratio should, for example, apply to all financial institutions that grant mortgages to households. Thus, the scope may go beyond the regulatory framework of banks, insurers, and pension funds.

## 5. Conclusions

Macroprudential policy has become a priority following the latest financial crisis that has affected the financial and economic system as a whole. This term began to be used as early as the end of 1970, during the liquidity surge triggered in the banking system of the United States of America, but it took shape from the year 2000.

Macro-prudential supervision considers the links and connections between financial institutions but also the interactions with the real economy. Most often, this kind of risk has an endogenous source overlapping with the periods when credit and business cycles increase. Under such conditions, risk is usually underestimated and financial institutions' perceptions of it are lower. Financial institutions are usually interested in personal well-being and are not aware of the negative effects that increased risk-taking behavior can have on the economy as a whole.

Macro-prudential policies, by definition, have a preventive function to play in limiting the imprudent expansion of systemic risk over time, which turns it into macroeconomic stability. For example, macro-prudential authorities can relax policies during recessions and strengthen them during recessions. Because of this, macroprudential measures could potentially include a countercyclical element that will counteract the effects of the cycle.

The severe macroeconomic and financial imbalances caused by the global financial crisis of 2008, have prompted a shift in both micro-prudential and macro-prudential approaches to financial supervision. As a result, macro-prudential policies are beginning to take form, particularly now that it has been demonstrated that proper steps for individual financial institutions are insufficient to avert systemic risk.

An effective macro-prudential policy can also help to achieve the ultimate purpose of micro-prudential policies in an indirect way. As a result, micro-prudential policy is considered to be subordinated to macro-prudential policy.

Any public policy framework, including macro-prudential policy, must have clear policy objectives and communication tactics. A variety of elements unique to this area makes the policy's aim and communication critical and complex.

The independence of central banks is critical, and the responsibility for financial stability should certainly lie with central banks and they should play a leading role in defining macroprudential policies because the central bank has clear reasons to protect financial stability, has all the necessary tools to identify systemic risk and is politically autonomous. Thus, the response of macro-prudential policy should generally be faster than if it were managed by another institution, even if the central bank plays a very important role.

At the same time, it is critical that key supervisory and regulatory bodies be included in the decision-making process. Not only because their prospects can help with risk detection, but also because micro-prudential capital and liquidity requirements are commonly used to execute macro-prudential policy tools.

In terms of risk management, financial institution minimum solvency, debtor conduct in crisis conditions, the notion of evaluating it, and its application in the future financial system, we are witnessing a shift in financial paradigms. Transparency, accountability, and a trusting environment are required.

The crisis-fighting measures aimed not only at the regulatory framework, but also at ensuring a consistent set of regulations and financial institution oversight as a whole.

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- <https://www.cnsmro.ro/en/> - The National Committee for Macroprudential Oversight

## Features of Knowledge Management Implementation in the Context of the Covid-19 Pandemic

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### Abstract

*This study focuses on proactive managerial actions, reflecting the implementation of knowledge management in the context of the Covid-19 pandemic. Management was compelled by the Covid-19 pandemic, and the transformation of preliminary information into knowledge allowed its creation, sharing, and efficient use in the short term. The conceptual model of this study combines actions across three areas of influence in order to achieve a unified understanding of the knowledge among operational staff, management, and operational capacity. The results of this study reveal that knowledge dissemination, communication, and use of knowledge contribute to a unified operational response. Adaptability and operational capacity help implement knowledge management practices, make new products, share them with customers, and get through this pandemic context.*

**Key words:** knowledge, management, operational, customers, leadership

**J.E.L. classification:** M12, M54, M21

### 1. Introduction

Knowledge management is seen as a key factor that promotes the growth of products and also the organizational one. Understanding how to manage knowledge can improve operational responsiveness and coordination. Methods for managing knowledge will also help when it comes to getting and keeping a competitive edge (Andrade Barros Ouriques *et al*, 2019, p.362). Management influences through its knowledge, developing new products using specific methods and tools, which include information, ensuring that all data and operational risk control are classified and disseminated in an optimized manner. However, knowledge management and the ability to transfer information face numerous challenges. According to the organization, the contemporary market's unpredictability demands a more flexible and agile strategy. In order to achieve higher levels of organizational success, the process of knowledge flow must be managed.

In our case, knowledge management refers to the rapid delivery of knowledge that is adaptable to the company, its context, and market climate. Knowledge management activities are constantly evaluated on the basis of specific organizational criteria. By exchanging and sharing information, practices that have been proven by knowledge management are put into place. The difficulty of allocating knowledge in a logical manner is linked to the dilemma of extracting and using knowledge, which is also widespread in the minds of employees. The subconscious is the source of a person's beliefs, practices, attitudes, and habits, from which knowledge is derived. Explicit knowledge is easy to convey because it is already systematized into data, parameters, and other forms (Nonaka *et al*, 2000, p.18). Even though knowledge is considered to be the main source of long-term advantage for many businesses, managing it remains difficult.

The literature review focused on explaining the concepts of knowledge management and operational management. The methods and dynamic characteristics of adaptation as well as their connection to knowledge management were explained with reference to the management within the organization, the limitation being the operational capacity. The concepts of knowledge management in an operational approach presented in the literature are not extended but will be described from a practical point of view. It is not very clear what basic knowledge is involved in the new operational practice within the company at the beginning of the Covid-19 pandemic and what the mood of the company in this unknown was. Using the interview method, in our paper we will present, under a conceptual aspect, the managerial actions that define the mission and vision of the company.

## 2. Literature review

Knowledge management is described as a system that simplifies the process of exchanging, transmitting, developing, capturing, and understanding company knowledge. Knowledge transfer is the transmission of information from one individual to another. It can happen in a scheduled or unplanned way, as a result of an operation, as the transformation of knowledge into information and the transformation of information back into knowledge (Harrison *et al*, 2012, p.3772).

Knowledge management involves the use of different reports to gather knowledge relevant to the various operational procedures. In contrast to conventional approaches, adaptability methods emphasize tacit knowledge over explicit knowledge, depending on the person, team, communication, and consumer experiences (Andriyani *et al*, 2017, p.202). Three levels of knowledge are recognized (Ebert *et al*, 2008, p.580). These are associated with knowledge of: product-understanding of product specifications and how they apply to other devices and requirements; project-understanding of product specifications and performance criteria; process-awareness of procedures, roles, technology and their limitations.

Cumulative evidence from previous research in operations management and other disciplines suggests that effective communication styles and knowledge management are key elements in successful process integration. In particular, previous research has shown that facilitating the effective communication of business knowledge plays a key role in operational improvement (Pagell, 2004, p.462). Knowledge management requires more than just transferring information. An open dialogue on information is needed for all parties to reach a common understanding as a basis for integrated decision-making and unified action. The use of effective communications to achieve a common interpretation of information dissemination has been mentioned in strategic management, marketing, and organizational behavior research, although the concept has not been the subject of comprehensive empirical research (Hult *et al*, 2004, p.249). Knowledge-based business processes make up the predominant knowledge in cultivating competitive advantage and longevity for organizations.

Due to human resources and capital shortages, most SMEs are forced to exploit external knowledge for development. Because knowledge-oriented leaders encourage learning and support a learning-tolerant learning environment, employees can explore and exploit knowledge for the benefit of their firms through knowledge-oriented leadership (Donate *et al*, 2015, p.364). In other words, employees will learn best and respond best to uncertainty when their leaders support the acquisition and sharing of knowledge.

Although the link between leaders and knowledge management has been studied in recent papers (Sadeghi *et al*, 2018, p.154), the impact of leaders on the management of specific types of knowledge, such as customer knowledge, is still limited. Because knowledge is considered one of the most important assets to manage today, companies need to manage the basic knowledge and knowledge required of customers (Chaithanapat *et al*, 2021, p.82). Knowledge-oriented leaders promote, encourage, and appreciate new ideas from employees and usually occur when leaders are perceived as actively involved and committed to supporting knowledge and learning activities within the organization (Naqshbandi *et al*, 2021, p.708).

In several studies it is argued that an integration of transformational leadership and transactional leadership together with motivational and communicative elements is necessary. However, transactional leadership is best used to institutionalize, consolidate, and refine existing knowledge,

while transformational leadership is best used to challenge a particular situation. During organizational crises, transformational leadership plays a crucial role in helping organizations overcome difficulties and challenges. Increased attention has been paid to transformational leadership by correlating it with employee responses. For example, it has been found that transformational leadership has had a positive impact on knowledge exchange behavior. Through transformational leadership, employees can be encouraged, inspired and motivated to innovate, accept change, accept more challenges, and contribute to the development of the organization (Schmid *et al*, 2019, p.1415).

According to Peter Drucker, the father of modern management theory, the biggest challenge for scientists and management strategies in the 20th century has been to increase employee productivity. The reason was that the companies were production-oriented and focused more on the amount of production. Therefore, management scientists have used scientific management techniques to increase productivity in terms of task efficiency (Palvalin *et al*, 2017, p.18). 21st century companies serve primarily in the service sector and are driven by knowledge and the digital economy. Currently, companies have put more emphasis on the quality of services and production.

Therefore, the biggest challenge for scientists and management strategies is to increase the "productivity of employees in knowledge", mainly in terms of intellectual tasks (Shujahat *et al*, 2017, p.71). However, the end result of knowledge management is innovation which in turn improves organizational performance and increases competitive advantage. Therefore, much of the research has demonstrated the positive impact of knowledge management processes, practices and infrastructure on innovation (Acosta *et al*, 2014, p.108). Innovation can be defined from two perspectives: traditional and knowledge-based.

There are many definitions of innovation that are available in traditional literature. For example, innovation is the creation and application of new internal products, services and business processes for customer satisfaction (Meroño-Cerdán *et al*, 2017, p.211). However, the operational definition is the introduction of new products in terms of features and the use and implementation of new processes to solve customer problems to meet the dynamic needs of stakeholders (Shang *et al*, 2017, p.342).

Knowledge sharing is a vital component of the innovation process that depends on how firms use their knowledge, skills, and experience during organizational value creation processes. For example, a firm's ability to use knowledge can influence innovation levels, for example, how firms use the latest tools, techniques, and problem-solving methods (Du Plessis, 2007, p.28). However, firms can only begin to deal effectively with knowledge when the workforce is willing to engage in knowledge-sharing activities. Knowledge exchange practices in companies are essential for generating ideas for innovative organizational actions to respond to evolving business opportunities in the markets (Lundvall *et al*, 2007, p.215) and result in rapid responses to customer requirements at minimal cost (Sher *et al*, 2004, p.940). In the same way, the literature confirms that the exchange of knowledge is a key part of the company's learning tasks, which leads to the growth of activities that improve the market (Lin, 2007, p.320).

The Covid-19 pandemic was one of the worst crises in human history and could take many years to recover (Ozili *et al*, 2020, p.12). Many organizations have faced organizational crises because they have had to close, merge, downsize or restructure to minimize costs to survive the pandemic. Crises can create lasting conflicts between employee roles such as job insecurity, which leads to hidden knowledge (Kořnig *et al*, 2020, p.142).

Employees may be forced to perform a number of tasks that they may not be able to perform due to lack of information and ability, leading to low workplace commitment and refusal to share knowledge with the others. Employees are unsure of job security, so they retain their knowledge to maintain their competitive advantage (Aarabi *et al*, 2013, p.305). Such an environment can lead employees to look suspiciously at their workplace, which leads to many adverse consequences, including employee concealment behaviors.

Although organizations often make significant efforts to encourage their employees to share knowledge, to express their concerns, many employees still do not want to share their knowledge with others and deliberately choose to hide it (Prouska *et al*, 2021, p.382). For example, others share knowledge based on their responsibilities for payroll policies that emphasize that concealment of knowledge does not mean a lack of knowledge. Instead, employees may

intentionally retain or conceal knowledge that has been requested by their colleagues (Connelly *et al*, 2019, p.780). Because the concealment of knowledge takes place in the context of interactions between two or more colleagues, it is generally governed by an implicit and sometimes explicit social exchange. Concealment of knowledge is low in contexts where there is a rule, a rule, for the reciprocity of social exchanges between employees.

However, in times of major global crises, such as the COVID-19 crisis, the potential economic loss of resources and livelihoods can trigger a very different set of employee concealment behaviors. In these situations, keeping information to yourself can be seen as a selfish way for employees to keep their resources to themselves to avoid any bad effects of sharing, especially during times of crisis when employees tend to keep their resources threatened (Malik *et al*, 2021, p.8).

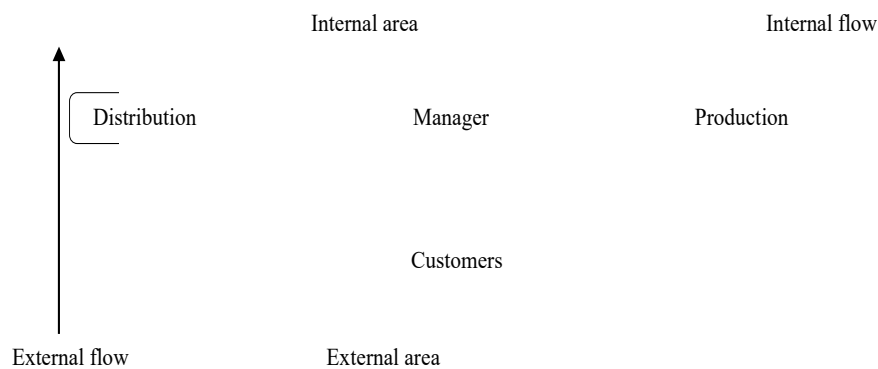
### 3. Research methodology

The research method used is the interview, which is applied in a company that has 35 employees. The legal form of the company is limited liability. The analyzed company carries out two types of activities with the CAEN code: 1071 and 4724. These determine a very important characteristic of the obtained goods, this being the perishability of the products, which puts pressure on the managerial decisions. The products are distributed through its own sales department, which has a fleet of seven vans.

The interview took place over a period of two days. On the first day, the interview took place at the management level of the company, and on the next day, the discussions involved the employees from the operational activities of production and distribution. The main ideas of the discussions focused on the effects of the Covid-19 pandemic resulting from the social restrictions implemented in the first few days regarding the company's market (customers) and the operational processes of production and distribution.

Confronting new knowledge with the company's ability to adapt to new market conditions, in optimizing operational processes, led to the first observations that began with the construction of a knowledge management structure (Figure no. 1). When managers collect new data, turn it into information, sort it, gain new knowledge, and compare it to what they already know, they make decisions that have operational effects.

Figure no. 1. Conceptual model



Source: (Internal rules of the company)

#### 4. Findings

The manager (intersection) represents the common operational point, of common interpretation of knowledge. The integration of many activities, which constitute the operational processes, namely, input data, internal circulation and output distribution to customers, has received little attention in the literature on operations management. However, the integration of operations is particularly interesting, as operational staff need to focus on both inbound and outbound flows, while other functions that have an explicit impact on the efficient flow through the organization tend to focus only on in certain areas.

For example, distribution staff tends to focus on the distribution side of the business, production staff tends to focus on internal operations, and marketing staff tends to focus externally on customer and competitive issues (Swing *et al*, 2007, p.211). In order to achieve the objective of common interpretation of knowledge, the managerial decisions were the following: reuniting the marketing department with the delivery department, forming a new distribution department, passing under the direct authority of the manager the company's customers and the production department.

The second decision step was to assemble the production lines, forming a modular system, based on production cells, to increase the flexibility of the process according to the input data (orders). This stage was considered necessary by the company's management and allowed the use of specific methods and knowledge management tools to achieve the common interpretation of knowledge.

The literature highlights the need to create a strong way of communication between employees within the company. The centralized system created, under the direct authority of the manager, consolidates the information and does not distort it, but also increases the speed of sharing and appropriation to departments. This way of organizing finds its theoretical foundation in the company's vision based on the company's available resources. The literature argues that gaining a competitive advantage comes from a company's internal resources, especially new market knowledge (Zack *et al*, 1999a, p.130). The chosen method of communication was bidirectional, between departments and manager.

It is important to reach a common understanding of knowledge in a short period of time. Employees can lose important information because those involved in the process spend too much time arguing about the significance of the transferred knowledge. However, if agreements are reached quickly, employees can capitalize on their knowledge.

Even if at first sight, the change of organizational structure, by eliminating hierarchical levels, shows a decisional rigidity, the purpose of these transformations is to create a system of fast communication and correlation of internal and external information flows for knowledge creation, assimilation, and especially their storage in operational processes. This conceptual model is called by the company's management the "tree of knowledge," which is noted by the type of one-way communication between manager and customer.

The centralized structure of the company, characterized by hierarchical power in decision-making, largely coincides with the centralized structures (Anand, 2011, p.291). The correlation of vertical information flows between external and internal information is the acquisition of knowledge. For example, the area delimited by the internal flow and the external area, consisting of customers, managers, and production, expresses the technological operational capacity. The structure of the external area and the external flow represent the information of operational adaptation and customer dynamics. The choice of information to be transformed into knowledge is to merge them horizontally on the internal area.

The literature emphasizes that common interpretation is facilitated when the information is presented in a way that can be easily understood in a short period of time. The more relevant the information is to an individual, the more likely it is that the individual will be able to understand such information (Hult *et al*, 2004, p.243). Effective dissemination of knowledge results in timely sharing with the right people. Selective distribution of knowledge to the right people increases the likelihood that knowledge will be more relevant and provides a common understanding (as opposed to knowledge) to be transferred (Choo *et al*, 2007, p.920).

The presentation in our Figure no.1, of a common point (the manager), increases the perceived quality by customers of the delivered products and services, thus improving the efficiency, because there is less discord between employees and customers (Hartline *et al*, 2000, p.43). The less time it takes to plan and implement a response to market information, the lower the cost of resources, which increases operational efficiency. Efficiency should be improved, as a higher level of response to knowledge results in a faster implementation of the response, which should increase the likelihood of meeting deadlines for distribution targets (eg order fulfillment, delivery times). The faster a manager plans and implements a response, the more likely it is that employees will succeed in the face of competition and deliver value to the customer.

In addition, the more a response is based on customer knowledge (one-way communication) and faster implementation, the more likely the company's value to grow relative to competitors. Recent studies suggest that firms need to manage the rudimentary knowledge and knowledge required of customers (Chaithanapat *et al*, 2021, p.78).

Customer knowledge management can help companies better understand the wishes, requirements and behaviors of their customers, being a dynamic ability to generate, share and protect customer knowledge (Centobelli *et al*, 2021, p.118).

The literature proposes three classifications of customer knowledge: customer knowledge, customer knowledge, and customer knowledge. The firm can discern customer issues, wants, and needs by interacting directly with them through the manager, and largely depends on how the manager can manage customer relationships to gain, share, and leverage customer knowledge for the benefit of customers and the business. Customers are a source of knowledge for a company (Khosravi *et al*, 2016, p.271).

The sudden decrease in production due to the closure of HORECA and the social restrictions imposed on it produced changes in the internal organization of the company. Following the analysis performed on the remaining market, it was decided to introduce new products to cover the lost assortment range. Two directions of action stood out. Preparing a new production process by creating a parallel cell in the production flow to ensure the experimentation of new products. The second direction is the way to communicate with employees.

The brainstorming sessions created an emotional connection among the employees, by declaring the support of the management to protect the human resources and thus the involvement of the employees in the crisis was obtained. By delegating part of the managerial authority to the older employees, the social factor in terms of the ability to adapt to the operational flow of the production flow was also reached in the production process. The implementation of these decisions took about two weeks. The speed of implementation is necessary to arrive at a cost optimization formula adapted to the new conditions. Assuming the responsibility to create new products in a traditional market known to the company, is based on two motivations: the first being the compensation of the production deficit; the second being to fill the market gap as soon as possible, to create new products. This fact is also confirmed by researchers in the field. The faster the speed of developing new products, the more companies can increase their competence when they enter the market, and the lower the development costs (Wu *et al*, 2020, p.86). These actions and managerial decisions were the only ones that could be measured. The guarantee of job protection has certainly had a positive impact, changing the behavior of employees.

The literature emphasizes organizational learning behavior (integration of new knowledge) as a significant factor in the successful implementation of creating new products (Eslami *et al*, 2018, p.149). The theory of organizational learning argues that in order to better adapt to the competitive environment, companies can undertake learning activities to change their knowledge base (Bao *et al*, 2012, p.1230). In our case, the decision to form a team and designate for new products was not an easy one. The team had to start from scratch.

The old knowledge was no longer useful, and the new ones had to be assimilated, integrated, for the success of the production of new products. Moreover, the development of innovative products is an effective strategy for companies to maintain their market position in competitive environments (Nagaraj *et al*, 2020, p.315). The tightening of the market has led to an intensification of the competitive environment. Many companies in the field have tried to diversify their services to customers. Therefore, the integration of knowledge plays a critical role in the speed of assimilating new knowledge. The conclusion of contracts with certain suppliers in the



know-how system, determined the increased speed of assimilation of new knowledge and facilitated the operational integration.

Although the literature confirms that the abandonment of knowledge, by eliminating basic rigidity, improves the performance of innovation (Zhang *et al*, 2021, p.187), it does not guarantee satisfactory positive results for the success of new products. Based on these considerations, the operational strategy, to form a parallel structure of production of new knowledge, in the realization of some products, without giving up the traditional knowledge, is well chosen.

## 5. Conclusions

Knowledge is a valuable, rare, and difficult-to-imitate resource that provides an organization with a sustainable competitive advantage. Overall, organizations have embraced knowledge management in the hopes of enhancing performance through better management of their knowledge. Although knowledge management theories are oriented towards either people or technology, in general knowledge management is defined as an ability to capitalize on knowledge to achieve organizational goals. On the other hand, although many organizations introduce knowledge management practices, there is no generally accepted methodology for assessing the organization compared to the competitive environment (Rašula *et al*, 2008, p.53).

Managers need to actively manage their knowledge gap between the knowledge they should have and the knowledge they actually have. From a conceptual point of view, the distinction between desired and available knowledge emphasizes the existence of knowledge gaps in organizations (in our case, the use of certain providers).

From a practical point of view, this distinction is useful as part of a methodology that guides managers to decide what knowledge they should have to support their strategy, to compare that knowledge with the current knowledge they have, and to make decisions regarding the assumed objectives. Managers need to have an explicit understanding of how their knowledge can be explained, shared, and leveraged in order to renew their operational capabilities when needed.

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# Impact of Green Economy on the Oil Prices and Production

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## Abstract

*Today, the green economy is a frequently encountered concept in the context of sustainable development, reductions of CO<sub>2</sub> emissions from atmosphere and the efficient use of resources.*

*In this paper, we will focus on the impact of the green economy in the oil industry, more precisely on the price and production of oil at the global level. We looked at the green economy through the lens of global electric car sales, trying to determine whether they had a more significant impact than the novel coronavirus pandemic on oil prices and production.*

*We hope that the results of our research will show whether the green economy, in this nascent state, has a significant impact in the oil industry, or if it could have, under the conditions that cars with internal combustion engines would no longer be used.*

**Key words:** green economy, oil industry, oil prices, oil production

**J.E.L. classification:** A10, P28

## 1. Introduction

Under the auspices of globalization, the expansion of markets and economic interactions between countries led to a strong intensification of economic activity and, naturally, to an acceleration of resource depletion and pollution.

Therefore, for several years now, the green economy has started to be a serious topic in the context of sustainable development for taking initiatives to use renewable natural resources and to reduction of CO<sub>2</sub> emissions.

As expected, these measures have generated some advantages for certain industries, as well as some disadvantages for others, as is the case of the oil industry and the industry of internal combustion engine cars.

In these industries, with the aim of supporting sustainable development, the green economy discourages the use of cars with internal combustion engines in favor of cars with electric engines, which reduces CO<sub>2</sub> emissions from the atmosphere and the depletion of oil resources, but with the risk of affecting the price and oil production.

## 2. Literature review

The green economy is a concept that was initially debated by the economist Pierce, who appreciated the immense material progress of industrialization but also highlighted the harmful impact of economic growth in that form on the environment. Pierce proposed a rethinking of how progress is measured as a country to include social and environmental growth in addition to economic growth (Pierce, 1989).

The clearest definition is provided by UNEF, according to which the green economy has its outcome in improving human well-being and social equity while reducing environmental risks. In this way, the green economy must be thought as an economy with low CO<sub>2</sub> emissions, resource

efficient and socially inclusive (UNEP, 2011).

According to GEC, there are five general principles of the green economy.

The first is represented by the well-being principle. According to it, a green economy must enable all people to create and enjoy prosperity. From this point of view, wealth is not only financial, but also includes social and natural capital.

The second principle is the justice one, by which equity is promoted. In this way, the green economy is not discriminatory, aiming to generate an equal distribution of the opportunity and focuses on the long term, trying to create wealth for future generations as well.

The third principle is one of planetary boundaries, according to which the green economy focuses on nature and its values. In this case, the green economy is cautious to avoid the loss of natural capital by exceeding ecological limits.

The fourth principle is one of efficiency and sufficiency, through which the green economy aims to support sustainable consumption and production, being with low carbon emissions and saving resources.

The last principle is one of good governance, which actually ensures that the green economy is driven by integrated, accountable and resilient institutions and is also evidence-based (GEC, 2020).

### 3. Research methodology

In this paper we aim to find out whether the green economy has an impact on the price and production of oil, globally. As a research on the oil industry, we decided to look at the green economy from the perspective of global electric car sales and analyse whether there is a correlation between the evolution of electric car sales and the evolution of the price and production of oil globally.

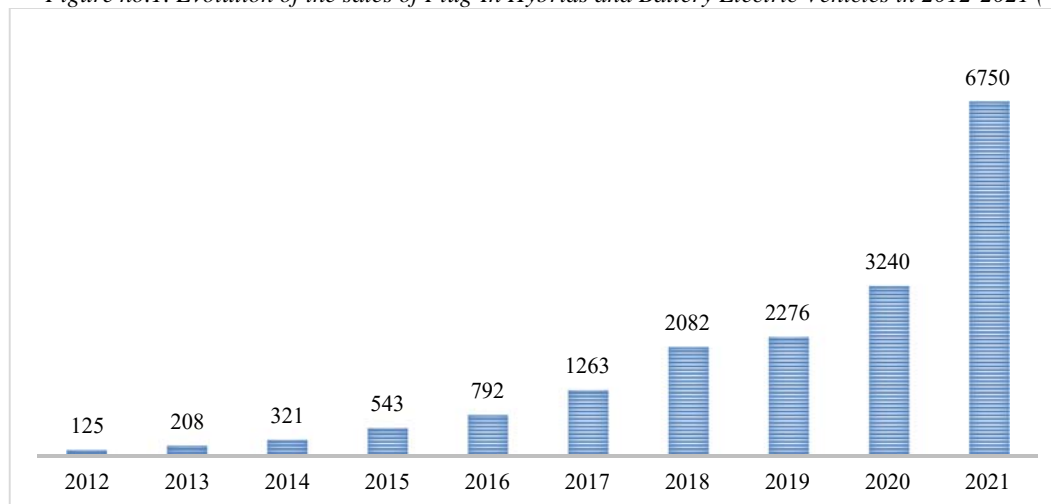
We thus propose a descriptive research through which we will collect and classify the data in order to analyze them in a historical context by comparison, to describe the correlations between them.

The data on the evolution of global electric car sales, as well as the evolution of oil prices and production, will cover a period of 10 years, and in the interpretations we will also take into account the impact of the COVID-19 pandemic, from 2019-2021.

### 4. Findings

In the following we will present the data collected and interpret them, in order to carry out the comparative analysis through which we aim to describe the impact of green economy, seen through the evolution of sales of electric cars on the price and production of oil.

Figure no.1. Evolution of the sales of Plug-In Hybrids and Battery Electric Vehicles in 2012-2021 ('000s)

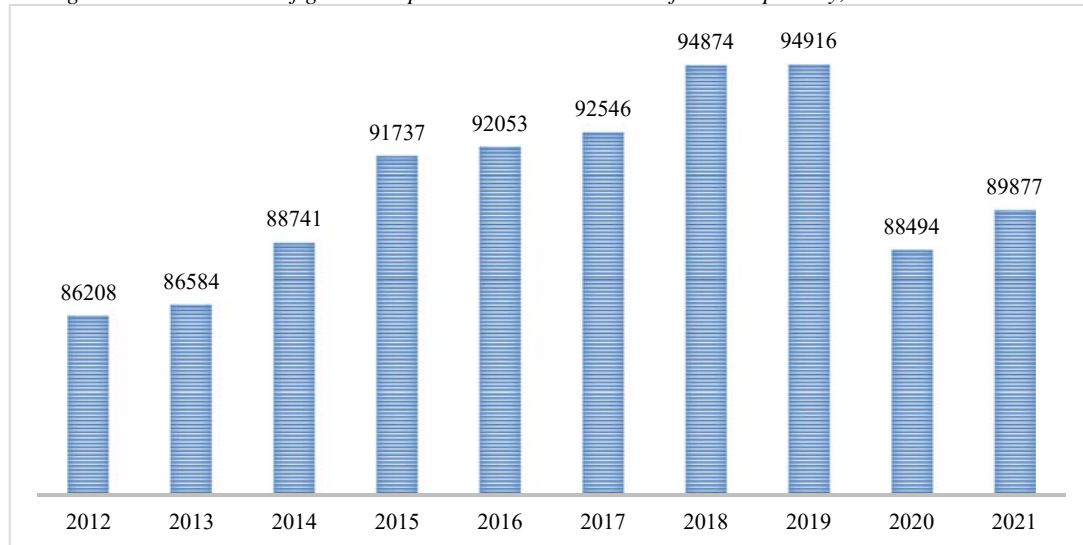


Source: Irle, R., EV-volumes.com, 2022.

According to Figure no.1., the evolution of the sales of Plug-In Hybrids and Battery Electric Vehicles in 2012-2021 followed an upward trend, recording year-on-year increases.

In 2013, it increased by 66%, in 2014 by 55%, in 2015 by 69%, in 2016 by 46%, in 2017 by 59%, in 2018 by 65%, in the pandemic year 2019, the growth slowed down significantly, being only 9%, in the pandemic year 2020, the increase returned to a percentage of 42%, and in the year 2021, the increase registered a significant percentage of 108%.

Figure no.2. Evolution of global oil production in thousands of barrels per day, in 2012-2021

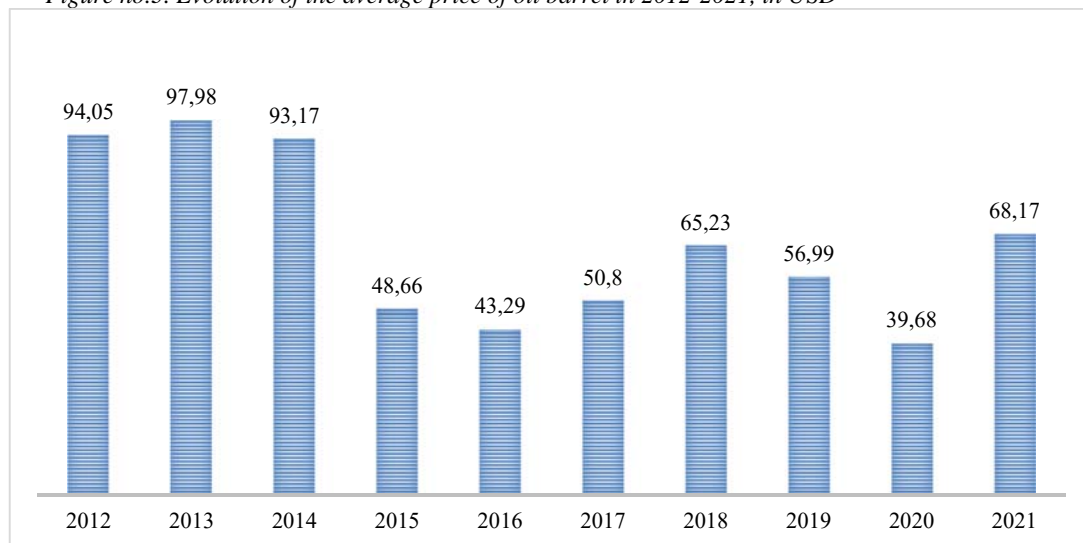


Source: BP, 2022.

According to Figure no.2., the evolution of global oil production in thousands of barrels per day, in 2012-2021, determined an upward trend until 2019, recording year-on-year increases. Since 2020, it has registered a significant decrease.

In 2013, it increased by 0.5%, in 2014 by 2.5%, in 2015 by 3.5%, in 2016 by 0.5%, in 2017 by 0.5%, in 2018 by 2.5%, in the pandemic year 2019 by 0.05%. In the pandemic year 2020, respectively the year with the most traffic restrictions, it decreased with 7.5% and finally, in 2021, it increased by 1.5%.

Figure no.3. Evolution of the average price of oil barrel in 2012-2021, in USD



Source: macrotrends, 2022.

According to Figure no.3., the evolution of the average price of oil barrel in 2012-2021 was an oscillating one during the period. The lowest value was recorded in the pandemic year 2020, when there were also the most traffic restrictions.

In 2013, it increased by 4%, in 2014 it decreased by 4.5%, in 2015 it decreased by 48%, in 2016 it decreased by 11%, in 2017 it increased by 17.5%, in 2018 it increased by 28.5%, in the pandemic year 2019 it decreased by 14.5%. In the pandemic year 2020, respectively the year with the most traffic restrictions, it decreased with 30.5% and finally, in 2021, it increased by 72%.

## 5. Conclusions

As we set out from the beginning, the purpose of the paper was to determine whether the green economy, viewed from the perspective of electric car sales, had an impact on the price and production of oil. In this sense, according to the analyzed data, we can conclude as follows:

Before the COVID-19 pandemic, sales of electric cars have increased from year to year, with significant percentages (46-66%), oil production has also increased from year to year but with percentages between 0.5-3.5%. As for regarding the price of the barrel of oil, it had an oscillating evolution but with a tendency to decrease.

In this context, starting from the idea that the increase in sales of electric cars should reduce the demand for fuels and, implicitly, oil production, the green economy viewed from the perspective of electric car sales has not had a significant impact on oil production, both of them have seen increases, but could have an impact on oil prices if the drop in oil prices is due to a supply excess.

During the COVID-19 pandemic, sales of electric cars continued to grow in 2019-2020, but oil production saw significant declines compared to the previous period, and so did the price of oil. In this context, the reduction of oil production and prices have been influenced perhaps not so strongly by the sales and use of electric cars to the detriment of those with internal combustion engines, but certainly the movement restrictions caused by the COVID-19 revealed the impact that not using combustion engine cars could have on the oil industry.

After the COVID-19 pandemic, in the year 2021, sales of electric cars registered significant increases of 108%, while oil production increased by a percentage of less than 1.5%, which also contributed to a slight increase in the price, given the new need for consumption after the pandemic.

Given these results, we can conclude that the green economy seen through the sales of electric cars, in this nascent state, has not managed to have an impact on the evolution of the price and production of oil at the global level as the pandemic has. But the pandemic has shown us what can happen to the supply and demand of oil in the absence of large-scale use of internal combustion engine cars.

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## A Perspective to Carbon Footprint in the Economic Justice Context

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### Abstract

*Starting from the assumption that the world needs a restart, large transformations that ensure the continuity of economic growth, the present research takes into discussion the problem of climate change as a consequence of global greenhouse gas emissions in the context of economic justice. In this perspective, it is necessary to take prompt measures that must take into consideration the moral criterion, to have as goal to correct the deficiencies, the inequalities and to reduce the injustices. Consequently, in this paper we propose to analyse the countries' contribution to the carbon footprint in the last decades, to make comparisons and to highlight the long-term trends of the greenhouse gas emissions.*

**Key words:** carbon footprint, economic justice, CO2 emission

**J.E.L. classification:** O10, Q53

### 1. Introduction

The economic crises of the last 50 years have brought to the fore issues of environmental degradation, scarce resources, widening gaps in living standards, and significant increases in unemployment and poverty. Industrialization had a major impact on economic growth when science and technology were widely used in the production of material goods and services. Its successes created the illusion of unlimited growth underpinned by the creative potential of people, which can eliminate the constraints imposed by limited natural resources. The exclusive pursuit of quantity has generated a series of irreversible negative effects and incompatibilities between economic performance and the preservation of the natural environment, and has consequently raised the issue of global measures to limit pollution and generate sustainable growth and development.

The first shock came in the 1970s in the wake of the energy and raw materials crisis, which forced a review of the attitudes towards natural resources, economic growth and environmental degradation. In the decades that followed, international economic debates linked issues of economic growth and development with issues of environment, resource scarcity and air pollution.

World leaders meet regularly to debate these issues and their meetings have always ended with commitments to reduce pollution, increase resource use efficiency and reduce inequalities in development. In June 1972, in Stockholm, participants focused on eco-development, and among the topics discussed were natural resource management and the determination of pollutants of international importance. In the same year, the Club of Rome's report entitled 'Limits to Growth' was published, and the UN set up the World Commission to deal with environmental and development issues. In 1987, the World Commission published the Brundtland report which set clear environmental targets. The 1992 Rio de Janeiro Summit subsequently triggered the global negotiation process on environmental sustainability and adopted the 40-chapter plan and Agenda 21. Then in 1997 in Kyoto the developed countries of the world committed themselves through their representatives to reduce emissions. The Copenhagen summit in 2009 focused on carbon footprints, and the EU took a leading role in tackling the climate change. Also, an important step was the 2015 Paris Agreement which focused on reducing greenhouse gas emissions, climate change and its causes. We also note the work of the European Environment Agency and the signing of environmental management partnerships.



The awareness of environmental issues is growing slowly, although signals from scientists point to a reality that can no longer be ignored, and policymakers meet regularly to debate all this. The position of the world's countries on all these issues is different. While some countries take a limited attitude to environmental protection, others almost ignore the issue. Moreover, some of the latter fear that a new form of totalitarianism in the form of the "green dictatorship" or the "green barrier" will be established, because they lack the financial and material resources to achieve sustainable development (Soroceanu, 2000).

## 2. Literature review

Climate change and economic pressure on the environment are undeniable phenomena. Governments, the media and business often bring up sub-issues such as reducing pollution and reducing the carbon footprint of economic and other activities that people carry out.

So, what do we mean by carbon footprint? While we originally used the term carbon footprint as defined by Warckernagel in 1996, we now use the term carbon footprint to define the amount of climate change-determining gas emissions associated with production and human consumption activities. In 2008, Wiedmann and Minx propose that the carbon footprint should measure direct and indirect CO<sub>2</sub> emissions, without including other greenhouse gases, in which case we would discuss the climate footprint. He also makes an inventory of calculation methodologies and brings to our attention that it is important to avoid double counting of carbon footprints along supply chains and life cycles (Wiedmann, 2008).

Another proposal on carbon footprint measurement comes from Wright et al. who propose taking into account CO<sub>2</sub> and CH<sub>4</sub> emissions, arguing that these are the main greenhouse gases and their impact is easy to identify, making such measurement practical and affordable for the organizations. He also states that the choice of calculation methodology depends on the specificity of the organization and also on the desired outcome, and that the calculation methods used should also reflect these aspects (Wright et al., 2011).

Pandey proposes to measure the carbon footprint by estimating the total amount of GHG from a product by considering the entire life cycle from the carbon footprint of the raw materials needed to manufacture to the actual production of that product. (Pandey and Agrawal, 2014)

Further to this idea, Kumar proposes to measure the carbon footprint in tones of CO<sub>2</sub> generated by human activities as the sum of two components: the primary component which measures emissions from public and private transport, air travel or burning of fossil fuels including domestic energy consumption and the secondary component which indirectly measures CO<sub>2</sub> emissions and shows that the more goods we buy, the more emissions will increase. (Kumar, 2014)

Carbon footprint research includes studies on the contribution that each of the world's economies makes to total carbon emissions as a total or per capita, but there are also specialized studies that specify the impact that particular human activities have on the carbon footprint. For example, Syafrudin et al. have studied the impact of academic activities on the carbon footprint. They concluded that electricity consumption and transportation to and from the University campus are the biggest CO<sub>2</sub> generators and propose as solutions energy conservation, the use of public transport and the expansion of green space in the area so that more of the greenhouse gases can be absorbed. (Syafrudin et al, 2020)

Other example is a study of the carbon footprint of an average family in Port Harcourt, one of Nigeria's main oil-producing towns. The data was collected from 261 households on their consumption habits, and it was found that small changes in daily routines can significantly reduce greenhouse gas emissions. (Gershon, 2019)

Another type of studies is those that identify whether the targets proposed by the ratification of international protocols have been achieved. Regarding this, Aichele and Felbermayr studied the global impact of the Kyoto Protocol and concluded that domestic emissions of the signatory countries were reduced by 7%, but at the same time the share of imported emissions increased by 14%, which translates into a lack of overall effects in terms of carbon emissions. (Aichele and Felbermayr, 2012)

Carbon emission levels can predict environmental risks and thus we can take the necessary measures for development in line with the environment and in order to increase the quality of life. Reducing the carbon footprint can be done by reducing the parameters directly responsible for

emissions, i.e., reducing population, energy production, income. The impact of carbon emissions needs to be studied from a dual perspective, as it generates environmental risks such as resource depletion or climate change and at the same time it produces negative social impacts limiting human rights and endangering human health and safety. (Wandana, 2021)

### 3. Research methodology

Methodologically, we wanted to achieve a balance between theory and practice, therefore we did empirical research to see what impact the world's major economies have on the total carbon emissions, if the economic growth of these countries is sustainable and what can be done to reduce the greenhouse gas emissions.

For this purpose, we have used longitudinal and cross-sectional methods. Longitudinal methods were used to highlight the indicator changes over time and whether the commitments they have made have had the expected effect. Cross-sectional methods were used to show the contribution of countries to the total carbon footprint. To complete our research, we used comparative methods to show the impact of greenhouse gas emissions on the environment.

### 4. Findings

Reducing greenhouse gas emissions is one of the main targets of sustainable development, and carbon footprint is an important climate change indicator used to measure environmental impacts. It is mainly measured using carbon emissions in MtCO<sub>2</sub> or carbon emissions per capita in order to identify the comparative contribution of the world's countries to total emissions, and the causes of these emissions.

Table no. 1 Country level CO<sub>2</sub> emissions from human activity (MtCO<sub>2</sub>)

Country	2020	2019	2015	2009	1997	1992	1987	1972	Percentage change 2019 compare to 1972 (%)	Percentage change 2019 compare to 2009 (%)
<b>China</b>	10668	10490	9848	7887	3510	2731	2258	969	982.55	33.00
<b>India</b>	2442	2626	2269	1613	860	656	456	203	1193.59	62.80
<b>Japan</b>	1031	1106	1223	1163	1245	1179	903	852	29.81	-4.90
<b>Russian Federation</b>	1577	1679	1623	1529	1475	1958	2356	1605	4.61	9.81
<b>Saudi Arabia</b>	626	622	675	466	216	316	190	70	788.57	33.47
<b>United States of America</b>	4713	5256	5372	5478	5687	5168	4825	4573	14.93	-4.05
<b>EU27</b>	2599	2910	3089	3325	3655	3672	3830	3548	-17.98	-12.48
<b>Total emissions for selected countries</b>	25676	26708	26114	23470	18645	17672	16805	13792	93.64	13.79
<b>World</b>	34807	36703	35496	31607	24301	22570	26266	16221	126.27	16.12
<b>Selected countries emission in total world (%)</b>	73.77	72.77	73.57	74.26	76.73	78.30	79.02	85.03	-	-

Source: Global Carbon Atlas 2022, <http://www.globalcarbonatlas.org/en>, Accessed 07/27/2022

Table 1 shows the trends in total CO<sub>2</sub> emissions for the countries and economies considered to be the main polluters. The time points chosen correspond to the important dates when world leaders met and made commitments to reduce emissions. We also took into account the most recent data available, 2020, as well as the values recorded by the indicator in 2019, the year preceding the Covid-19 crisis.

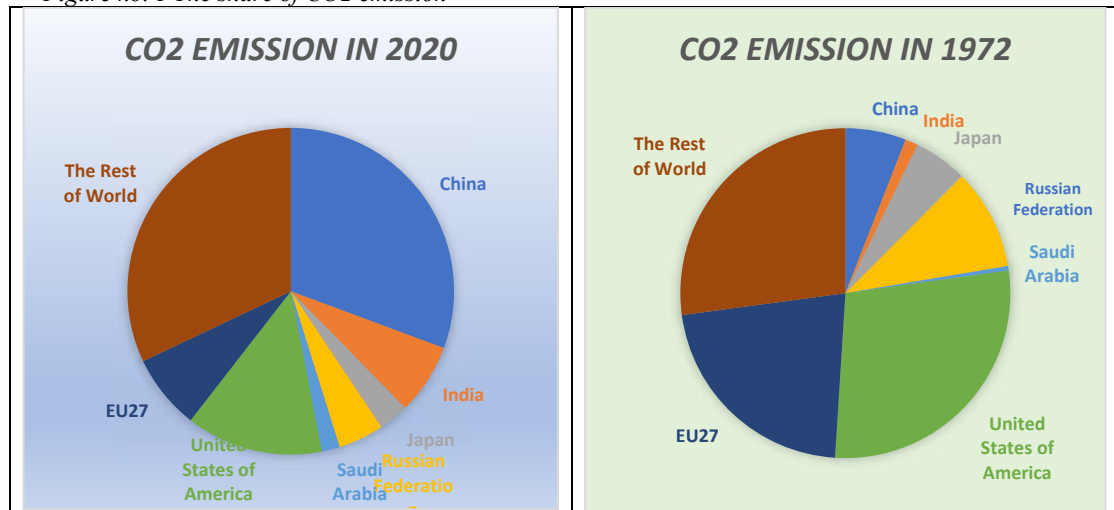
With the exception of China and Saudi Arabia, all the countries and economies in the study show considerable decreases of CO<sub>2</sub> emissions in 2020 compared to 2019. This is the consequence of the world economies slowing down due to the health crisis.

In 2019 compared to 1972, there were increases in gas emissions for all economies studied except the EU27. The largest increase is recorded for India of almost 12 times, followed by China with an increase of almost 10 times in CO<sub>2</sub> emissions for the period analysed. Considerable increases are also recorded for Saudi Arabia, and for the EU27 we note a 17% decrease in CO<sub>2</sub> emissions in 2019 compared to 1972.

Next, we have analysed how the indicator measuring CO<sub>2</sub> emissions in 2019 has evolved compared to 2009, after a decade, also taking into account that 2009 is the year immediately following the 2008 crisis and a reference point for international commitments on pollution reduction. We found that we have increases ranging from 9.81% for the Russian Federation, to 62.80% for India and 33% increases for China and Saudi Arabia. Gas emission decreases were recorded for Japan of 4.90%, the USA of 4.05% and the EU27 of 12.48%. Across all economies surveyed, CO<sub>2</sub> emissions were 13.79% higher in 2019 compared to 2020.

Also, the selected countries and economies recorded CO<sub>2</sub> emissions representing values of more than 70% of the world total for the reference times analysed, with slow decreases in these weights, with the mention that this does not mean less pollution but only a displacement of its production.

Figure no. 1 The share of CO<sub>2</sub> emission



Source: Own processing using Global Carbon Atlas 2022, <http://www.globalcarbonatlas.org/en>

In Figure 1 we have analysed the share of CO<sub>2</sub> emissions for the countries included in the studies in total global emissions. Thus in 2020 out of total global emissions of 34807MtCO<sub>2</sub>, China's carbon footprint was 30.64% with 10668 MtCO<sub>2</sub> emitted. China is followed in the ranking by the USA with emissions of 4713 MtCO<sub>2</sub>, representing 13.54%, India with emissions of 2442 MtCO<sub>2</sub> representing 7% and Russia with total emissions of 1577 MtCO<sub>2</sub> representing 4.5%. The top three countries in the ranking China, USA and India total more than half of the total global emissions.

At EU27 level, total emissions in 2020 were 2599 MtCO<sub>2</sub>, a share of 7.46%, of which Germany made the largest contribution, emitting 644 MtCO<sub>2</sub>, a quarter of total EU27 emissions or 1.85% of global emissions. Germany is followed by Italy with 304 MtCO<sub>2</sub> and Poland with 300 MtCO<sub>2</sub>.

In comparison, in 2009 China had a CO<sub>2</sub> emissions level of 24.95% of the total, India had an emissions level of 5.29% of the total, the USA 17.33% and the EU27 10.51% of the total. So, the top three countries account for 47.57% of total global emissions in 2009 compared to 50% in 2019.

## 5. Conclusions

Three countries, China, India and the Russian Federation account for half of the world's carbon footprint, but Planet Earth is one no matter where we pollute. We are all affected by this phenomenon and contribute directly and indirectly to global warming.

Among greenhouse gas emissions, CO<sub>2</sub> emissions contribute substantially to climate change and activities such as transport, construction, energy production are major sources of CO<sub>2</sub> emissions. Measuring the carbon footprint can be done at an individual, product or country level, and the carbon footprint has become a target indicator for sustainable development.

Studies have shown that developing countries contribute to the rapid increase in emissions, while the concern for a sustainable development is a predominant focus in developed countries, obviously with some exceptions.

It is unfair and bankrupt to fight for decarbonisation only in one part of the world, for example in the EU, if the fight is totally disconnected from the USA or the first countries mentioned above. We all have the same responsibility towards the planet and we all want a greener planet, but the solution comes from limiting consumption, because excessive consumption of goods translates into pollution, no matter where on the planet it occurs.

In line with economic justice and sustainable development, we believe that economic bankruptcy is not the key to success. It is our duty to hand on to future generations a planet that is as green and has the same resources that we enjoy today, but the measures cannot be taken by one part of the world's governments alone.

Moreover, reducing pollution is part of our way of life, production and consumption and therefore each of us must promptly reconsider our role in reducing our carbon footprint in the spirit of achieving economic justice.

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# The Correlation between Inflation and Money Supply

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## Abstract

*Inflation is a macroeconomic disequilibrium that affects all households and firms. The aim of our study is to investigate inflation in Romania, the causes that determine it and the relationship between money supply and inflation. There is evidence that inflation in many countries is of monetary origin. We used the data provided by the World Bank and the National Bank of Romania on inflation and broad money as a percentage of GDP. For the period 2005-2021, in Romania the data shows that inflation values do not exceed 10% and do not deviate significantly from the inflation target, while the money supply increases by an average of 11.63% per year. Our paper employs VAR model and endorses the thesis that there is a long-run relationship between inflation and money supply in Romania at a 5% significance level.*

**Key words:** inflation, money supply, monetary aggregates, monetarism

**J.E.L. classification:** E31, E 51, E52

## 1. Introduction

“Inflation is caused by too much money chasing after too few goods” – Milton Friedman

It is widely accepted that low inflation promotes long-term stability which, in turn, provides grounds for steady economic growth and development. Therefore, controlling the inflation level has been a high priority of many countries. Hence, in order to control inflation, the policymakers should understand what determines the respective phenomenon.

Many interpretations are given but still on the question of what causes the rise in inflation there is a lack of consensus. Our paper overviews the determinants of inflation and places its main focus on the monetarist theoretical perspective.

Further, the paper investigates the significance of the effects from the changes in the monetary aggregates (i.e. M1, M2, M3) in rising/adjusting the levels of inflation. Aiming to provide empirical evidence, the purpose of this study is to depict the relationship between inflation and money supply in Romania.

For the above-mentioned purposes, monetary aggregates have been defined in compliance with the methodology of the European Central Bank. (\*\*\*, NBR, June 2022)

M1 is calculated as the sum of currency in circulation and overnight deposits. M2 is calculated as M1 plus deposits with an agreed maturity of up to two years and deposits redeemable at notice of up to three months. M3, also referred to as broad money, is calculated on the basis of M2 plus other marketable instruments, including repurchase agreements, marketable securities with a maturity of up to and including two years or money market fund shares and units.

## 2. Theoretical background

A vast literature has been written on the causes of inflation. There are usually presented four main drivers behind it. Part of the theories are formulated on the basis of the (aggregate) demand-pull and cost-push arguments. The two other causes of inflation refer to money supply and demand for money.

Our paper focuses on the monetarist perspective. According to monetarists the monetary policy works as the so-called equation of exchange is showing:  $MV = PQ$ , where M refers to the total supply of money in circulation on average in a given economy, V is the velocity of circulation, P is the average price level of goods and services, and Q is the quantity of goods and services exchanged in the chosen period of time. (Schiller, 1997, p.332)

This quantitative identity reveals the relationship between money supply and macro performance. One key assumption of this model is that the velocity of money is stable. In the 70's this condition of velocity of money predictability was met. During that time, there was the rise of monetarism. The rate of growth in money supply was linked to the dynamic of nominal GDP. Some monetarists also assert that if V and Q both are stable, then money supply influences directly the prices (P). In the 80's and 90's the velocity of money became unstable, and the above-mentioned link was not confirmed anymore. Consequently, the Keynesian view has gained ground again. The followers of the Keynesian theory emphasize that money supply affects macro performance primarily through changes in interest rates. (Jahan, 2014)

Having the two competing views that diverge in major aspects, the monetary policy is to be drafted differently. The prescription made by monetarists is for the monetary authorities to act on the side of money supply without manipulating interest rates. The concept behind it is self-explanatory. The interest rate being the price of the money depending on both demand for money and money supply. However, the monetary authorities can have control only over the money supply. Therefore, engaging an expansionary monetary policy when condition of V stability is met would lead to nominal GDP growth. In the tradition of Keynes thinking, between the money supply and GDP there is an indirect link. More money being supplied would decrease interest rates which, in turn, stimulates increased total spending on investment causing real GDP to grow.

Nowadays, the great debate between monetarists and Keynesians is still vivid. Monetary authorities around the world tend to combine the two views and fight against inflation in eclectic ways.

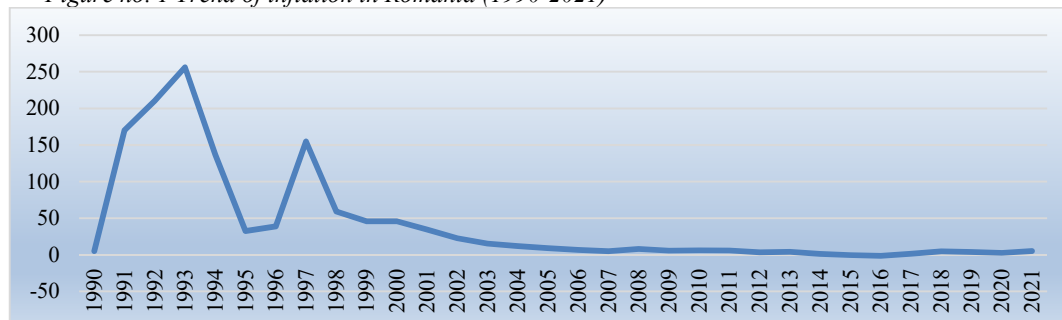
### 3. Data on inflation in Romania

There is a clear trend of steady rise of inflation in the last year worldwide. In fact, the large opinion states that the trend has been steadily fuelled over the past decade by the monetary policies of powerful central banks.

Accelerated by the current energy crisis and post-Covid-19 pandemic record consumption, inflation has already caused drastic changes in the monetary policies of major economies. Analysts warn that these new conditions mark the end of the era in which the global financial system will continue to operate under the logic of quantitative easing and low monetary policy interest rates. Romania is already taking steps in this direction: the National Bank of Romania has raised its key interest rate several times in the last months.

Going back in time, in the case of Romania, the period of transition to a market economy was characterized by high and fluctuating inflation rates, causing economic and social instability. After 2000, inflation decreased gradually and since 2005 the inflation rate has fallen below 10 percentage points.

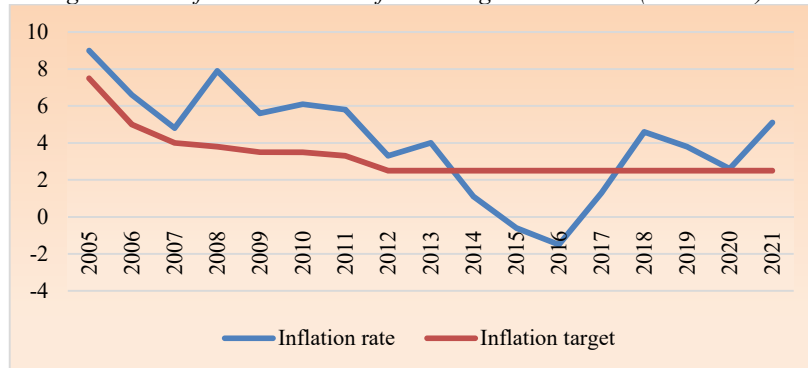
Figure no. 1 Trend of inflation in Romania (1990-2021)



Source: Romanian National Institute of Statistics, <https://insse.ro/cms/ro/content/ipc%E2%80%93serie-de-date-anuala>

We mention that since 2005 Romania has denominated the national currency and adopted the Inflation Targeting Strategy, a commitment undertaken by the National Bank to ensure price stability and better coordination between fiscal and monetary policy. Figure 2 shows that for the period 2005-2021 there are no significant deviations between the inflation rate and the inflation target.

Figure no. 2 Inflation rate and inflation target in Romania (2005-2021)



Source: Romanian National Institute of Statistics and National Bank of Romania

Low inflation rates have been maintained for a long period of time, Romania even recorded a short episode of deflation in 2015 and 2016. The most recent data shows that for 2021 inflation was 5.1%, and the National Institute of Statistics reported for July 2022 an inflation rate of 15.05% and a forecast inflation rate for the fourth quarter of the year at 12.5%.

It is well-known that the spectacular economic recovery from Covid-19 pandemic crisis is due to the stimulus packages being adopted with unprecedented speed. In the attempt of avoiding lasting recessions, the Romanian government (as most governments in the world did) supported a consistent financial response to counter the economic effects of the pandemic.

At present, facing ‘second-round’ effects of the previous expansionary policy, there is a call for changed approaches. The National Bank of Romania published in June 2022 the key measures chosen in the fight against the 2-figure inflation. [\*\*\*, NBR, June 2022.]

#### 4. Research methodology

Our research provides a dynamic analysis of the long-term inflation rate in Romania starting from the consideration that price stability is essential for long-term growth and development and for preserving macroeconomic stability. The scope of the study is to explain the relationship between the inflation rate and money supply in Romania and also to check on the relevance of monetarist theory in the present context.

##### *Measurement and Definition of Variables*

The annual inflation rate is determined by subtracting 100 percentage points from the annual consumer price index (CPI). The CPI is a time series which is calculated as a Laspeyres-type index with a fixed base. It results from the determination of weighted averages of market prices for certain goods and services purchased by consumers.

For the purpose of our study, we have used the M3 values and the broad money as percentage in GDP. As we mentioned in the introductory part of the paper, The National Bank of Romania calculates monetary aggregates in agreement with the European Central Bank.

The indicators used are time series for the period 2005-2021 and the data source is the World Bank and the National Bank of Romania.

##### *Descriptive statistics*

A first analysis of the data to be used in the regression analysis was based on descriptive statistics. Therefore, we analysed the mean dispersion, standard deviation, minimum and maximum values recorded by the variables.



The analysis of the annual data series for the period 2005-2021 using EViews shows that broad money, GDP and broad money as a percentage of GDP have close mean and median values, meaning that the variables are normally distributed, which is also confirmed by the Jarque-Bera test. The probabilities associated with this test for the three series of data are higher than the significance level  $p=0.1$ , which means that we can accept the null hypothesis and that the series are normally distributed.

Positive values for skewness indicate skewness to the right for broad money, GDP and broad money as percentage in GDP. The Kurtosis values close to 3 for all variables show that the series is normally distributed from this approach.

Also, the analysis of the data series representing broad money shows a steady increase in the supply of money in the economy for the period analysed, with a minimum of 97 billion LCU for 2007 and a maximum of 564.42 billion LCU for 2021. The average annual absolute growth for the period analysed is 29.18 billion LCU and the average annual percentage growth is 11.63%. If we refer to broad money as a percentage in GDP we observe that the indicator has been growing steadily, that it recorded a minimum of 32.24 percentage points in 2008 and a maximum of 47.75 percentage points in 2021, the average being 38.61 percentage points.

Table no. 1 Descriptive statistics for indicators

	<i>INF</i>	<i>M3</i>	<i>GDP</i>	<i>M3 GDP</i>
<i>Mean</i>	4.088235	274.6745	687.9378	38.61199
<i>Median</i>	4.600000	241.5500	634.9678	38.62409
<i>Maximum</i>	9.000000	564.4230	1181.918	47.75484
<i>Minimum</i>	-1.500000	97.00600	286.8619	32.24836
<i>Std. Dev.</i>	2.837887	130.9110	259.0757	4.210999
<i>Skewness</i>	-0.343484	0.702055	0.401400	0.437846
<i>Kurtosis</i>	2.527119	2.693620	2.211859	2.981072
<i>Jarque-Bera</i>	0.492675	1.462986	0.896505	0.543430
<i>Probability</i>	0.781658	0.481190	0.638743	0.762071
<i>Sum</i>	69.50000	4669.467	11694.94	656.4038
<i>Sum Sq. Dev.</i>	128.8576	274203.1	1073924.	283.7202
<i>Observations</i>	17	17	17	17

Source: Own computation using EViews 10.1

## 5. Findings

The paper aims at the investigation on the relationship between inflation and money supply. We share the Monetarist perspective according to which the change in inflation rate is determined by the change in broad money when the V (and Q) are stable.

First, we tested the stationarity of the time series. For this purpose, we used the Augmented Dickey - Fuller (ADF) Test. The results obtained showed that the series representing GDP is integrated of order 1, I(1) the unit root is performed using models with intercept for  $p\text{-value}=0.0485$ . For broad money we obtained that the series is integrated of order 2, I(2) the unit root is performed using models with none for  $p\text{-value}=0.0018$ . For broad money as percentage of GDP we obtained that the series is integrated of order 1, I(1) the unit root is performed using models with none for  $p\text{-value}=0.0014$ . The inflation rate is a series integrated of order 1, I(1) and the unit root is performed using models with none for  $p\text{-value}=0.0004$ .

Noticing that the data series are non-stationary, but are first-order integrated, becoming stationary by calculating the first difference, to verify the relevance of the model we used the Engle-Granger cointegration test used for single-equation models. The application of cointegration tests examines whether there is a long-run relationship between the observed variables.



Table no. 2 Engle-Granger Cointegration Test

Series: INF M3 GDP				
Sample: 2005 2021				
Included observations: 17				
Null hypothesis: Series are not cointegrated				
Cointegrating equation deterministic: C				
Automatic lags specification based on Schwarz criterion (maxlag=3)				
Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
INF	-1.692867	0.6856	-5.864347	0.6007
M3_GDP	0.271391	0.9954	0.997254	0.9972

Source: Own computation using EViews 10.1

The results obtained after employing the cointegration test show that there is no cointegrating relationship between the observed variables, which may be due to the insufficient length of the data series. If there is no cointegration we can only estimate the short-run model, i.e. the VAR model.

The Vector Autoregression Estimates show that if we consider the inflation rate as a dependent variable the significance level is 5% with F-statistic of 3.757397. So, we conclude that there is a long-run relationship between inflation and money supply in Romania at a 5% significance level, we reject the null hypothesis that there is no relationship between inflation and money supply in Romania and accept the alternative hypothesis.

The VAR models are:

$$INF = 11.08596 + 0.828721 * INF(-1) - 0.348809 * INF(-2) + 0,407597 * M3_{GDP}(-1) - 0.659486 * M3_{GDP}(-2)$$

$$M3_{GDP} = -11.63014 + 0.045506 * INF(-1) + 0.382810 * INF(-2) + 0,862450 * M3_{GDP}(-1) + 0.430543 * M3_{GDP}(-2)$$

The results favour the idea that inflation rate is positively correlated with the inflation rate in the previous year and with broad money as a percentage of GDP in year t-1. The variable broad money as a percentage of GDP is positively correlated with the inflation rate in year t-1, with the inflation rate in year t-2, with broad money as a percentage in GDP in year t-1 and with broad money as a percentage in GDP in year t-2.

Inflation is 60% explained (R-squared = 0.600473) by inflation in previous years and money supply in previous years. This means that there are other factors driving variations in inflation that we aim to identify in future studies.

## 6. Conclusions

Inflation is a macroeconomic phenomenon with multiple causes. For the period under review, Romania has experienced monetary expansion, but at the same time a real GDP growth that did not fully cover the money supply growth. Also, for Romania there has been a significant increase in broad money as a percentage of GDP, which means that money supply has grown faster than value added, with the highest values of the indicator recorded for 2020 and 2021.

Our study showed that inflation is both cause and effect. With a significant budget deficit, macroeconomic imbalances are widening. That is why it is not a solution to live on credit; on the contrary, consumption on credit needs to be discouraged, but the monetary policy of the Central Bank is not sufficient to temper inflation. Policy makers must consider solving the structural problems that the country's economy is facing.

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# Romania's National Recovery and Resilience Plan – a Set of Reforms and Investments for the Increase of the Nominal and Real Convergence

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## Abstract

*The 2020 pandemic has led to economic recession in the European Union, rising unemployment, falling purchasing power among the majority of citizens and has forced national institutions to intervene with many measures that have led to rising budget deficits and public debt.*

*As of 2021, the Recovery and Resilience Facility has been approved at EU level, to the purpose of economic recovery and increasing the economic resilience of EU Member States.*

*This paper analyses Romania's fulfilment of the nominal convergence criteria, the evolution of Romania's gross domestic product pre- and post-pandemic, the main measures foreseen in Romania's National Recovery and Resilience Plan to ensure a green, digital transition and economic and social resilience, as well as the funds available to Romania through the NRRP for investments and structural reforms necessary for economic growth and nominal convergence.*

**Key words:** Romania's National Recovery and Resilience Plan, Covid-19 pandemic, Convergence criteria, GDP per capita, Euro are

**J.E.L. classification:** F15, F36, F43

## 1. Introduction

The SARS-COV-2 pandemic has led to the collapse of the healthcare system, loss of life, closure of many businesses, increased unemployment and economic recession in all EU Member States. The forced closure of many sectors of activity by national governments in order to stop the spread of the Covid-19 has led to increased state budget expenditure through increased unemployment and financial aid to economic agents whose activity has been affected by the Covid-19 pandemic, as well as a decrease in revenue collected to the state budget. All this has led to rising budget deficits and public debt in all EU Member States at the end of 2020. Many EU Member States outside the euro area have moved further away from meeting the nominal convergence criteria with rising budget deficits.

The pandemic crisis of 2020 has forced the EU institutions to suspend the fiscal rules in the Stability and Growth Pact (SGP) on bringing the budget deficit within the 3% of GDP threshold. Even though Romania was already under the Excessive deficit procedure (EDP) at the end of 2019, this suspension also applied to it, with the obligation to bring the budget deficit (ESA) to 3% of GDP by 2024.

In support of Member States' economies, the European Union launched the Recovery and Resilience Facility (RRF) in early 2021, consisting of financial incentives to be allocated to EU Member States in the form of grants and loans totalling €723.8 billion for investment and reforms in the digital and green sectors. Over time, all of this will lead to reducing or mitigating the future impacts of climate change and strengthening the national economies of EU Member States. The release of funds through the RRF for a given EU Member State will only be made following the European Commission's approval of that country's National Recovery and Resilience Plan (NRRP), which it has submitted in advance.

## 2. Theoretical background

For a brief presentation of the contents of Romania's National Recovery and Resilience Plan (NRRP), I studied the official document published on the European Commission website and the paper "România – Zona Euro Monitor: O iarnă grea, în multe privințe / Romania - Eurozone Monitor: A hard winter, in many respects" (National Bank of Romania, 2021a), published on the website of the National Bank of Romania.

I documented the Recovery and Resilience Facility and the amounts allocated to Romania through the NRRP from the information provided by the European Commission press releases, on the Commission website, on the Romanian Government website, but also from "The Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Recovery and Resilience Facility" (Europa.eu, 2021).

The nominal convergence criteria consist of certain economic indicators falling within certain thresholds and refer to price stability, convergence of long-term interest rates, sustainability of public finances and exchange rate stability under the ERM II according to "The Consolidated version of the Treaty on the functioning of the European Union" (Europa.eu, 2012). "Drumul către zona euro: test de rezistență sau probă de viteză? Câteva reflecții pornind de la experiența României și a altor țări din regiune / The road to the euro area: stress test or speed test? Some reflections from Romania's experience and other countries in the region" (Isărescu, M., 2019), "Romania, the euro adoption and the Banking Union" (Isărescu, M., 2014), "România – Zona Euro Monitor: O iarnă grea, în multe privințe / Romania - Eurozone Monitor: A hard winter in many respects" (National Bank of Romania, 2021a) and "România – Zona Euro Monitor: O revenire economică puternică are loc, însă lupta cu pandemia continuă / Romania - Eurozone Monitor: A strong economic recovery is taking place, but the fight against the pandemic continues" (National Bank of Romania, 2021b) were the main documents underlying the analysis of Romania's nominal and real convergence criteria.

## 3. Research methodology

The analysis of Romania's nominal and real convergence criteria was carried out based on data available in the Eurostat database. The level of the maximum thresholds for the economic indicators of average annual inflation rate and average annual long-term interest rate has been determined by own calculations, in compliance with the Maastricht Treaty conditions.

In this paper I have analyzed the economic evolution of Romania over the period 2019-2021, ante and post pandemic, with the aim of identifying other causes that led to the failure to meet any nominal convergence criteria at the present time, apart from the pandemic crisis in 2020, which affected economically all EU Member States.

Another topic we discussed was Romania's National Recovery and Resilience Plan (NRRP). The funds available under the NRRP can bring more than 2 percent of GDP to Romania's public budget annually (National Bank of Romania, 2021a, p.47), and compliance with the NRRP consists in implementing a set of structural reforms that will implicitly lead, over time, to the sustainable fulfilment of Romania's nominal and real convergence criteria required for Eurozone membership.

## 4. Findings

### 4.1. Analysis of Romania's nominal convergence criteria

In order to adopt the European single currency, Romania and any other EU Member State outside the euro area must fulfil the nominal convergence criteria provisioned by the Maastricht Treaty. These convergence criteria consist of the following thresholds for economic indicators: the average annual inflation rate is no more than 1.5 percentage points above that of the three highest performing EU Member States in terms of price stability, the average annual long-term interest rate is no more than 2 percentage points above that of the three highest performing EU Member States in terms of price stability, the general government budget deficit is below 3% of GDP, public debt does not exceed 60% of GDP and the exchange rate of the national currency against the euro is within a fluctuation band of  $\pm 15\%$  for a minimum of 2 years.

The exchange rate indicator will not be analysed as Romania has not yet applied for participation in the Exchange Rate Mechanism II (ERM II), which requires the exchange rate of the leu-euro to be within  $\pm 15\%$  of a fixed central rate of the national currency against the euro.

Table 1 shows that, in recent years, Romania has managed to meet only one nominal convergence criterion, namely to keep the public debt below 60% of GDP. Indicators for price stability, long-term interest rates and the budget deficit were outside the Maastricht Treaty thresholds as early as 2019, before the start of the Covid-19 pandemic. Therefore, Romania's economic situation in recent years cannot be blamed solely on the pandemic, but also on the economic measures taken by the government in 2018-2019, which led to higher inflation and budget deficit.

The pandemic crisis has led to the suspension and closure of many economic sectors, Romania has had to spend more money on unemployment benefits, and revenues to the state budget have fallen drastically. All this has led to Romania's budget deficit reaching 9.3% of GDP at the end of 2020, with Romania having to borrow to cover this high budget deficit and Romania's public debt increasing from 35.3% of GDP in 2019 to 47.2% of GDP in 2020.

Table no. 1. Romania's fulfilment of the nominal convergence criteria

Indicators/ Year	2019	2020	2021
Inflation Rate (%, annual average)	3.9 criteria: < 1.9	2.3 criteria: < 1	4.1 criteria: < 2.23
Long term interest rates (%, annual average)	4.54 criteria: < 3.47	3.89 criteria: < 2	3.62 criteria: < 2.56
General Budget Deficit* (% in GDP)	4.3 criteria: $\leq 3$	9.3 criteria: $\leq 3$	7.1 criteria: $\leq 3$
Public Debt* (% in GDP)	35.3 criteria: $\leq 60$	47.2 criteria: $\leq 60$	48.8 criteria: $\leq 60$

Note: In 2019, the annual average inflation rate of the 3 highest performing EU member states with regards to price stability (Portugal, Greece, Cyprus) is 0.4% (resulting a criterion of 1.9%), and the annual average interest rate in these 3 states is 1.47% (resulting a criterion of 3.47%). In 2020, the annual average inflation rate of the 3 highest performing EU member states with regards to price stability (Estonia, Ireland, Slovenia) is -0.5% (resulting a criterion of 1%), and the annual average interest rate in these 3 states is 0.0% (resulting a criterion of 2%). In 2021, the annual average inflation rate of the 3 highest performing EU member states with regards to price stability (Greece, Malta, Portugal) is 0.73% (resulting a criterion of 2.23%), and the annual average interest rate in these 3 states is 0.56% (resulting a criterion of 2.56%).

\* ESA2010 methodology

Source: Eurostat

Although Romania's budget deficit has been below 3% of GDP year after year over the period 2013-2018, it turned out that this nominal convergence criterion was not sustainable, rising to 4.3% of GDP in 2019. Due to this, Romania has been subject to the Excessive deficit procedure (EDP) since 2020.

As the Covid-19 pandemic progressed in Europe, starting with March 2020, the general derogation clause was activated at the European Union level, which led to the suspension of the fiscal rules of the Stability and Growth Pact (SGP) regarding the budget deficit being within the 3% of GDP threshold and allowed EU Member States to move away from fiscal adjustments without being placed under the Excessive deficit procedure. This suspension also applied to Romania, but it is obliged to reduce its budget deficit to below 3% of GDP by the end of 2024. To achieve this, better VAT collection is needed to increase tax revenues and Romania's tax expenditure needs to be kept under control.

The Romanian government will need to reduce its budget deficit every year in order to curb the growth of public debt, which is still below the recommended 60% of GDP.

#### 4.2. Evolution of the Romanian economy pre- and post- the pandemic

The Covid-19 pandemic had a huge impact on the health of the population but also on the world economy. With the outbreak of the Covid-19 pandemic in Europe as well, starting in the second quarter of 2020 the governments of the EU Member States had to impose a series of measures

limiting the movement of people and closing many sectors of activity in an attempt to limit the spread of the new virus within each country.

All of this led to economic recession in the European Union, with almost all EU member states except Ireland experiencing declines in their national economies at the end of 2020.

Romania, like other economically developing countries, saw economic growth of 4.2% in 2019, well above the EU average of 1.8% and the Eurozone average of 1.6%. The economic lockdown in 2020 also affected the Romanian economy, with it falling by 3.7% at the end of that year, but not by as much as the economic declines that Eurozone member states experienced.

The pandemic crisis of 2020 has led to travel restrictions in EU Member States, hitting the tourism and hospitality sector hard, as they account for a much smaller share of Romania's GDP than in many Eurozone Member States such as Greece, Italy and Spain.

*Table no. 2. Real GDP growth/decrease rate (%)*

<b>GEO/ YEAR</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Romania	4.2	-3.7	5.9
European Union (27 states)	1.8	-5.9	5.3
Eurozone (19 states)	1.6	-6.4	5.4

*Source:* Eurostat

During 2021, with knowledge of the virus, the creation of vaccines, providing hospitals with the necessary medicines and equipment, and the provision of the necessary stock of personal protective equipment for citizens, EU Member States lifted many of the restrictions that were imposed in 2020, leading to the reopening of all sectors of activity. All this, as well as the economic support measures adopted by the European Union, led to rapid economic growth in 2021 in all EU Member States. Romania recorded economic growth of 5.9% in 2021, above the Eurozone average of 5.4%.

However, economic forecasts for 2022 are not optimistic, as the war between Russia and Ukraine and the economic measures imposed by the European Union and the US on Russia will also have negative effects on the economies of EU Member States. The post-pandemic economic recovery will also be slowed down by the persistence of disruptions in production chains and the accelerated increase in energy and natural gas prices.

Romania's potential economic growth will also be slowed down by a shortage of human resources, due to a continued out-migration of labour to northern and western European EU countries, and by the under-utilisation of the labour resources available on the Romanian labour market.

As for Romania's real convergence indicator, represented by real GDP per capita calculated at purchasing power parity (PPP) and compared to the European Union average, it has increased year on year. In 2019, Romania's GDP per capita PPS was 69.2% of the EU average (27 countries), rising to 71.9% in 2020 and 72.9% in 2021.

The pandemic crisis has hit the economies of the strong European Union countries hardest, narrowing the gap between their economies and those of Eastern European countries.

If the level of GDP per capita in PPP of 76% of the EU average that Lithuania recorded in the last year before adopting the euro on 1 January 2015 is anything to go by, Romania would also be ready to join the euro area. Unlike Lithuania, Romania is a country with a much larger population and territorial area and should focus on reducing the very large economic gap that exists between the Bucharest-Ilfov region and the rest of the country's seven regions. In addition to this problem, Romania will have to meet the nominal convergence criteria in a sustainable and durable manner, an objective it has failed to achieve in recent years.

#### **4.3. Romania's National Recovery and Resilience Plan (NRRP)**

In order to revive the economies of the EU Member States affected by the Covid-19 pandemic, the Recovery and Resilience Facility (RRF) came into force at EU level in February 2021. The RRF has a total of €723.8 billion (at current 2021 prices) to be distributed to EU Member States in the form of loans and grants.

In order to benefit from the sources of funding under the RRF, each EU Member State has submitted to the European Commission (EC) its own National Recovery and Resilience Plan (NRRP), which contains the reforms and investments to be undertaken until the end of 2023, with the release of funds for a given state only after the European Commission has approved its NRRP.

Following the approval of the NRRP, a first instalment of the EU funds related to the RRF will be allocated to the state in question, but the allocation of the next instalments will depend on the economic performance of the country, on the state of implementation of the reforms and investments that have been undertaken through its own NRRP. If the EC considers that a Member State has not adequately met the targets associated with a milestone and progress in implementing projects is not as expected, it will make only a partial payment and the remainder of the tranche payment will be suspended. That Member State will have six months from the date of the submission of the European Commission's observations to take the necessary measures to achieve the milestones and not to lose the remaining payment.

Unlike the Multiannual Financial Framework, payments under the NRRP are linked to the successful achievement of the objectives set out in the plan.

The aim of the NRRP is to reform national economies, through measures aimed at reducing climate change, and to digitize many sectors of activity in order to increase the competitiveness and resilience of national economies. Through the NRRP, additional resources can be attracted to develop Member States' economies and boost reforms in many areas of activity, leading to economic growth and rising living standards.

NRRPs differ from country to country, Romania's NRRP aims to reduce the economic and social development gap between the various regions of the country, between large and small cities, between urban and rural areas, by improving road and rail infrastructure, education and poor health systems. In short, the NRRP is a series of reforms and investments that Romania will have to undertake to strengthen the Romanian economy and reduce macroeconomic imbalances over time.

On 27 September 2021, Romania's National Recovery and Resilience Plan (NRRP) was approved by the European Commission. The assessment of the NRRP was based on the criteria set out in the Recovery and Resilience Facility (RRF) Regulation, analysing whether the reforms and investments included in the NRRP aim at green and digital transition, job creation, economic growth and economic and social resilience of Romania.

According to the European Commission's press release of 27 September 2021 (European Commission, 2020), following the approval of the NRRP, Romania will be able to receive grants worth €14.2 billion and loans worth €14.9 billion from the European Union. The loans to be granted through the RRF are much more advantageous than those on international markets, as they have lower costs (interest) and longer repayment terms. Romania should be able to attract and use these loans from the EU and stop borrowing from international markets, so as to keep the country's debt level below 60% of GDP. These amounts would be sufficient to implement many of the reforms Romania needs, the only question mark would be whether they can be attracted and used properly. We know that loans through the RRF will be granted to each EU Member State gradually, as projects are financed, and in Romania's case this means that most of them will be accessed sometime after 2024.

The Financing Agreement between the European Commission and Romania, covering the grant component, signed on 26 November 2021, provides for the allocation of €14.2 billion in grants to Romania, of which €10.2 billion for commitments until the end of 2022 and the remaining €4 billion to be available for commitments to be made during 2023. Loan applications will have to be submitted by the end of 2023.

For 2021, Romania has received two instalments under the NRRP totalling €3.78 billion in pre-financing, as follows: on 2 December 2021 the European Commission paid Romania a pre-financing of €1.85 billion under the grant component and on 13 January 2022 it transferred €1.94 billion in the form of a loan to Romania's accounts.

According to Romania's NRRP, most of the financial resources will be allocated to climate objectives, with a share of 41%, followed by those for ensuring the digital transition at 21%, and the rest will be for ensuring economic and social resilience. Below are briefly presented the main measures foreseen in Romania's NRRP (European Commission, 2021b).

The main measures to ensure the green transition foreseen in Romania's NRRP are:

- modernisation of railway infrastructure, largely through the purchase of zero-emission rolling stock (electrified railways) - €3.9 billion allocated;
- seismic strengthening of buildings and their energy improvement through renovation - €2.7 billion of available funds;
- improving urban infrastructure for green and safe transport - €1.8 billion;
- environmental protection measures (reforestation, species protection and other biodiversity measures) - €1.1 billion available;
- implementation of renewable energy sources and phasing out of coal and lignite based energy production - €855 million allocated.

Key measures to ensure the digital transition in Romania aim to:

- digitisation of public administration in areas such as public procurement, public service management and skills development, employment and social protection, justice and environment - €1.5 billion allocated;
- digitisation of education by upgrading equipment and improving the digital skills of teachers - €881 million;
- digitisation of health, including the development of a national integrated health information system - €470 million available.

Ensuring economic and social resilience in Romania includes:

- strengthening public administration, mainly by reinforcing the effectiveness of the judiciary and the fight against corruption;
- fiscal sustainability through a strengthened budgetary framework, limiting budgetary expenditure through tighter control, reforming the pension system and changing the tax system;
- digitisation of social protection systems, implementation of minimum income inclusion reform and improvement of employment;
- strengthening the health system by investing in hospital infrastructure.

Romania's NRRP contains 107 projects (investments), 64 reforms and 507 milestones and targets. According to the Regulation 241/2021 on the implementation of the RRF, milestones refer to the qualitative achievements of the reforms and investments in the NRRP and targets refer to the quantitative ones, with a deadline of 31 August 2026.

The main problems Romania will face in meeting the NRRP objectives relate to the low capacity and quality of Romanian institutions to properly manage such a project, the risk of not meeting several NRRP targets and milestones on time, which will lead to the suspension of payments from the European Commission.

It is estimated that attracting all funds through the NRRP, cumulatively over the 6 years, will amount to about 12% of Romania's GDP (National Bank of Romania, 2021a, p.12).

## 5. Conclusions

In addition to the current problems, such as halting accelerated price increases and reducing budget and trade deficits, Romania will also have to face new global challenges in the coming years, such as climate change, which is causing a number of medical as well as economic problems, especially in the agricultural sector, and the ageing of the population, which will put even greater pressure on public pension and social assistance systems. This is why Romania will have to implement all the measures undertaken in its own NRRP to reform the administrative, education, health and pension systems and to obtain the necessary funds to finance the digital and green sectors.

Romania needs to absorb most of the funding available through the NRRP and the Multiannual Financial Framework (MFF) to be able to cope with the pandemic crisis that has not yet gone away, the accelerating rise in energy prices and more recently the crisis of the war in Ukraine, which has started to have economic repercussions on other European countries as well.

Attracting and correctly using all European funds available will help reduce the economic gap between Romania and the other EU Member States.



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## Perceptual Positions – The New Behaviour and ‘Map of Reality’ Generators in Business Communication

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### Abstract

*The paper concentrates on recognizing different perceptual positions in many business communications. First, it explores how the main perceptual positions can expand our level of awareness when dealing with difficult interlocutors to set and achieve ambitious goals. Second, it aims to illustrate the importance of perceptual positions in reaching mutually beneficial agreements through business applications and functions as well as case studies and useful phrases.*

*The results emphasize that the ability of business people to shift wisely from one position to another can create a better sense of rapport both from a behavioural and linguistic perspective.*

**Key words:** applications and functions, business communication, case studies, perceptual positions  
**J.E.L. classification:** Z13

### 1. Introduction

If maximizing the potential of the people we work with is a valuable asset, then recognizing different perceptual positions is another valuable skill in many business communications. Exploring the main perceptual positions can be significantly helpful when we deal with difficult interlocutors to set and achieve ambitious goals in a negotiating, selling or meeting process, experience a situation from different perspectives, or move into different perceptual positions to get a different viewpoint on a complex sensitive issue.

By acting as if *we are someone else*, we open up new ways of thinking and start making better decisions and choices.

To this end, practical examples of business applications alongside the case studies and useful linguistic expressions will be provided in the next sections to make it easier to adapt to the interlocutors’ mode of perception and relational experiences. They will highlight the necessity to harmonize one’s language and gestures with the interlocutors’ word signals and expressions.

Thus, the focus will be on the understanding of the contradictory polarities inside and outside the communication loop.

### 2. Theoretical background

John Grinder and Judith DeLozier focused on the first three positions in their book *Turtles All the Way Down* (1987), which they called *perceptual positions*. Further on, Robert Dilts added the fourth position in *Article of the Month* (1998). In “Encyclopedia of Systemic Neuro-Linguistic Programming and NLP New Coding” (2000), Robert Dilts and Judith DeLozier talked about the triple description (the first/second/third position) as a ‘dance of multiple perspectives’. The development of perceptual positions reached a yet higher level 6 years later when David Molden and Pat Hutchinson (2006) put forward a threefold metaphorical description by viewing a situation from three different angles, i.e. first position (*You*), second position (*the other person’s shoes*), third position (*fly on the wall*). However, it is worth noticing that Dilts and DeLozier’s (2000) practicing on perceptual positions leads the scientific literature in this very particular field.

### 3. Research methodology

This research has aimed to make business communicators aware of the importance of taking multiple perspectives as an essential skill for mediation and negotiation, customer service, organizational change and leadership.

The research methodology has concentrated on the extent to which perceptual positions expand our level of awareness and help us gain a broader perspective from three different angles.

At this stage, I have identified the differences encountered when assuming various roles and experiencing mental states (*associated, disassociated, meta position*) which promote the idea of contributing to the understanding of the flow of events within the communication loop, by moving wisely from one position to another.

In this case, the objective of the paper has been to describe the technique of shifting perceptual positions to get a clearer picture of someone else’s behaviour, beliefs, values, representations or ‘map of reality’.

Therefore, research has shown that, when rapport is low in the workplace, it can be enhanced by using the technique of perceptual positions which provides us the opportunity to see, hear and feel things from others’ perspectives, in any given situation, from three main angles (first, second, third)

The first position (*You*) means experiencing the situation through your own map of reality (your eyes → visual, ears → auditory and feelings → kinesthetic). What you most care about is the outcome you want to achieve, and how to assert yourself and influence others or lead by example.

The second position (*the other person’s shoes*) presupposes stepping into the shoes of the other person, sometimes even physically, or making an imaginary leap to understand their beliefs, values, attitudes, experiences (sights, sounds, feelings) to the best of your knowledge. From this position, we increase our chances of building better rapport during a sensitive stage/phase of a tense, adversarial negotiation, for example. O’Connor (2001) comes up with the specification that there may be two types of second position: “*Emotional second position* is understanding the other person’s emotions [...] *Intellectual second position* is the ability to understand how another person thinks, the kinds of ideas they have and the sort of opinions and outcomes they hold” (O’Connor, 2001, p. 33).

The third position (*fly on the wall*) is when you stand away or step outside your viewpoint and the other person’s view, become an independent observer, *detached* and *dissociated*. The benefit you gain is by observing everything from a logical, rational and objective perspective, as if watching the sequence of words, gestures and expressions as a resourceful third person.

Later on, Robert Dilts added the fourth position in *Article of the Month* (1998). The fourth position holds the perspective from the system you belong to, i.e. a team, work or community system. This position is used within a business to understand group dynamics and your role (i.e. leader) in the group. It is about ecology, and checking the impact of your decisions.

### 4. Findings

The paper can be structured around two integrated communication axes, i.e. *business applications and functions*, on the one hand, and *case studies*, plus useful *linguistic expressions*, on the other hand.

Perceptual positions are crucial to reaching agreements in meetings, customer care, selling, negotiating, or giving presentations. Thinking in terms of ‘seeing things *my/your/their* way’ is very useful because our first task is to map the reality as perceived by others, or, as Dilts and DeLozier (2000) metaphorically express it, to build a systemic loop between ourselves and the outside world.

Therefore, perceptual positions are basic to business applications, including: *negotiation, customer service, communicating change, selling, labour relations*.

#### 4.1. Negotiation

Negotiation opens the door to understanding conflicting views. When analysing a business problem, one has to look at the perspectives of different stakeholders (customers, senior management, middle managers, strategic partners, suppliers and competitors). Aiming for a

common point between two parties requires the ability to step or project yourself into the other person’s map of reality (assume ‘second position’) as well as look at various issues from your *own* perspective (take ‘first position’), by regularly checking out priorities, preferences, or feelings of apprehension and doubt. In psychological terms, adopting different positions will always lay the foundations for either peaceful or deadlocked negotiations.

***Case study and useful phrases:***

A profitable consumer goods multinational has been in operation since 2013. Its strong performance has been due to high-value-added products pushed into foreign markets every year. Nevertheless, managers currently disagree on some aspects of company policy which led to a recent decline in profit. Shareholders are locked in discussions over budget adjustments and cuts. Some of them have frozen plans to launch new products and recommended reducing spending by 15%, while others have encouraged recruitment to avoid layoffs.

► Put forward the advantages of finding common ground:

e.g. *If we can get our point across, I’m exceedingly optimistic about the contract.*

► Signal that you are near to reaching an agreement:

e.g. *Look, we’ve approved the plan by a large majority. We’re close to an agreement. We just need a bit more understanding agreeing budgets and reallocations to achieve a 15% reduction in total operating costs.*

► Ask questions to find out what the other side wants:

e.g. *What’s your main interest? Why do you want to concentrate on consolidating current brands? Do you think the plan could be hit by possible budget cuts?*

## 4.2. Customer service

Effective customer service is based on specific tools and techniques which are used in response to each customer’s needs, expectations and feelings. Smart employees always know the proper tools that adapt to the most diverse situations, from the basic ones to the very exciting and challenging interactions. In every business situation one needs to connect to their customers and discover what strategy/phrase corresponds to one response. Thus, different tools match different situations whether we address a happy or an angry and upset customer. According to Bacal (2005), “In real life it is not always easy to determine whether a ‘perfect phrase’ is part of one customer strategy or another, because some phrases can actually fit more than one response and because some of the strategies overlap” (Bacal, 2005, p. 17).

► Acknowledge customer’s needs (involves using confirmation type expressions)

e.g. *I understand that you are looking for the best value for your money.*

► Active listening (involves using the checking understanding strategy)

e.g. *So, you’re telling me that you want to report some missing parts from the product and would like complete refunding. Is that right?*

► Assurances of effort (are statements that help handle difficult customers with confidence and put them at ease)

e.g. *I can see you’re hastened to leave but I assure you I’ll wrap up the present in a jiffy.*

► Empathy statements (are specific defusing techniques whose purpose is to calm down nervous, hostile customers and switch their negative mindset to a positive mindset by improving rapport)

e.g. *It seems the delay has quite upset you.*

*I know it can be annoying/irritating to fill in these forms from top to bottom.*

*You must have felt tricked/fooled to discover that the product was defective.*

In the above empathy statements, naming the emotion (*anger, frustration/irritation, hoax*) and associating the source of emotion (*the delay, the forms, the product fault*) may hold the key to understanding the client’s needs and dealing with their complaints.

► Offering choices (involves focusing interest on each side, generating options to customers, showing respect for their wishes, responding with an option rather than disagreeing with the offer of the other party)

e.g. *What if we included service in the price? Would that help you?*

*Here’s another idea. We could renegotiate the repayment term in case of delay.*

Conditional phrases like *what if, in case...* as well as the modal verb *could* are used to express an opinion about the best course of action. Since negotiating is about playing a game of conditions and concessions, it is worth mentioning that approaches to bargaining may vary according to the attitude of the customer service representatives to bargaining and the language (functions) they use when interacting. Thus, when putting forward a proposal tentatively (e.g. *we could renegotiate*), modal verbs are specifically used to introduce new options in a gentle, non-threatening way.

### 4.3. Communicating change

When managers have to introduce change, good communication is very important. ‘Adapt or die’ is a common saying in business. The question ‘How do you bring people into the change process?’ describes a business situation where company executives are about to announce a restructuring process, including job losses, while their positions are secure.

Let us now take a look at management meetings which are held for staff to discuss advantages and disadvantages of proposed changes affecting the workplace. Different examples include:

- ▶ making organizational changes;
- ▶ merging divisions or businesses;
- ▶ announcing a restructuring wave;
- ▶ making people redundant in a new department after a merger (job losses);
- ▶ keeping your job after a merger, but being in a less powerful position.

#### *Case study and useful phrases:*

Percy Barnevik, one of the most respected managers in the world, has shown that he is prepared to take some tough decisions when it comes to downsizing (Evans, 2000, p. 22).

#### *a) Technique used – First position*

e.g. *I detest* the macho view of some Americans who rank managers by their toughness. *I see it* as a bloodbath. Whether *I call it* restructuring or firing people, *I think* it’s a serious human problem.

#### ◆ *Analysis:*

First person implication is rendered by expressions such as *I detest, I see it..., I call it..., I think...* . *First position* is associated with your own point of view, beliefs and assumptions (Dilts and DeLozier, 2000, pp. 949-950). First person language is used when talking about yourself: *I detest, I see it, I call it, I think*.

#### *b) Technique used – Second position*

e.g. To downsize effectively, *you have to have empathy* with the people who are losing their jobs. *You feel you have to take time*, handle them with honesty and respect. What *you say to them* has a lot to do with the attitude of the survivors; *Do you spend* much time imagining what it’s like for them, whether they see the company as a money machine or keep their respect and trust for it? (an adapted version of Evans –”Barnevik and Attitude”, *Powerhouse*, 2000. p. 22).

#### ◆ *Analysis:*

Second person implication is rendered by expressions like *you have to have empathy, you feel you have to take time, you say to them, Do you spend...?*

*Second position* is associated with another person’s point of view, seeing the external world through his or her eyes (Dilts and DeLozier, 2000, pp. 949-950). Second person language is used when talking about yourself in first position: *you feel, you say, Do you spend...?*

#### *c) Technique used – Third position*

e.g. *He says he is* very worried about handling the bad news in this way, because *he says* the situation can take out of control. *He welcomes* the changes, and *he is sure* that downsizing helps them cut their payroll, but at the same time, people’s morale reaches rock bottom. Thus, if *they are* patient and persevere, pay-offs will come on-stream and staff will eventually wonder how it was possible to cope before the changes were implemented.

#### ◆ *Analysis:*

The use of third person pronoun: *He says he is..., He welcomes..., he is sure..., they are...*

*Third position* is associated with a point of view outside of the relationship between yourself and the other person with the beliefs and assumptions from both first and second position (Dilts and

DeLozier, 2000, p. 950). Third person language is used when talking about yourself in first position or the other person (second position): *He says, He welcomes, he is sure, they are.*

#### 4.4. Selling

Selling involves getting inside the customer’s mind or what Neuro Linguistic Programming (NLP) calls their mental ‘map’, where the key to success lies. However, many customers find themselves faced with a lot of product features that they don’t need or understand. Hence, establishing a loyal customer base depends on market research and the questionnaires technique.

##### *Case study and useful phrases:*

Middle-aged customers who want a mobile phone for emergency purposes may not be interested in high-performance displays and mp3 features. The selling department should have a clear picture of the prospects’ needs and perceptions and then search for specific tailor-made solutions. Listening to the buying signals sent out by the prospective customers will generally help sales managers shape their linguistic profile and know exactly what tasks they have to assign the sales team to make their products attractive.

##### *a) Technique used – First position*

e.g. *My project will involve* updating the design for our mobile phone model. *I suggest* that the engineering department starts by looking at ways of improving picture and sound quality. Meanwhile, to help increase our sales of 700 m units a year, *I want* the designers to come up with new colours and designs. *I also want* the marketing team to get feedback on the prototype when it’s ready. *Probably the best way to do this* is to organize focus groups or questionnaires. From what *I’ve seen lately*, there are different niche markets: some want to dispose of more functions like multitasking, a completely revamped touch keyboard, high-speed internet access on trains and email in cars, or extended coverage on planes; others feel comfortable with a standard mobile phone keypad and are not so happy about having special browsers or interactive mobile multimedia technology. So, *we’ll* have to attract those customers as well if *we don’t* want to see our market share shrink in the future.

##### ◆ *Analysis:*

First position is rendered by the use of first person pronouns / possessive adjectives both in the singular and plural: *my project, I suggest, I (also) want, I’ve seen..., we’ll have to..., we don’t want to...*

The use of the adverb of modality expressing probability (i.e. *probably*) is a marker of first position. The associated state (first position) involves experiencing the situation or event from your own perspective. The sense of self or “I” is fully associated in your map of the world: e.g. *my project will involve, I suggest, I want, I’ve seen.*

##### *b) Technique used – Second position*

e.g. *Entrepreneurs like you* have no limit when it comes to the march of the mobiles. *You think* this will give a boost to the number of mobile phone users. Indeed, with sales of 700 m units a year, *you can expect* to find new original strategies to increase revenues. *Being on the crest of the wave makes you* frantically *look for* new sources of growth. Even so, *you may become* a victim of *your own success*. *You lead* an army of 1,500 technologists and researchers who have come up with plans to do exactly what *you want*. *A useful advice to you is:* keep on *testing the water* since there are still so many people who are only content with having low priced mobile phones with standard keypads to the detriment of high-tech products.

##### ◆ *Analysis:*

Second position is reflected in expressions such as *Entrepreneurs like you, you think, you can expect, you may become [...] your own success, you lead.*

The use of the metaphors *on the crest of the wave makes you[...] look for...* (meaning: very successful or popular), *keep on testing the water* (meaning: try to find out what people think about an idea or situation before taking action) is another indicator of second position.

The disassociated experience (second position) refers to being able to assume another person’s perspective within the interaction, i.e. you see, hear, and feel what the communication loop is like from that person’s point of view. In other words, “you address your ‘first position’ self as *you*, using ‘second person’ language” (Dilts and DeLozier, 2000, p. 941).

c) *Technique used – Third position*

e.g. *His view is* that the market survey should be modelled on the questionnaires used for *their last market research*. Now, while *he is waiting* for those answers, *he suggests* that the marketing department starts by preparing product descriptions before adding further unique selling features and functions. *He is bound to* bring suitable models for both those people who cannot conceive their life outside web-browsing, email messaging, wireless or multi-platform services in their mobile phones and their opposites who lead a more simple, less demanding lifestyle, not deeply affected by technological changes, and for whom these devices are used as a means and not as a purpose in life. So, preparing briefing sessions targeted at getting feedback on prototype *put him into perspective* and *that experience will help him* learn about the market over there.

◆ *Analysis:*

Third position is rendered by third person pronouns / possessive adjectives both in the singular and plural: *his* view, *their* last market research, *he* suggests..., *he* is bound to..., *he* is waiting for..., *put him* into perspective, *that experience will help him*.

The disassociated experience also involves a meta position or neutral perspective (third position) focused on witnessing the interaction between the first and second positions; thus, the 'observer' position is typically a point of view outside of the communication loop, "a basic and powerful perspective for effective modelling" (Dilts and DeLozier, 2000, p. 941), which uses 'third person' language, such as *he is, him, that person*. Disassociation in our previous example of third position is also facilitated by verbal patterns presupposing distance in either time or space, such as *that experience* and *over there*.

The results emphasize that one of the greatest challenges to salespeople is to discover their customers' buying motives by understanding what shapes their decisions socially and psychologically.

#### 4.5. Labour relations

In labour relations, the emphasis is on building trust and relationships with people, getting along with workers, having leadership skills, helping others to be motivated, mastering interpersonal communication and conflict resolution. This will give a boost to workplace relationships, make work experience less stressful and more enjoyable and guarantee a close bond between union and management.

*Case study and useful phrases:*

An organisation that takes into account the thoughts, needs and expectations of its workforce will support initiatives more effectively, gain more cooperation and productivity, and prevent serious disruption to output. This may lead to a two-way joint relationship between managers and workers; in this scenario, managers sit at a table and focus on what is in everyone's mutual interests. Here is how we will use the same *triple description* technique to show the importance of maximizing workers' productivity and attracting an adequately qualified workforce.

a) *Technique used – First position*

e.g. In *my job I set* clear work objectives for a specified period. *I usually try* to offer a salary plus small merit bonuses to stimulate teamwork and individual contribution. *I now intend* to link performance-related pay to appraisals schemes. *I hold* fortnightly meetings to monitor everybody's progress closely and finally *I carry out* performance appraisals to evaluate work up-to-date. Obviously, whenever *I find* that employees are troubled with working to deadlines under pressure and things get more frantic due to factors *beyond my control*, *I urgently extend* schedules to allow for more reasonable time spans. By doing so *I feel in control, connected* with *my employees's* work and *have a hand* in all my goals. *My staff* are aware that *I like* to push wise decisions to the front line and they always come to *me* for advice if they encounter challenges.

(an adapted and improved version of Trappe's and Tullis's *Intelligent Business. Coursebook – Intermediate*, Unit 2 - Leadership – Audioscripts, 2005, p. 162)

◆ *Analysis:*

Specifically, in *first position*, the participant in the loop uses words like: *my job, my employees' work, my staff* (possessive adjectives); *beyond my control* (prepositional phrase), *I set objectives, I carry out appraisals, I extend schedules, I have a hand* (collocations preceded by 1st personal pronoun *I*); *feel in control, feel connected with* (kinesthetic phrases).

b) Technique used – Second position

e.g. *You shape* the daily schedule for the tasks and activities of each team member, and *you've been overseeing* the department's activities successfully like this for many years. *You know* that it proves helpful to people to count on a strong, visionary leader. They undertake day-to-day tasks, but sound decisions should come from a cool head and *it's you* who has the final say in how the activities are run. In *your view*, learning to delegate is a useful management tool. Once you've done that, it is very important that *you make people feel motivated* and *give them the credit* for their own work. What's more, you also *need to* provide your employees with a sense of space so you *can encourage* initiative and new ideas. If *you've chosen* the most dedicated people to put you in a leading position then *you should let* them know that they will make a difference to the company's future.

(an adapted and improved version of Trappe's and Tullis's *Intelligent Business. Coursebook – Intermediate*, Unit 2 - Leadership – Audioscripts, 2005, p. 162)

◆ *Analysis:*

In *second position*, the participant is disassociated, and is temporarily taking another person's position, addressing *first position self* as "you" (as opposed to *I, me, my*): *you shape, you know, you make, you need* (verbs in the present tense simple); *you've chosen, you've been overseeing* (verbs in the present perfect simple/continuous); *you should let, you can encourage* (modal verbs); *in your view* (prepositional phrase); *you give them the credit for* (collocation).

c) Technique used – Third position

e.g. *He is keen to* reach objectives or goals set out for them, because *he knows* that when workers are appraised or evaluated they'll get their bonuses or increases in salaries based on whether they met those goals. *His belief* is that getting work done through others requires open and productive relationships with workers. Rather than creating a climate of fear, *he prefers* giving clear instructions and realistic deadlines and taking care not to upset employees. *He works towards* creating a positive working environment where employees feel valued and trusted. *He feels* it is essential to maintain the balance of power, not lose his authority even when certain subordinate members take control of projects. *His idea* is to ensure that *he is in tune with* his workforce needs and wants and engage workers via meaningful work and productivity.

◆ *Analysis:*

In the *meta position*, the witness to the interaction receives information about the balance of behaviours in the loop. This position assists in improving the quality of someone's state and relationship within the communication loop. The observer / director position uses language such as *she, he, they* with reference to the persons you are observing: *he is keen to..., he knows, he prefers, he works, he feels, his belief, his idea, he is in tune with...*

In my opinion, the *shifting* of perceptual positions, from one perspective to another, contributes to the ability to understand the flow of events that occur within the communication loop. According to Dilts and DeLozier (2000): "The idea of triple description is that out of this dance of multiple perspectives, wisdom may begin to unfold. The ability to move from my personal map to an understanding of your personal map, and then to an objective position of the relationship between our maps, creates a basis for wisdom" (Dilts and DeLozier, 2000, pp. 1480-1481).

## 5. Conclusions

In conclusion, the ability of business people to observe and move into the different perceptual positions of the individuals they are interacting with is essential in building better rapport, as well as pacing and leading those individuals. Moreover, it is highly necessary for reaching goals which include coming to an agreement in customer care, leading a meeting, putting forward and approving proposals, conducting a negotiation, giving a presentation.



In addition, the benefit we gain is by detecting the interlocutors' word signals, gestures, expressions, and then harmonize one's language with them. Once we discover *how* our business partners are thinking, it becomes much easier to adapt to their mode of perception, learn and incorporate their vocabulary into one's own vocabulary to create a better sense of rapport.

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## **Section IV**

### **Marketing – Management**

## Achieving Business Success in the Fourth Industrial Revolution: The Case of Procter & Gamble

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### Abstract

*In the highly competitive and constantly changing business world that depicts today's global economy, companies that manage to succeed seem to be those that keep their core values and competitive grit whilst adapting to the context of the Fourth Industrial Revolution. A successful company applies strategic thinking in order to compete for the future and manages to adhere to its healthy core values and efficient business practices in its pursuit to create and deliver the right products or services to its consumers. The aim of this paper is to display some key factors for business success and how it can be manifested and to present the situation specific to the Procter & Gamble company as an example of great success within the current economic context. The methodology was based on a qualitative research method. The paper shows that Procter & Gamble manages to adapt to market conditions, to strategically think about the future and to register excellent business results whilst placing the consumer in the center of its preoccupations. Also, it contributes to a better understanding of this successful global company facing the challenges of the Fourth Industrial Revolution.*

**Key words:** Procter & Gamble, company, business success, the Fourth Industrial Revolution

**J.E.L. classification:** F23, M10

### 1. Introduction

A successful economy depends on the state of the businesses that form it and that operates, competes and innovates (Graham, 2003) within specific markets. Since there is a noticeable fierce competition and rivalry on the markets in the age of the Fourth Industrial Revolution (Schwab *et al*, 2018), businesses apply strategic thinking (Toma *et al*, 2016a; Toma *et al*, 2016b) into their business practice in order to stay ahead and to win the consumers' sympathy and loyalty (Toma, 2013; Catană *et al*, 2020; Catană *et al*, 2021). The result can be seen in time as the outcomes of the companies will increase in terms of business success (Sorenson, 2000). Firms acknowledge the given market conditions and try either try to win as much percentage of the market as they possibly can or try to create blue oceans, a new competitive space as they are also competing for the future (Prahalad, 1993). The market is now global and corporations' presence at this level tends to shape the way economies evolve (Grădinaru *et al*, 2017; Grădinaru *et al*, 2018; Toma, 2019a). Thus, this is the scale of the potential impact of a successful global company that matters.

One excellent example of business successes from multiple points of view is represented by the world's largest consumer packaged goods (Esty *et al*, 2016) and one of the most influential companies, Procter and Gamble (P&G). The company is a pioneer creating innovative and creative products, in finding ways to decode what the consumer wants and to be able to deliver on their promise of satisfying their needs in a way that provides customers true benefits at relevant costs.

The aim of the paper is to provide an overview of the P&G company, to serve the purpose of highlighting how a successful consumers goods company looks like in terms of general information, economic achievements, culture, organizational structure, product portfolio and how the firm focuses on the future in the age of the Fourth Industrial Revolution.

The structure of the paper is comprised of the following: the upcoming section provides literature review. The research methodology is highlighted in the third section of the paper. The fourth section is specific to results and discussion. The paper ends with conclusions.

## 2. Literature review

The concept of business success can be defined as “continued trading” (Simpson *et al*, 2004), or be depicted in terms of growth and profitability, or be decoded in various ways, starting from economic performance (profit, revenue, market value, etc.) and ends with the appreciation consumers have for the company’s products or services or their degree of loyalty (seen in the bond they form with the company that can result in mainly choosing that firm’s products and in a high degree of recurring purchase acts). Success can be manifested in terms of (Hill, 2021; Lussier *et al*, 2001; Simpson *et al*, 2004):

- Personal satisfaction the entrepreneur has;
- Market positioning: being an important player of the market (even holding a leading position in terms of revenues, profits, etc.) or having an important place in the consumers’ minds;
- Longevity whilst still being competitive on the market;
- Sustainability, growth and organizational development: being able to build strengths that endure the test of time, being flexible enough as to stay relevant, having the capacity to adapt to environmental / market conditions, being able to access new markets, etc.;
- Social aspects connected to the moral return a company should exhibit for the society, enabling it to develop alongside the business’ achievements and growth;
- Customer satisfaction and the joy and sales generated from being able to satisfy consumer’s need and to fix their problems whilst providing added value;
- Employee satisfaction seen in the dedication they have to reach the company’s objectives and how, in turn, they can represent a great “marketing” form as they interact with consumers;
- Number of employees: being able to hire a higher number of individuals (even a greater number of knowledge workers when compared to competition) and, as a result, to indirectly support their families, contributing to the general welfare in the areas where they live;
- Financial rewards seen as a return on investment for those who risked their capital for that respective venture;
- Capital: having enough capital to improve multiple facets of the business (investing in technology, employee training, etc.) and managing to stay ahead of the competition;
- Luck: chance can also be considered an important factor; a businessman sometimes reaches success without having that specific direction in mind.

In the Fourth Industrial Revolution, there are several factors that can lead towards reaching a favorable outcome for any company, such as: the financial, human and technological resources (Marinescu *et al*, 2013; Toma *et al*, 2009), the leadership (Săseanu *et al*, 2014), the use of business methods (Toma, 2008), the information access, the governmental support (Jasra *et al*, 2011), the business plan (both financial and marketing) and strategy (Toma *et al*, 2016c), the network of stakeholders, the social responsibility of the company (Samy *et al*, 2010; Toma *et al*, 2011; Imbrișcă *et al*, 2020), innovation and creativity (Grădinaru *et al*, 2017; Toma *et al*, 2017a; Toma *et al*, 2018a; Toma *et al*, 2021), or the entrepreneur’s skills and role in creating visionary businesses and investing in their long-term development (Marinescu *et al*, 2017; Toma *et al*, 2017b).

This new industrial revolution is „not only about smart and connected machines and systems” but represents „the fusion of these technologies and their interaction across the physical, digital and biological domains” (Schwab, 2016, p.12). This is why the Fourth Industrial Revolution has made companies worldwide to implementing in their activities and processes artificial intelligence, digitalization (Skilton *et al*, 2018; Tohänean *et al*, 2018; Toma *et al*, 2018b), and sustainable business models (Toma *et al*, 2019b) in order to obtain greater business success.

Reaching success is linked to having consumer driven brands; this, in turn, implies dealing directly and honestly with consumers. Doing so, will not only mean a company would reach its (economic) objectives, but it also enables building strong, long-lasting bonds. Winning within the marketplace implies “a robust process” (Lafley *et al*, 2013, p.4) for crafting a strategy that the company will focus on and most efforts and resources being directed to it. Companies can either focus on a traditional strategy (implicitly on the interests of the firm) or can opt for a co-creation strategy (where all stakeholders’ interests are taken into account). From this point of view, P&G strongly focuses on open collaboration (Agafiței *et al*, 2015), a strategy that enables the company to make “successful innovative connections” (Dodgson *et al*, 2006, p.337), enabling it to have a substantial research and development organization.

Founded in Cincinnati in 1837 by William Procter and James Gamble, the Procter & Gamble company started as a soap and candle making business and ended up as one of the “most visible consumer products companies in the world” (Dyer *et al*, 2004, p.1), a true depiction of business success even after approximately 185 years. The business operates based on core (strategic) values that create their “organizational form in their own unique context” (Tocquingy *et al*, 2012, p.3) as they hire exceptional personnel, treat them with the utmost respect, reward them accordingly and they adhere to values such as tradition, integrity, honesty or fairness. These values become strategic as they are taken into consideration in the company’s decision-making process that has as its final goal achieving success through creating great products that fit the needs of targeted consumers. In return, consumers will reward the company with great sales and long-lasting relationships.

### 3. Research methodology

In order to come to the research objectives specific to the paper, the authors used a research methodology that is based on a qualitative research method. The information used to be able to portray the overall situation of the P&G company as a lesson of best practices and success comes from sources of secondary data, such as articles, books and reports. The literature review was carried out by using electronic databases.

### 4. Findings

The P&G company (Table no. 1) is an example of best practices for achieving business success for any company regardless its size. Started from selling soap and candles, P&G improved their “product and process engineering” (DeVane *et al*, 2016) and, thus, broadened its portfolio as their focus shifted towards building their business architecture on innovation (and, thus, investing immensely in their scientific research activity) in order to boost performance and reach triumphant outcomes (Grădinaru *et al*, 2020). Thus, the focus on research and development became a founding pillar for being able to better suit the needs of their consumers. As a result, the company managed to create (Decker, 1998) a floating soap (Ivory), the first fluoride toothpaste (Crest), the effective and reasonably priced disposable diaper (Pampers), the first really efficient dandruff-control shampoo (Head & Shoulders), to patent safety razors (Gillette), etc.

Table no. 1: P&G general information

Country of origin	USA
Headquarters	Cincinnati, Ohio
Founders	William Procter, James Gamble
Year of establishment	1837
Industry	Household and personal products / Fast-moving consumer goods
Company type	Public

Sources: (Fortune, 2021; P&G, 2021b)

The consumer products giant is “an extraordinarily creative and innovative company” (Decker, 1998) and the impact of this mindset can easily be seen as a direct result within their impressive economic results (Table no. 2).

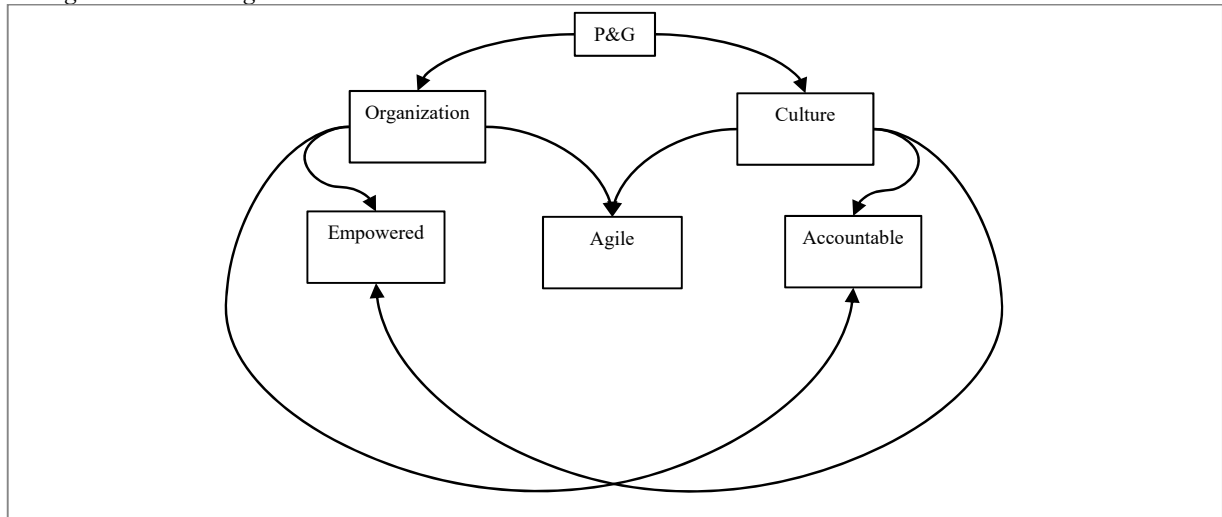
Table 2: P&G economic information

Revenues	\$70,950 million (for the fiscal year ended on June 30, 2020)
Profits	\$13,027 million (for the fiscal year ended on June 30, 2020)
Profits as % of revenues	18.4%
Market value	\$337,366 (as of 22 July 2021)
Number of employees	99,000 (as of 2 August 2021)

Sources: (Fortune, 2021; P&G, 2021b)

Nowadays business environment seeks drives companies towards flexibility, adaptability whilst maintaining a strong, ethical and performant organizational culture (Figure no. 1), P&G being an example of best practices from this standpoint. P&G’s current strategy to better adapt to the global business environment and, implicitly, the company’s specific (targeted) markets, pushed them at the beginning of the 2020 fiscal year to switch to a new organizational structure (Figure no. 2). The company operated based on six Sector Business Units (SBUs) that are industry-based (baby and feminine care, beauty, family care and P&G ventures, healthcare, grooming and fabric and home care) and are accountable for the company’s biggest markets (that they call Focus Markets), generating roughly 80% of their sales and hold around 90% of profits (Procter & Gamble, 2020). The other structures are specific to Enterprise Markets (the rest of the world) that are currently optimized, as they are still relevant for the company due to their market growth rates.

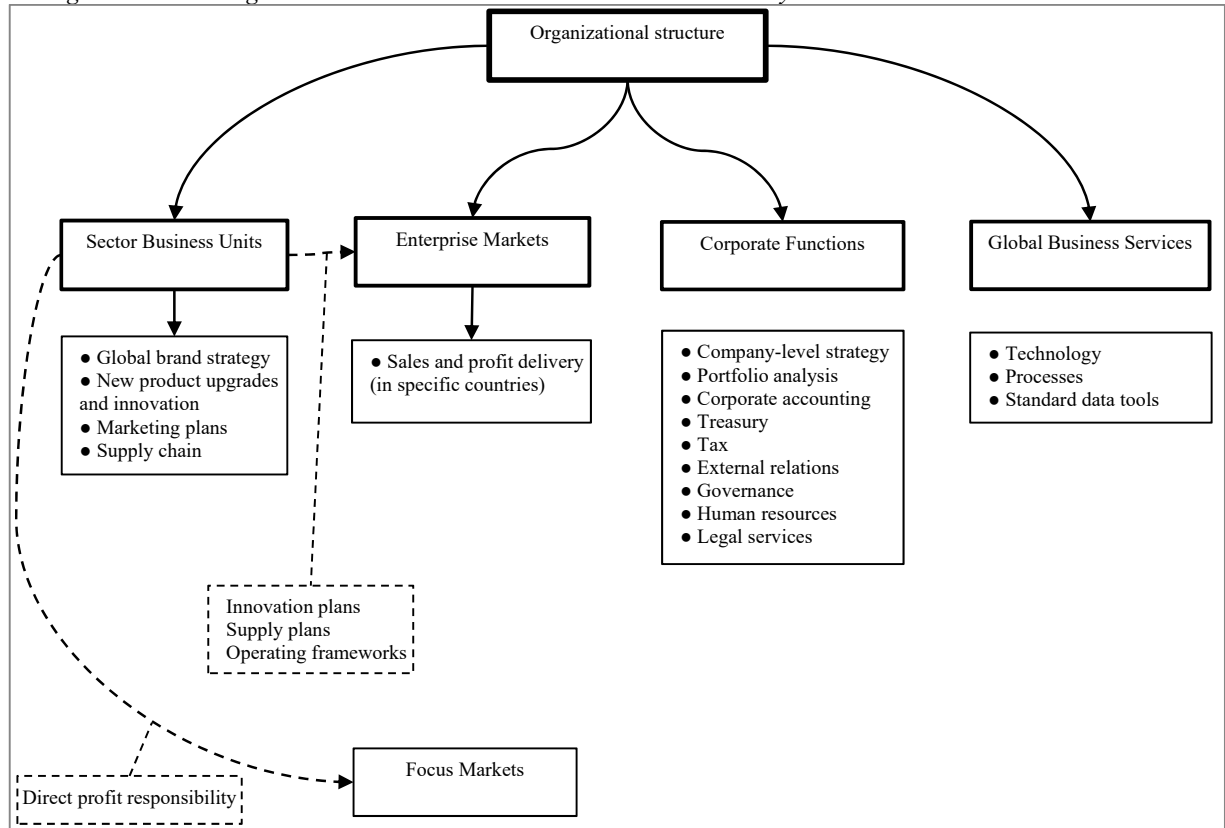
Figure 1: P&G’s organization and culture



Source: (authors’ adaptation after P&G, 2021a)

Due to constant efforts of adaptation, the company’s organizational structure was yet again modified, now having five SBUs (baby, feminine and family care, beauty, health care, grooming and fabric and home care). Thus, the organizational structure is comprised of: Sector Business Units, Enterprise Markets, Corporate Functions, and Global Business Services.

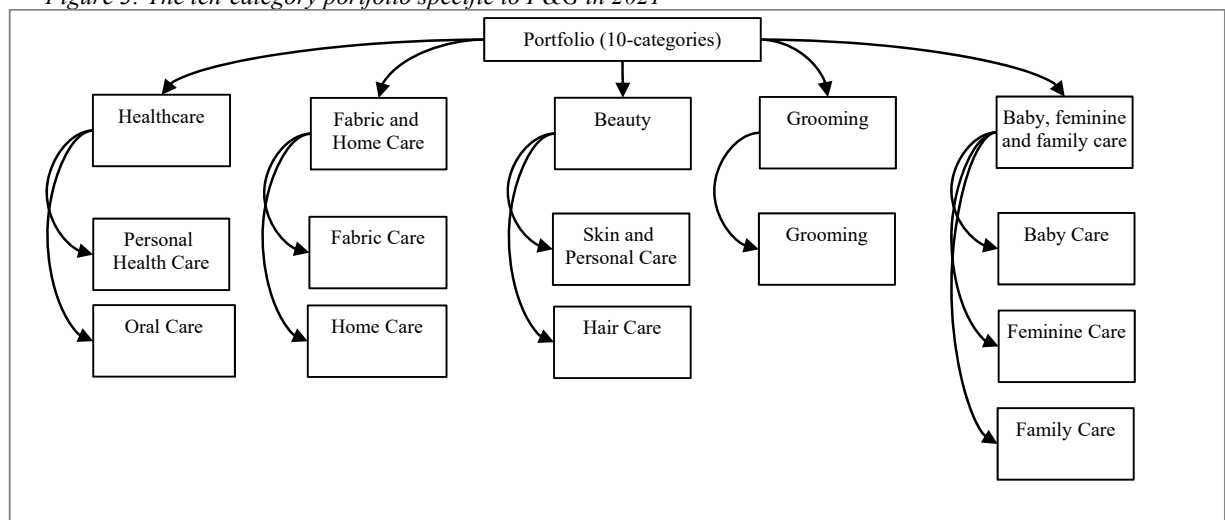
Figure 2: P&G’s organizational structure based on market addressability



Source: (authors’ adaptation after P&G, 2021a)

The strategy change implies a better handling and focus for the product categories (Figure no. 3), better aligned to fit specific customer’s need. The products in the portfolio have a daily-use nature and the focus is put on the value equation: the perceived benefit derived from the product’s characteristics and performance should fit the costs that consumers have to pay when choosing a specific P&G brand. These market offering have one important common element: showing market superiority as the company will keep improving them, test their attributes, align their performance based on consumer’s need, provide value to consumers and position them correctly on the market.

Figure 3: The ten-category portfolio specific to P&G in 2021

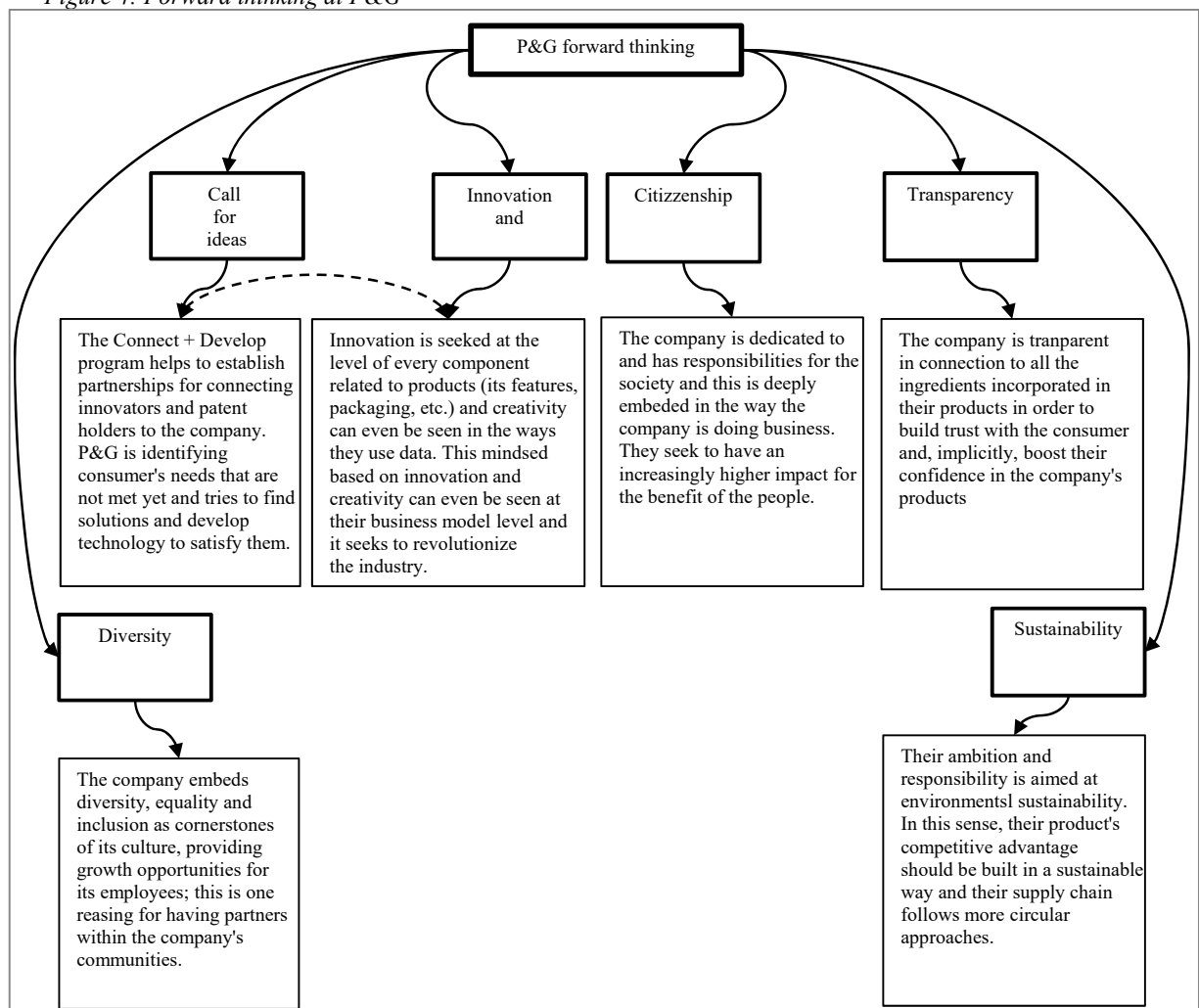


Source: (authors’ adaptation after P&G, 2021a)

The company is a pioneer in terms of revolutionary products (high emphasis on innovation) and market research techniques. This was a result of placing consumers first and recognizing the importance of innovation regardless where it is manifested. The solution for maintaining the businesses’ viability and prosperity is seen in the company’s forward-thinking approach (Figure no. 4). P&G could also attribute its success through its guiding principles (and, implicitly, practices), such as (Decker, 1998):

- The consumer is in charge (listening and understanding the consumer as she - the main targeted segment in P&G’s view - will decide if the company will succeed or fail);
- Build highly qualitative, superior products (in order to provide true value for the consumer);
- Create truly unique brands (to be able to connect the consumer with the brands - positive feelings towards them - within the portfolio);
- Keep a long-term view (the long-term health of the enterprise is vital as it influences the extent to which a company manages to achieve the desired outcomes - to reach the company’s objectives).

Figure 4: Forward thinking at P&G



Source: (authors’ adaptation after P&G, 2021a)



From the abovementioned analysis can be deduced the fact that P&G is definitely an example of best practices of how to achieve business success at the global level.

## 5. Conclusions

The P&G company constitutes a lesson of business success. Its lessons of best practices are quantifiable in the company’s results and close connection with their consumers, a relation built on trust, honesty, transparency; it is also a lesson of how to organize a business to stay competitive in an ever-so-rapidly-changing business environments whilst keeping your values and placing your consumer first. The company is dedicated to following its guiding principles and to have its stakeholders adhere to its corporate culture, exhibits grit in their forward thinking approach, restructures the organization according to simplicity, efficiency and flexibility principles, uses technology and open innovation to improve products in order to be able to be the one recognizable brand in the eyes of its consumers that truly makes a difference and to which consumers are attached to.

The paper shows that P&G manages to adapt to market conditions, to strategically think about the future and to register excellent business results whilst placing the consumer in the center of its preoccupations. Also, it contributes to a better understanding of how this successful global company is facing the challenges of the Fourth Industrial Revolution. This research may be broadened by taking into account other factors that led to P&G’s business success.

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## Creativity at the Heart of Learning

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### Abstract

*The aim of this article is to introduce creativity as a problem of personal development and society in the 21st century. Creativity can be seen as a skill. It is a quality and an asset that strengthens self-esteem. Creativity is an acquired behavior - one that can be learned, taught, tangible and crucial to human development. Creative activities result in the generation of original productions, whose societal benefits can be considerable. From scientific discoveries to cultural creations, including all the transformations in the daily life of individuals, these activities are crucial for adapting human beings to their environment and, conversely, for adapting the environment to capabilities and limits as well as the human level. One of the current challenges of our society is, moreover, to meet the growing needs of creativity and innovation. Thus, the professional world is increasingly looking for creative, flexible and competent individuals, able to perform complex tasks without predetermined procedures*

**Key words:** creativity, communication, personal development, organization, collaboration

**J.E.L. classification:** O30, O35, O39

### 1. Introduction

Creativity is a skill considered essential in the 21st century. Training designers and educators at all levels of education are increasingly wondering how to integrate it into learning activities. Creativity aims to create a new, innovative, relevant, valuable solution that demonstrates elegance over an initial problematic situation. Creativity is often seen as an individual quality, which can manifest both during the process and through the product of the creative process. If each individual has a different developed creative ability and has a different creative potential, the fact remains that all students can exploit their creative potential to develop their creativity. Creativity must therefore be analysed in particular. However, in situations where students encounter difficulties that require cooperation and creativity, then creativity becomes a social process.

The use of limited resources for creation establishes a framework that leads the learner to engage in a creative process. To optimally achieve this need, the student must explore, during the creative process, several new solutions to a problem, guide his reasoning and, finally, select a solution taking into account the context of the situational problem.

### 2. Literature review

According to Article 29 of the Convention on the Rights of the Child, creativity is essential for "the flowering of the child's personality and the development of his or her mental and physical gifts and abilities, to the fullest extent of his or her potential" (United Nations General Assembly, 1989). Therefore, beyond the development of children's intellectual faculties, a task traditionally seen as the sole responsibility of schools (UNICEF, 2007b) becomes a rights-based rationale for educational environments to be conducive to creativity. This aspect determines the promotion of tone, playfulness and confidence, while fostering patience for differences and personal commitment. A supportive environment for the development of creativity must also include incentives from organizations and support from the working group to emphasize the social dimension of creativity.

Creativity proves to be one of the main elements that promotes the development of the ability to communicate with the outside world. In this sense, several authors agree to define it as an ability to produce something new or original adapted to the reality of various situations.

Other researchers present it as the ability to associate ideas in order to form new connections in a scientific, aesthetic or social perspective or propose the possibility of exercising divergent thinking (Guilford, 1950). Whether viewed from the angle of self-knowledge and otherness, or from the ability to give rise to ideas, creativity has no disciplinary implications and affects children as much as adults. It is an entity that is part of a learning process that promotes, among other things, the ability to make choices, to make connections about various information, to combine new elements with those of the past, to put ideas into perspective. appearing, etc. It goes without saying that the teacher who wants to develop creativity in his students must implement certain conditions, such as proposing inventive projects, showing flexibility and openness to the proposals of the participants, as well as to expressing the ideas of each, while showing a certain sense of humour. These conditions refer to the four components of the creative personality described by Guilford (1950), namely fluidity, preliminary flexibility, elaboration capacity and originality.

Dacey and Lennon (1998) also identify a greater tolerance for ambiguity as a key feature of creative people. They are able to deal with ambiguous situations without a frame of reference to guide their decisions and actions, situations where there is a lack of relevant data, where the rules are not clear and where normal procedures do not exist. Instead of asking for more details or giving up because of growing frustration, these people show their creativity by creating frames and structures.

A person who engages in a creative process does so consciously and is able to release a form of energy by trying to understand its contents (Greene, 2004). Unlike creativity, creation is open to discipline, whether it is theatre, visual arts, dance or music. By asserting uniqueness, the person exercises his creativity by engaging in an artistic experience (Dewey, 2005) and a creative process. She thus uses the resources available in her environment to represent her own vision of the world or to find inventive solutions to the problems that arise. Creativity and the creative process are therefore increasingly integrated into the learning content of teacher training in terms of cultural and emotional development of the student. Teachers who accompany students in a creative process must use sensitivity and develop a reflective posture. This is how dialogues between teachers and participants can be developed to establish a form of critical awareness and collaboration.

According to Florida (2014), creativity is a condition of contemporary socio-economic differentiation between "creative classes", which produce professions in which creativity is an overwhelming factor, and other social classes, which would face increasing precariousness in urban environments considered creative. Creativity is nowadays a new imperative for competitiveness. However, although creativity and cooperation are key factors in the 21st century (Hesse et al., 2015) and the growing differences between "creative classes" and other citizens (Florida, 2014), creativity is not viewed in present as an educational priority.

Creativity is the ability to generate, emphasize or use inventive ideas, methods and points of view (Ferrari et al., 2009), most often in a cooperative climate (Lucas and Hanson, 2015). Along with critical thinking and problem-solving skills, to which it is closely linked, creativity is a major part of reflective thinking, namely a non-chaotic, orderly and structured thinking process. Being creative is largely related to the student's cognitive abilities, including analytical and evaluative skills (Sternberg, 2006).

Creativity interferes with social and personal management skills; thus, although related to the arts, it is also a prerequisite for adaptive and innovative behaviors to find solutions to all life situations, including learning and work situations.

Creativity is related to the effectiveness of other life skills, especially: critical thinking, problem identification, problem solving, and self-management. When it comes to a renewed vision for education, creativity is relevant on two levels. First of all, it is intrinsic to the learning process of all students of all ages during the school program. Creativity is a means of creating knowledge that can support and optimize self-education, the "learning to learn" mechanism, and lifelong learning.

Thus, it is essential to promote creativity in order to improve learning processes and education systems. Secondly, the promotion of creativity in educational settings and not only helps children, young people and other students to discover their resources in several disciplines and fields, while developing their ability to think together, to have a New approach to everyday, family, health and

work situations and provide constructive suggestions. Recurring in national documents, creativity and acquired skills, such as promotional thinking, cooperation and self-efficacy, retain their value throughout life. For these aspects, psychologists, such as Vygotsky and Guilford, have argued since the 1950s the importance of creativity by encouraging children's creative development to train them for a changing perspective which, in turn, is a priority because children and young people live in particularly complex environments.

Encouraging creativity by integrating new teaching techniques and building safe educational environments could thus support an overall improvement in school performance, while teaching learners to demonstrate an innovative spirit in life and the world of work. Creativity is amplified from the potential stage to the actual stage as children grow; it is therefore necessary to start encouraging her from an early age. Successful efforts have been made to increase children's creativity by encouraging them to learn simulation game skills. Other success factors include:

- Using initiatives so that children can identify what they like and develop their talents and skills;
- A climate that does not inspire fear in children to express unconventional ideas, in which daily acts of creativity are strengthened and the ability to solve problems independently is encouraged.

### **3. Research methodology**

The problem with this research is: How does creativity promote learning? What kind of environment can the teacher build so that emotions are a lever for learning and not an obstacle? Beyond the issue of educational language policies, this empirical research has made it possible to test a possible way of teaching action that promotes the emergence of emotions that facilitate learning through the creative process. The observation made in this research is part of a qualitative typology. From a methodological point of view, Snyder (2019) argues that a study of the literature is an excellent approach to synthesize progress and results in a meta-discipline. After him, but also after Wong et al. (2013), semi-systematic research or narrative review approach (semi-systematic approach or narrative review approach) are interesting when a topic has been worked on by researchers from different disciplines, but can be an obstacle to a complete review system. This justifies our choice to identify and synthesize some of the potentially relevant studies in terms of creativity at different school levels: primary, secondary, pre-university, university, and other systems. We thus want to make an inventory of the degree of advancement of research on creativity in scientific studies in the sciences of education.

This article is based on a two-part semi-systematic research:

- a study on the knowledge mobilized
- a study of the definitions, theories and models underlying creative journals.

We analyse the theoretical context (subjects and levels of education) as well as the mobilized knowledge.

### **4. Results**

#### **Creativity, an educational and social issue**

Creativity in education is a complex concept that should not be reduced to divergent thinking. Creativity is an ability by which subjects demonstrate their ability, individually or as a team, to develop a process of designing a solution adapted to the context of the situational problem and considered new, relevant by a reference group. Creativity is therefore subjective and contextual in nature, as it is defined in relation to the relationship between the context, the creative subject and the reference group that judges creativity. A solution produced by schoolchildren and considered creative by teachers may not be seen as creative in another context and experienced by other subjects. Thus, students can be creative when creating new musical instruments from everyday objects. These musical instruments are a solution that can be considered creative, new and relevant by teachers; however, outside the school context, this solution may not be considered creative by other reference groups. Creativity therefore has a contextual aspect and a subjective assessment by a reference group.

Beyond school, creativity is a key skill in meeting the social challenges posed by post-industrial knowledge societies. This ability is considered a key skill for both contemporary and future society.

#### **Creativity at the heart of learning**

In educational circumstances, creativity was first analysed using personal actions, but also perspectives of cooperation in the context of learning that involve tasks of a certain scope. Creative processes in education can take place during individual or collaborative activities. In this second case, co-creativity combines factors related to collaborative problem solving and others related to the creative process. Thus, we consider creativity as a repeated process that can be developed both individually and through cooperation.

#### **The pleasure of learning**

Loving learning is perhaps one of the best attitudes that can be developed in students. With a positive relationship with knowledge and learning, life can be an extraordinary world to explore and tame; a permanent adventure with ever-widening and deeper oceans of knowledge; a treasure trove with more access than ever to any kind of knowledge. Also, having a positive relationship with learning, students can develop passions from which to flourish throughout life. And to develop a good relationship with learning, there is nothing better than developing a creative relationship with the world.

#### **The environment, the key to stimulating learning**

The learning environment is not limited to the physical space of a classroom. It can stimulate thinking and learning and can also shape learning interactions. It is the one that offers the conditions of a culture that values enriching discourse, problem solving, risk taking and stimulating learning opportunities for children. If created in collaboration with students and well designed, the learning environment can encourage children to be curious, to ask questions and to make their thinking visible in various ways, because they feel comfortable taking risks. It is important that the learning environment to be culturally, linguistically and developmentally appropriate for all learners in the community. Not only that the students participate more in their learning when they see themselves in their learning environment, but when they participate, they are able to manage their behavior and relationships with peers and adults. In this way, the learning environment can influence the child's ability to self-regulate.

A dynamic and ever-changing context requires the adaptation and modification of pedagogical approaches. The student is no longer considered as a passive receiver of the transmitted knowledge, but as an active participant in the acquisition of this knowledge. This approach requires a profound change in the teaching process and provokes the traditional hierarchical relationships between teacher and students, as well as the physical learning space.

Nowadays, the learning space needs to be flexible and dynamic in order to be able to adapt to the changing needs of the learning process.

This flexibility facilitates changes in teacher-student interaction and improves the performance of several learning methods, such as classroom teaching, learning as an equal, group learning, etc.

Space must create 'learning opportunities', ie it must facilitate research and the acquisition of knowledge and skills. The interaction between the design of physical spaces and the integration of technologies and new pedagogical methods create a more holistic perspective of the "learning-oriented design concept".

#### **Creativity as a tool for educational design**

With the Corona crisis, all teachers have to improvise as distance teachers. Indeed, rather than simply applying an instruction (e.g., putting exercises online), this crisis can be seen as a great opportunity to get out of the routine, to rethink teaching, to relate to learners, to be creative. , to take advantage of all the resources available.

The Corona crisis will go down in history, among other things, because it has allowed a part of humanity to learn and work remotely on a massive scale. However, there could be an unfortunate confusion between the establishment of an emergency mediated educational practice and distance learning. In both cases, the issue of evaluation remains primarily.

The establishment of an educational practice mediated in emergency situations is characterized by the installation of solutions to continue the educational dialogue between students, teachers, institutions and other interested parties. These different actors try to face the challenge, to double their solidarity and creativity based on distance education experiences.

While creativity is more naturally associated with the arts, whether it's the visual arts or literature, it can be developed in disciplines or subjects that are not generally associated with creativity, such as history, grammar, or science. Given the concept of creative margin, creativity can be developed by studying disciplines that may seem too rigid or based on immutable laws, to allow students to be creative and potentially make them miss important content. History, for example, may seem too rigid when viewed as a mirror of the past. However, if we think of it as an interpretive discipline in which sources and testimonies serve as a ground for establishing facts and developing a deep understanding, then the process of historical research and the creative process have much in common.

### **The creative use of digital technology for learning in the 21st century**

Based on the model of Chi and Wylie (2014), we distinguish five types of digital use in education depending on the involvement of students:

- passive consumption,
- interactive consumption,
- content creation,
- content co-creation
- participatory co-creation of knowledge.

In order to support the creative processes in education, we propose to engage the student in creative processes of knowledge construction at individual or collaborative level. These digital uses are related to content creation, content co-creation and participatory co-creation of knowledge.

Creativity will be one of the first three skills required by future employers, and the advent of digital technology in schools allows us, as professionals, to set up learning situations in which students can develop this creativity autonomously and regularly. How? In my opinion, the use of digital technology by students allows them to express their understanding of a concept using the digital tool of their choice, and the creation of the way of expressing the notion previously taught is completely personal for each of them. That is, the teacher's role is to teach the concept or notion in various ways, to clearly explain the expectations and content required in the paper so that the student can refer to it during the work sessions, to provide varied and differentiated resources for all students and finally, to provide support and supervision during the working sessions. In this perspective, the role of the student then becomes that of the creator. In other words, following the teacher's guide, the student can create a variety of digital products that reflect their understanding.

With a clear pedagogical intention, the use of digital technology in the classroom can become a powerful lever for the development of students' creativity, because it is our main mission to prepare our students for the complex life that awaits them. In the second part of the article, we will present different creative uses of digital technology, such as learning creative programming, educational approaches of creators and educational robotics.

## **5. Conclusions**

Creativity is the ability to transcend traditional ways of thinking or acting and to develop new ideas, methods or objects. It's a skill. Running a marathon is also a "skill", as is solving complex equations or reciting a Shakespeare poem. Creativity is therefore a skill. Although for some it seems natural, anyone can develop their creativity with the necessary time and effort.

It transcends traditional ways of thinking or acting. To transcend means to "exceed," that is, to recognize the limits of what already exists and to try to break them.

She develops new and original things. The key word here is "development." Creativity goes beyond imagination, because creativity develops itself. If it's an idea, it means confronting the world to verify it. If it's a process, it means testing how it works. If it is an object, it will have to be "created", that is, realized.

For a teacher, creativity remains strongly associated with the individuality, personality of a student, as well as the ability to generate unique original productions.

Today, researchers believe that creativity is a process of mobilizing the cognitive mechanisms that are part of the general cognitive functioning (executive functions) of the individual. In other words, the underlying functions of creativity are not specific to this skill. Cognitive models and current studies have repeatedly shown that creativity can be learned and can be the subject of classroom learning.



If we know that creativity exists in all individuals, that it can develop over time and through learning, we cannot ignore that it manifests itself in different degrees depending on the individual and the situation. What must be remembered from this approach is the level of expression that, for a teacher, what is called ordinary creativity is what the teacher can integrate into his teaching methods.

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## The Leadership of Primary School Principals and the Academic Success of Students

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### Abstract

*This article aims to analyse the impact of the leadership of primary school principals in Dâmbovița County on the educational act. Students' academic success and current management approach can improve their leadership skills. It also takes into account the effect of the school, social and administrative environment on the exercise of leadership by school principals. The conclusions of this analysis of the management of primary school principals propose the inclusion of a leadership course and a practical internship in the initial training of principals and the support of new principals in the stage of professional insertion. Thus, a tool is needed to contribute to the development of the leadership of school principals, supporting their professional development. It is important to take into account the professional development project desired by each director, given the evolution of the profession imposed by the new social expectations and the constraints of the context-actors-institution interrelationships.*

**Key words:** leadership, principals, student success, planning, change

**J.E.L. classification:** M12, I21, I25

### 1. Introduction

Education is a major challenge for EU countries. Everything there is a priority to the point where in education, the objectives of access take precedence over those of quality, especially since the objectives of quality in education require that each actor, regardless of the organizational level at which it intervenes, to contribute, by adopting essential changes in practices.

The design of the school structure has become that of a community school, democratic and responsible, which involves parents for a better success of students. Thus, there is a need for a leadership of school principals that must be translated into a school management that creates synergy between the different actors and the stakeholders of the school, so through openness. Leadership thus becomes a means of building the school team, taking into account the diversity of its players. As a process of influence, practicing it requires certain skills on the part of school principals, such as problem solving, understanding social situations, cognitive skills, vision, and the ability to inspire and influence others. The school principals represent the locomotive of the school that leads its administrative and pedagogical functioning, hence the importance of their efficiency.

In many ways, it can be said that school principals play an important role in the school success of students. The literature on this topic presents them as a key factor in school performance: as local supervisors, their daily support for teachers in solving their teaching difficulties through pedagogical monitoring is invaluable. It makes it possible to establish in school a relationship that is a source of assurance and trust among teachers, which influences the achievement of educational goals and, therefore, the school success of students. Teacher support encourages school principals to cultivate and train to cope with the constant changes in the educational environment. In this reflection, we postulate that this leadership of school principals is fundamental, insofar as they are the guarantors of the school climate and the commitment of teachers to their tasks.

The impact of school principals' leadership on student learning or methods of assessing their leadership is overwhelming. This reflection on the impact of school leadership on student learning aims to show that the leadership of primary school principals contributes to the improvement of

teaching practices, and therefore to the success of students, to propose an approach to evaluating their leadership in order to support better performance.

## 2. Literature review

Organizations have been looking for managers since the 1960s. Since the 1980s, the economic crisis has led recruiters to look for managers who are able to communicate, to act in such a way as to guide workers to a dynamic vision of the organization. They should be able to behave ethically, motivate members of the organization, and be persuasive. These top managers owe their credibility to their authority and moral integrity. Nowadays, the good leader is the one who is able to manage with a vision of the future of the organization (M. Krünger and J. Scheerens 2012). This means that in an increasingly complex administrative context it is no longer enough to be a good manager. A good leader must also be able to discern certain elements of reality that others are escaping, create a mental picture of the situation he wants for his organization, and translate it into actionable guidelines by mobilizing all organizational actors.

Leadership is therefore an administrative phenomenon that has emerged to respond to the blockages caused by the dogma of bureaucracy that requires centralization, standardization and regulatory standardization of management. The work of social psychologists, labour sociologists, administrative researchers, political scientists, anthropologists and other specialists continues to enrich the concept and clarify the perception of the phenomenon in education (M. Fullan, 2015; K. Leithwood, 2012; J. Roque, 2017; M. St Germain, 2002).

Understood differently in the literature, leadership is considered either a professional behaviour or an administrative role or function. In any case, it goes beyond management, as it allows the manager to develop adaptive skills in his management practices to adapt the service offer to the specific needs of the demand. Through this openness, leadership allows for a decentralization movement that creates synergy between different actors and stakeholders in education. As a result, it becomes a means of equity and social justice by taking into account the diversity of actors and situations. Thus, there are inevitable links between management and leadership, because, as a process of influence, the practice of leadership requires from the manager certain skills such as intelligence somewhat above the norm, extraversion to communicate more easily with others and the spirit of openness. He must also demonstrate problem-solving skills and vision in relation to its context and compelling realities (Spillane et al., 2008). This vision will enable him to gain the support of all for his ambitions for change by pushing their limits, to establish a culture of success for all and to give meaning to everyone's daily life.

Leadership is considered in the literature either as a professional behaviour, or as an administrative role or function, or as a process (P. G. Northouse, 2016). As a behaviour, it is related to the vision that the manager projects on the organization, to his ability to sell his ideas and to obtain the voluntary membership of the members of the organization. He appreciates the way he gets results.

Management as a role or administrative function is supported by the notion of internal and external responsibility. In the role assigned to him, the leader establishes congruence between his action and the expectations of the beneficiaries, in order to ensure the success and effectiveness of the organization.

Regarding the management process, it is perceived as a dynamic of developing the professional capacities of all the actors of an organization in order to initiate change. Therefore, it prevents decision makers and employees from being stuck in their traditional roles. The change brings everyone back to common goals, to negotiation to try to solve the priority issues of the moment and to promote achievement.

This is why leadership is also defined as a process of innovation and learning, the purpose of which is to establish a culture of sharing ideas, persuasion, action, to ensure the development of all players.

Some authors in the education system distinguish leadership management. For them, management deals with business planning, financial management and human resources according to the established rules. In terms of leadership, it influences the common conception of the structure, its missions to increase the capacity of actors to improve the missions assigned to them. Thus, K. Leithwood (2013) identifies five principles that contribute to the efficiency of a school structure. It

is about giving up control, taking into account the specifics of the environment, delegating decision-making power, establishing a culture of collaboration and directing all activities towards student success.

As for M. St Germain (2002), he deals with constructivist leadership and proposes about forty criteria on which to base management's distinction.

Other authors consider the two phenomena in a complementary way, because most often, in order to exercise leadership, they must be in a decision-making position, a source of opportunities for action (P. G. Northouse, 2016).

However, the educational leadership, depending on the complexity of the field related to its human nature, requires an elucidation of the phenomenon.

We note that leadership is a dynamic phenomenon and not a static one. Regardless of form, it relies on an individual or a group to involve all actors in an organization in improving human relationships and outcomes. This phenomenon parallel to the administrative phenomenon is a powerful means to create a culture of change through a set of activities and communications through which the manager-leader influences the behaviour of the actors without imposing himself.

Numerous studies in education have confirmed the bureaucratic nature of the administration of social structures, mainly of primary and secondary institutions.

The important role of the principal in establishing a calm school climate is demonstrated (J. Hattie, 2009; V. M. Robinson, 2010). The ever-changing socio-cultural context inevitably generates new phenomena in front of which players, mainly school principals, need to be equipped to better manage these emerging issues. As stated by S. Raynal (2009, p.3) “In a rapidly changing environment, with increasing market pressure, states need to constantly adapt to better respond to the citizens of each countries.” This perception of reality is much more important in the social sectors of human activity such as health, education and social assistance.

### **3. Research methodology**

For this case study, a mixed method approach was adopted. This methodology has proven to be particularly useful in examining contextual differences in curricula, as well as the perceptions of education professionals and students from four schools located in Targoviste. The schools that participated in the study were public and had the status of a high-performing school.

The study used both qualitative and quantitative methods to allow a better understanding of individual experiences. During the two-week intensive visits, the researcher conducted individual interviews and focus groups with members of management, teachers and primary school students. Team members also participated in lessons as observers and visited school facilities.

### **4. Results**

As the school is a social reality, it is subject to human and moral constraints involving school principals, despite the imposition of predominant bureaucratic management. In these types of organizations, it is useful to take into account values and ethics, which complicates the practice of school management. In addition, the exercise of school management takes place in a context of complete decentralization of education in which teaching and human resources are transferred by the state to schools through town halls.

All of this makes the role of school principal a very demanding task in terms of responsibilities in achieving educational goals, in terms of managerial and relational skills, and educational problem-solving skills. These requirements require proper school management in which the exercise of leadership by school principals seems essential. Leadership in education is a profession of human interactions that requires mastery of high relational skills essential for building credibility. This credibility is based on both management and pedagogical skills. However, this exercise needs to be regulated and we believe that a formative assessment of this leadership can contribute to this.

In order to ensure the quality of basic education, the ministry, in addition to adopting texts and policy measures for the development of the quality of education, carries out actions for the creation of diversified structures, planning, management. In this regard, many efforts have been made to streamline the system from a management point of view. This is highlighted by the political,

administrative and pedagogical strategies and programs aimed at teaching effectiveness and academic success that have been developed and implemented.

For example, the Education Development Plan has made it possible to increase the educational offer and train teachers. Improving access to education has been achieved through the construction of school infrastructure, the massive recruitment of teachers and the institutionalization of the professional training of school principals.

### **The conditions for the exercise of leadership by school principals**

At the end of their vocational training, primary school principals rarely have access to continuing education, in the sense of strengthening their ability to manage the school team, to encourage them to renew their skills. Under these conditions, how can they prioritize certain learnings related to school-specific issues? If we take into account, for example, students' reading difficulties, which are common to all schools, school principals should be trained in new approaches to teaching-learning to read, interacting directly with teachers to improve reading learning. The development of school principals is therefore essential to build their capacity to support teachers in implementing effective teaching / learning approaches.

Primary school principals should be able to:

- 1) to plan and carry out school activities properly according to the guidelines of the ministry;
- 2) to mobilize internal and external financial and human resources for the benefit of teachers 'and students' learning;
- 3) to establish harmonious relations with school actors and stakeholders;
- 4) to improve the teaching-learning conditions for the academic and social success of the students;
- 5) to communicate for a serene learning climate, imbued with respect and trust.

It seems essential to specify the dimensions of these five capacities in terms of the resources to be mobilized by school principals in order to make them operational. The first two skills are management. This involves "proper planning and conduct of school activities in accordance with the guidelines of the ministry", a managerial skill which consists in coordinating educational activities in accordance with official curricula and provides guidance, guidelines and information on rules, official texts and school life. their observance by all actors. In a word, it is about directing the administrative life of the school in the sense of achieving the objectives of the mission statement.

The second ability, "to mobilize internal and external human and financial resources for the benefit of teacher and student learning" requires political skills that consist of establishing useful alliances to obtain the material, human and financial resources necessary for the operation of the school. It also involves the development of positive collaborative relationships with equal directors, but also at decentralized and central levels. These relationships are essential for access to information and training networks, which are a means of visibility, broadening the professional horizon and access to opportunities for professional development. It is also a matter of acting strategically towards the educational community of parents, town hall and social partners, associations and NGOs working in education.

The other three skills refer to leadership: the third skill, "Establishing harmonious relationships with school actors and stakeholders" is a social skill. Running a school means collaborating, because in human occupations, the need to work together is essential for actors. As a leader, the school principal should explain his or her positions and decisions to teachers and students, discuss them with them to take their views into account. Therefore, it plays a mediating role between actors in case of conflict. Another dimension that requires collaboration skills is the change of status management: in fact, graduates of training schools and young principals in vocational integration experience a hybrid status: reaching training with the status of teachers, they find themselves in the field after only one year with director status. This creates a social distance between them and the other members of the school organization.

The fourth skill is to "improve the teaching-learning conditions for the academic and social success of students." The school principal must maintain his / her teaching expertise in order to further invest his / her knowledge and experience in supporting teachers, in order to create the conditions for a professional culture. This collective culture makes student success an organizational priority around which all management, teaching and learning activities are designed, both teacher and student learning. The principal provides valuable support to teachers by fostering dialogue. It

involves the family and the community in finding solutions to learning problems, such as those of students with integration, learning or adjustment difficulties. In a word, it is about creating favourable learning conditions for all students without exception.

The fifth ability “to communicate for a serene, respectful and trusting learning climate” is for the school leader to communicate in order to convey the values that represent his or her vision of the school to the other actors. This communication is necessary not only to establish dialogue with school actors and stakeholders, but also to manage the ethical issues related to the complexity of educational situations, marked by budget cuts, emerging issues such as technological deficit, inclusive education, overload, school violence, civic education. and so on. It is a means of involving and mobilizing internal and external actors, such as parents of students and other partners, around the crucial issues of the school. By explaining the stakes of responsibility of each internal actor towards the community and the education system, by sharing the promising pedagogical approaches used by certain members of the school team or proposed by certain partners of the education system, the principal appreciates the efforts and promotes everyone's commitment to a common vision. at school. By accompanying teachers during class visits, he commends the efficiency of some and encourages the efforts of others, presenting good performance as a product of collective work. Given the importance of these leadership skills, it is important to develop them among primary school principals. As the initial training program does not allow for their development, it is essential that continuing education address this key issue for teacher training for the academic and social success of students.

## 5. Conclusions

Through this theoretical reflection, we sought to analyse the situation of primary school principals in Dâmbovița, to show that their leadership can have a positive impact on student learning. Management is a more encouraged practice than leadership, because the education system is part of bureaucratic management. However, the human nature of education and the constant and multifaceted changes in the educational environment make it essential to adopt more flexible, leadership-friendly approaches. Although some authors attribute leadership status to directors who are effective in learning, it must be acknowledged that leadership is difficult in a bureaucratic environment and that the administrative environment as a whole must evolve.

However, as the theoretical content is not representative of the action of the principals-leaders in reality, we consider as a continuation of this reflection, an empirical study to target real practices and operationalize proposals and training tools.

The world of education is part of a constantly changing social context in which it is not easy to do quality management work on structures. The organizational environment is facing new phenomena that include tense relationships between individuals or socio-professional groups related to the diversity of conceptions about school, the new social needs of populations, but also the loss of civic and educational values, all things that make the educational environment it is changing and facing a tacit challenge to the goals of the school that no longer meet the social expectations in terms of performance, values and growing requirements in terms of teaching. In addition to the low school performance, these situations often affect the motivation of the actors. The lack of personal and professional challenges leads to mind-boggling situations, such as this new rule of public management that requires us to produce more with less resources. However, the analysis of the potential of the workers shows that everyone's production could be improved, or even doubled, if certain conditions are met, without prolonging their work schedule, without pushing them to go faster, but by making them imagine. challenges, to take responsibility by channelling all their energies towards the achievement of new organizational and professional objectives.

The role of school principals must therefore be understood in this regard: to cope with change by making decisions capable of mobilizing all actors around essential, academic success. In this sense, leadership opens up multiple perspectives for action.

The management of school principals must be taken into account on an ongoing basis, as human situations are constantly changing. During initial training, training devices such as hands-on training and analysis of observation-based practices could improve the perception of graduate management on the one hand and positively influence that of school principals, thanks to sustained interactions

and analytical approach through the student observation sheets, the content of which could lead to an explanatory interview between the students and the principal.

Another means of training the person and the professionalism of the future directors is to use the portfolio throughout the initial training as a tool for analyzing the professional project of each "trainee". A reflective analysis of this tool at the end of the training could participate in the construction of a professional development project to be supported by the educational supervisors.

Another way for the initial training structure would be to involve successful school principals in apprenticeship in theoretical preparation, in the form of conferences-debates, to share their experiences with future school principals.

The content of the training program could also be enriched with a leadership course that includes a study of the school environment. In this context, the school environment would serve as a framework for several initial training activities.

We believe that a further empirical study of the leadership skills implemented by high school principals performing in student learning would make it possible to update these skills to make them more relevant.

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# Perspectives in the Evolution of Human Resource Management in Multinational Organizations in Romania

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## Abstract

*Due to the changes that have taken place in contemporary society, many of the organizations that offer goods and services on the market, tend to reorganize their human resources departments, which are the active and determining factor of their activities, to direct them to customers. A growing concern of the human resources division is ensuring competitive advantage, progress, and development, all of which are highlighted by its capacity to adapt constantly to changes in the business, technological, economic, social, and, last but not least, to the demands of the contemporary society that places a need for performance, success, and competitiveness among the primary factors that can contribute to solving the major problems. The essay examines the methods used in Romanian multinational corporations for managing human resources.*

**Key words:** management, human resource, organizations, leadership

**J.E.L. classification:** M11

## 1. Introduction

Globalization has a significant impact on human resource management. Managers are bound to gain and sustain a competitive advantage. Therefore, it is essential for multinational organizations to have effective human resource management and a greater degree of involvement of their employees. Employees become the most essential values for multinational firms as knowledge bearers as a result of the knowledge-based society's significant influence on human resource management, which makes it a crucial resource for the success of organizations. The effectiveness and caliber of an organization's workforce determines its ability to compete in international marketplaces. The CEO or founder of smaller, entrepreneurial enterprises struggles to draw in, keep, and inspire talented, young, and advanced personnel with experience in technology.

The relationship between human resources and competitiveness has become more obvious in large, international firms, and HR practitioners are being asked to assist in fostering strategic clarity across the organization. Organizations are acquiring steadily increasing value in the globalizing economy by utilizing the potential of their people resources in terms of skills for organizational success. A strategic course of action is necessary for making competent decisions. Measures alone, though, are insufficient. Human resource planning peaked about the same time as strategy, in the late 1980s and early 1990s. As human resource directors put more effort into reorganizing, deploying information systems, rethinking their own procedures, and developing new partnership-oriented abilities, human resource strategy changed. Companies like Coca-Cola, Whirlpool, and others are actively searching for new approaches to develop practical yet creative tactics for individuals that will directly support stock price goals and shareholder growth expectations. The competency measurement technique, which magnifies the links between people and success as well as the context and boundary circumstances that influence these connections, is a crucial component of increased global competitiveness.



The introduction of employee experience as a process that reflects customer happiness has been one of the major improvements in human resources in recent years. The use of human resources has changed because organizations with highly engaged employees are 21 percent more profitable than those with subpar management. The role that human resource management plays in this context goes beyond merely integrating a slide into the workplace and involves putting the correct framework, culture, and tools in place to maximize employee satisfaction, performance, and retention.

Dynamic and growth-oriented organization requires efficient human resource management in a rapidly changing environment. Organizations strengthen their market position only by combining the efforts and skills of human resources, and the capabilities of employees must be constantly used. Any organization will have adequate human resource management to improve a person's capabilities, to develop the team's team spirit, to obtain the necessary cooperation and to promote organizational effectiveness.

Existing organizations, regardless of their size, can foster an entrepreneurial orientation towards developing and maintaining human resource management practices in terms of assessing autonomy and risk-taking. For every human resource practice, there are design options that are, in fact, options for promoting and consolidating the different characteristics and behaviors of employees.

The research study focused on the following aspects: identifying effective practices to implement human resource policies in several organizations, analyzing human resource development strategies to excel in a fast market, competition and methods that support these strategies. The functions of any organization are based on combining human resources efforts to achieve the common goal. The most important challenge is to channel resources and make them as efficient as possible. As change becomes inevitable, it requires employees to act "just in time" on these changes. By adopting an appropriate strategy, an organization will be effective if all members are motivated to perform at the highest level. When managers are efficient, the result of the leadership process is the key to a strong team base. A challenge for managers is to encourage employees to perform at the highest level. This is the essence of teamwork without which the corporate goal could not be achieved.

The topicality of the research study is based on the fact that human resources are the main resources of any organization, which are a decisive factor in determining their success or failure, in any of its phases. The research study aimed to evaluate the effectiveness of human resource management in the organization. Therefore, the strengths and weaknesses of the human resources management system have been identified and recommendations have been issued to address the system's shortcomings.

Human resource management makes the best possible use of individuals to achieve organizational goals. Today, organizations around the world face critical challenges, and survival has been linked to the development of new human resource capabilities. It becomes imperative to find opportunities through these emerging challenges, such as globalization, change management, investment in human capital, growth, and so on. Human resource strategies can be used as a vital tool for success. Achieving organizational goals can best be achieved through procedures that use human resources as the primary resource in organizations. Human resources are an asset of strategic importance to organizations. Therefore, human resources policies are geared towards achieving the goals of organizations.

## **2. Literature review**

Human resource management is a critical component of practically all firms in the modern economy, and it is just as vital as technology or corporate management for planning and promoting strategic growth. The digitization of human resource management, particularly the application of technologies like analytics, digital work, artificial intelligence, and performance management, has played a crucial role in its growth in addition to the increased emphasis on work experience and workplace culture (Boxall and Purcell, 2016). The role of the human resources manager has become increasingly important in organizations, helping them to transform from organized structures in the traditional style, into new, flexible structures. Acquired skills can stimulate motivation as well as production (Storey, 2017).

The performance of the organization is supported by effective human resource management. Employers' main worries are issues with recruitment, compensation, pay management, and even employee involvement. Human resource management is now more important than ever. It is not just a structure created to deliver goods and services, but also a system of choices and actions involving people's participation in attaining objectives (Kellerman, 2019).

Human resource management is a strategic approach to employment, development and well-being of people working in an organization. Human resource management involves all management decisions and actions that influence the relationship between the organization and its employees - in other words, its human resources. The human resources department focuses on maximizing the human resources available to the organization and improving employee performance to achieve its goals. In practice, human resource management is a tool used to try to make optimal use of human resources, to encourage individual and professional development. For an organization to achieve its goals, it must have employees to help it achieve them (Browning, 2018).

Personal development is not only beneficial for employers, but also for employees in order to pursue their own goals and career interests, becoming more self-confident and more autonomous. Additionally, the advantages taken into account include the identification of areas for self-development of employees through formal learning (such as participation in conferences, e-learning, and conferences), work-based learning (such as completing special projects, listening to coworkers, and taking on new responsibilities), self-directed learning (such as reading academic and industry texts), and professional activities (such as training or mentoring others, networking with other professionals). Leadership is a management approach through which managers contribute to the setting of strategic goals for the organization, while motivating individuals within the group to successfully perform tasks for those goals. Leadership involves establishing a clear vision, sharing the vision so that others will follow it willingly, and providing the knowledge, information, and methods to achieve the vision. Leadership is the ability of a person or organization to lead or guide other people or organizations (Bustin, 2014). Today, people are increasingly recognizing the importance of leadership in organizational development. The motivation process plays a very important role in any organization. Motivation is a process that leads to increased employee productivity, meets the employee's needs and thus creates the desire to work according to his abilities, ensures organizational efficiency and determines the loyalty of the workforce. Adapting to changing business environments is an important feature of any successful business. An organization needs its staff to be devoted and committed in order to adapt to change and maintain operations. As a result, the organization is better able to adjust to the constantly changing needs and less resilient than it would otherwise be. Organizational communication aids in the accomplishment of tasks associated with particular roles and responsibilities, the ability to adapt to change through individual and organizational adaptation and creativity, the promotion of policies, procedures, or regulations that support daily activity, and the growth of interpersonal relationships (McConnell, 2003). Organizational communication refers to how an organization's climate and culture - the attitudes, beliefs, and goals that define the organization and its people - are represented, presented, and formed. Organizational communication is primarily concerned with establishing and maintaining relationships with internal organizational members as well as interested external audiences.

Human resource management refers to "practices that aim to help the organization solve efficiently and correctly the problems associated with the presence of employees in a company" (Browning, 2018). Human resource management is "all activities aimed at managing the skills and energies of individuals, in order to contribute to the fulfillment of the mission, the vision of the strategy and the organizational objectives" (Nadeau, 2015).

Human resource management addresses all aspects of how people are employed and managed in organizations. The term human resources management has largely taken over that of personnel management, respectively the previous terminology, including labor management.

A company will gain the competitive advantage in the market more easily if it benefits from the resources necessary to obtain it and from the ability to manage them correctly. Human resource management approaches and initiatives should be in line with the overall strategy of the organization and contribute to the competitive advantage. This has led to the recognition of human resources and investment in them as a source of "competitive advantage" (Browning, 2018), rather than a cost that needs to be minimized. Another side of the concept of human resource management

emerged from the theory of behavior of the organization. Organizational behavior is the study of how organizations work and how people behave in them, in other words, the interface between human behavior and the organization and how it impacts the performance of the organization. Areas of application for human resource management, including organizational design, organizational culture, and leadership are rooted in organizational behavior. Not to be overlooked are aspects related to communication, personal development and employee motivation (Storey, 2017).

Organizational performance will depend on how each organization will be able to provide the human resources it needs, with new skills, skills needed to implement new technologies. Contemporary society faces new challenges marked by the evolution of knowledge in all fields. Knowledge is becoming the main resource for the development of organizations, which are forced to constantly adapt. Under these conditions, the role of information technology in the context of human resource management activities becomes vital in organizations and is accentuated by the phenomenon of digitalization.

Scientists have defined electronic human resource management as the implementation and simplification of their management process by operating on Internet-based technology. Electronic human resource management technologies result from the content of human resource management and are found in the design, implementation of intelligent human resource management systems. The benefits of e-HRM are a way to reduce the number of tasks, to solve a lot of routine administrative activities and to help use more efficient working methods, both for the activities of managers and employees. "To improve organizational performance, managers and decision makers should make human resource management systems more visible, intelligible, legitimate and relevant" (Boxall and Purcell, 2016). Human resources professionals need to focus not only on the needs of existing employees, but also to prepare workers for the future, take care of administrative efficiency and apply their knowledge to improve decision-making, in order to build more confidence in management (Storey, 2017). Theorists have formulated three goals of e-HRM: improving the strategic direction of human resource management, reducing costs and increasing efficiency, and improving customer service (Browning, 2018).

### **3. Research methodology**

The main purpose of the research study is to identify modern management techniques, methods and strategies aimed at personal development, leadership, motivation and communication and which are used by managers to achieve performance in the organization. The relationship between the managerial system and the human resources management system shows that the effectiveness of human resources management, which uses human capital to achieve and maintain organizational performance, determines the overall quality of decisions made at the level of the managerial system of the organization.

Specific objectives underlying the study are:

- ✓ Highlighting the distinctive characteristics of multinational enterprises, such as their strategy, initiatives, and activities.
- ✓ Analysis of the factors with impact on the level of performance of a multinational organization, which aims at personal development, leadership, motivation and communication.
- ✓ Identifying the relationships between personal development, leadership, motivation and communication, which ensures the efficiency of the human resources management system.
- ✓ Improving the role and importance of the human resources department within multinational organizations.
- ✓ Identify methods and strategies specific to streamlining and evaluating human resource management within multinational organizations.

There are concerns from HR managers that influence corporate performance, all of which contribute to maximizing results. The working assumptions are as follows:

H1: There is a significant correlation between leadership and motivation, which are required for management to guide the organization's work, monitor the progress and quality of activities, and evaluate the results and performance of employees and the organization as a whole.

H2: Employee satisfaction at work and communication have a substantial relationship.

H3: Personal growth, motivation, and communication all have a big bearing on how satisfied an organization's members are.

The questionnaire was used as the main data collection tool because it has many benefits. A questionnaire is the most effective and reasonable way to collect data compared to telephone or group interviews, as respondents can easily answer questions without exposing their identity. The questions that form the content of the questionnaire are correlated with the content of the scientific approach, they are closed, the answer options being predetermined, the respondent having the task of choosing according to what he thinks.

The study involved administering questionnaires to 400 participants—150 managers and 250 employees—from ten multinational corporations in Romania. Participants were asked to select one answer from 15 options for each area of interest. among the following alternatives for the response: totally disagree, mostly disagree, neither agree nor disagree, partially agree, totally agree. On a scale of 1 to 5, the Lickert scale was used to evaluate the responses. The employment of this technique was determined by the various levels of inquiry intensity.

The computer program SPSS (Statistical Package for the Social Sciences), one of the most popular statistical programs, was used to analyze the results. It allows for the precise processing of data existing in a wide variety and allows for the discovery of novel solutions to a variety of problems. The SPSS application offers solutions to challenging issues using tools tailored to cutting-edge statistical techniques. It enables the resolution of straightforward or complex issues in a variety of domains, offering answers to ensure a deeper comprehension of the phenomena under study and, implicitly, to support the decision-making process.

#### 4. Findings

Leadership and motivation, which are essential for management to direct organizational activity, monitor the progress and quality of activities, and assess the outcomes and performance of both individual employees and the organization as a whole, are significantly correlated, as can be seen in Table 1.

*Table 1 Correlation between leadership skills and motivation of managers*

		<b>leadership manageri</b>	<b>motivate managers</b>
<b>leadership manager</b>	Pearson Correlation	1,000	,430
	Sig. (2-tailed)	,	,000
	N	150	150
<b>motivate managers</b>	Pearson Correlation	,430	1,000
	Sig. (2-tailed)	,000	,
	N	150	150

*Source:* developed by the authors based on the collected data with SPSS program

As can be seen in the table above, hypothesis 1 is confirmed, there is a slight correlation between the leadership and motivation skills of managers,  $r = 0.43$ ,  $p = 0.000$ ). In other words, it can be said that by having more leadership skills, managers have a good ability to motivate and motivate employees.

H2. There is a significant relationship between communication and employee job satisfaction.

Table 2 Correlation between managers' communication skills and employee satisfaction levels

		<b>managers' communication skills</b>	<b>employee satisfaction at work</b>
<b>managers' communication skills</b>	Pearson Correlation	1,000	,270
	Sig. (2-tailed)	,	,000
	N	150	150
<b>employee satisfaction at work</b>	Pearson Correlation	,270	1,000
	Sig. (2-tailed)	,000	,
	N	150	150

Source: developed by the authors based on the collected data with SPSS program

The results (Table 2) provided by data processing lead to a low correlation between managers' communication skills and the level of employee satisfaction at work,  $r = .027$ ,  $p = 0.000$ , which means that the research hypothesis is not confirmed. In other words, it seems that the way managers communicate does not make employees feel good, they feel satisfied at work.

H3. There is a significant link between personal development, motivation and communication that indicates the degree of satisfaction of members of organizations

Table 3 Correlation between personal development, motivation and communication in the case of employees

		<b>total communication</b>	<b>total personal development</b>	<b>total motivation</b>
<b>total communication</b>	Pearson Correlation	1,000	,481	-,125
	Sig. (2-tailed)	,	,000	,001
	N	250	250	250
<b>total personal development</b>	Pearson Correlation	,481	1,000	-,023
	Sig. (2-tailed)	,000	,	,523
	N	250	250	250
<b>total motivation</b>	Pearson Correlation	-,125	-,023	1,000
	Sig. (2-tailed)	,001	,523	,
	N	250	250	250

Source: developed by the authors based on the collected data with SPSS program

The third hypothesis of the research is partially confirmed, the results emphasizing that there is a link only between communication skills and personal development,  $r = -0.48$ ,  $p = 0.000$ , which shows that there is a substantial correlation between these factors (Table 3). Therefore, the better the level of personal development of employees, the better their communication skills.

From the point of view of the correlation between the level of personal development and the level of motivation, the correlation coefficient does not support this association,  $r = -0.12$ ,  $p = 0.000$ . Also, there is no association between communication skills and the level of motivation of employees,  $r = -0.23$ ,  $p = 0.000$ .

Table 4 The type of leader who can positively influence the level of performance of the organization

		The level of performance obtained by the school management at present			Total
		Satisfying	Good	Very good	
<b>The type of leader who can influence the level of performance of the organization</b>	Visionary leader	2.2%		32.6%	34.8%
	Advisory leader	18.1%			18.1%
	Collegiate, democratic leader	1.4%	44.9%	0.7%	47.1%
Total		21.7%	44.9%	33.3%	100.0%
<b>Chi-Square Tests</b>					
		Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square		236.385	4	.000	
Likelihood Ratio		241.273	4	.000	
Linear-by-Linear Association		33.694	1	.000	
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.43.					
<b>Symmetric Measures</b>					
		Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Interval by Interval	Pearson's R	.496	.061	6.660	.000 <sup>c</sup>
Ordinal by Ordinal	Spearman Correlation	.506	.092	6.845	.000 <sup>c</sup>

Source: developed by the authors based on the collected data with SPSS program

In Table 4, we find an association between the variable Type of leader that can influence the level of performance of the organization and the variable Level of performance obtained by the school management, at present. We notice from these data that the visionary leader has a great influence in obtaining positive (very good) results, but that the democratic, collegial leader has a greater influence than the visionary leader on the results of the organization. If we look at the results, we can conclude that the visionary leader can achieve maximum performance.

Following the Chi-Square test, the value of Asymp. Sig. is below the 0.05 threshold, which shows a statistically significant link between the two variables. The Spearman correlation coefficient shows a positive medium strength bond. In conclusion, I could say that the type of leader can influence the results of the school. It can be concluded that the leadership models practiced by the manager lead to the improvement of the performance level of the school organization.

## 5. Conclusions

Following the research, management cannot be applied in the absence of leadership skills. The current management shifts the focus from the positions of authority to participatory management, which involves the involvement of all in the decisions and actions taken at the level of the organization. The human, interpersonal side must support the whole process, especially since the school is a dynamic, constantly changing type of organization, vulnerable to political, economic, social and even medical influences (as has been seen lately). Added to this is the inability of the school environment to learn from its own failures (it would be necessary to introduce a failure management course for both students and teachers who are preparing to train these students).

At the school organization level, the manager who acts as a leader has proven to be the optimal solution. The specificity of this organization requires a leader who is able to reduce tensions, resolve conflicts and stimulate the motivation to work of subordinates. As a formal leader, the manager must take on the characteristics of the informal leader, behave like a true member of the group, whom he must represent in any situation, no matter how difficult.

A school organization's leader must first and foremost be a role model who possesses the traits and ideals that he supports and expects of others, a man who is able to integrate into the emotional world of his subordinates, despite their vastly diverse human and professional profiles. To put it another way, a good school leader must make the link between the official position he has been assigned and the informal role he assumes by managing feelings, risks, and the unpredictable.

From the perspective of the theoretical and practical approach of the direct influence that the practice of scientific management and leadership has on improving performance in the school organization, we can formulate some general conclusions, which highlight both the advantages and limitations of implementing this leadership model. education level:

1. Improving performance through the effective practice of management and leadership at the school organization level cannot be achieved without creating the conditions for adequate professionalization of managers. European trends in the training of managers at the level of school organizations are manifested in the initial and continuous training of teachers in the direction of shifting the emphasis from knowledge to the training and development of managerial skills.

2. In the context of shifting the focus from knowledge to skills, and especially to values and attitudes manifested in the exercise of management and leadership, aims to adapt the management of school-type organizations to the new requirements of society, which are evolving in the direction innovation, creativity, communication and digitalisation.

3. Improving the performance of managers within the school organization influences the decision-making and operational behavior of the entire organization, in order to improve performance.

4. The activity of the school organization manager depends on the application of a set of specific competencies, representing the central elements of human resources management. These make clear the difference between efficient and inefficient managers, on the one hand, and on the other hand, they directly condition the level of performance.

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# The Potential of Presumed Persons Interested in an Entrepreneurial Approach in the Tourism Sector

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## Abstract

*In this paper we aim to assess the potential of people who may be interested in starting a business in the tourism sector. For this we applied two tests in the form of a questionnaire. As an analyzed group, we considered people who opted for the study program Business Administration in Tourism and the Hospitality Industry for four years. According to the results obtained, the entrepreneurial potential of these people is high.*

**Key words:** entrepreneurship, potential, tourism, hospitality industry, evaluation

**J.E.L. classification:** M13.

## 1. Introduction

In the current uncertain context, affected by the pandemic and turbulent economic developments, many businesses in the hospitality industry closed, but on the other hand, many businesses in the hospitality industry have also prospered. The general perception is to support new business development initiatives if we consider the number of programs with funding, even non-reimbursable. A simple search after the term "entrepreneurship" on the Google search engine gives us about 3 million results, of entrepreneur 6 million results.

In the current context, the question arises, there is entrepreneurial potential in the area of the hospitality industry. We could appreciate the potential by evaluating the abilities of people who apply to university programs in the field of tourism business administration. Analyzing these people, one can have an opinion on the potential of people who may be interested in an entrepreneurial approach in the hospitality industry.

## 2. Theoretical background

There is no unanimously accepted definition of entrepreneurship (Ghenea M. 2021). According to Ghenea, a sum of ideas would be: intermediary between capital and labor, a person who turns an idea into a business, a person who takes a risk for what he proposes, a person who sees an opportunity in solving a problem. For the economist the entrepreneur is the one who brings added value, introduces changes, for the psychologist, the entrepreneur is a person driven by secure forces with the need to achieve, etc., for a businessman a possible partner or an investment opportunity, for a philosopher a person which effectively creates well-being as such, generating happiness (Scarlat C., Alexe C., Alexe C., 2008). According to Drucker (Drucker, 1985) entrepreneurship is a kind of innovation, which involves endowing existing resources with wealth-producing capacity. According to Richard (Stutely R., 1999) we find terms such as: critical balance, start with the essentials, central goal, visionary, how you got in the current situation, bankers' satisfaction with numbers, value accumulation, management team, business organization, infrastructure, products and services, basic skills, knowledge of the external environment.



Regarding entrepreneurs, they are people who set up their own businesses and work for themselves (Mariotti S., Glackin C., 2012). They are often both owners and employees.

In the literature we also find the idea of the qualities or traits necessary for a successful entrepreneur: (1) vision, (2) intelligence and creativity, (3) knowledge of the field of activity, (4) perseverance and determination, (5) charisma and persuasion, (6) responsibility, (7) decision-maker, (8) problem-solver, (9) gut-feeling, (10) positive thinking, (11) passion for one's own business, (12) personal ethics, (13) trust in people, (14) attitude (Ghenea M. 2021). Other approaches propose different qualities, different numbers and different orders. Apparently, the order does not mention the importance. (1) Desire to achieve, (2) self-control, (3) resistance to weights, (4) responsibility, (5) ability to communicate, (6) taking medium risks, (7) adaptability, (8) insistence, (9) organizational capacity (Pedişcan M, & Bibu N., 2005). (1) Willingness to take risks, (2) control of one's own destiny, (3) innovative spirit, (4) need for fulfillment, (5) acceptance of uncertainty, (6) self-confidence, (7) perseverance, (8) spirit initiative, (9) seizing opportunities, (10) high availability for work (Sasu C. 2003). According to Kazami (Kazami A., 1999): (1) intelligence, (2) diligence and diligence, (3) confidence, (4) creativity, (5) perseverance, (6) kindness.

In the area of tourism we find the following qualities mentioned: (1) health status, (2) age, (3) family, (4) motivations, (5) relationships, (6) taste of failure, recovery after failure and adaptation, (7) persuasion capacity, (8) financial resources, (9) choice of collaborators, (10) risk taking (Băileşteanu G. & Ursulescu-Lungu A., 2017).

Trying to summarize, analyzing several studies, Timmons finds a consensus on six general characteristics of entrepreneurs (Rusu S., 2014): (1) commitment, (2) leadership, (3) obsession with opportunities, (4) tolerance of risk, ambiguity and uncertainty, (5) creativity, self-confidence and adaptability, (6) motivation to excel.

### 3. Methodology and results

Trying to answer the question of how we evaluate, we find some answers. There are authors who distinguish between managers, leaders and entrepreneurs (Bodea. D., 2014). Proposed tests of a psychological nature are also to be considered (Necula A., 2003), (Carter P., 2007), (Carter P., 2015), (Graughwell T., 2016), (Barrett J., 2018). Most tests to identify entrepreneurial skills are more self-assessment-oriented. As such, the person being tested may overestimate themselves or deliberately not be honest. We opted for the administration of two tests proposed in the literature, one with questions with obvious answers (Ciornei A., et al., 2016) and one reformulated and adapted with questions whose answers are not as obvious (Pedişcan M, & Bibu N., 2005).

The first test proposes 24 questions and an assessment on a scale from 1 to 5 where 1 definitely means no, 5 obviously yes. The questions are formulations such as: "Do you have the ability to motivate employees and collaborators?", "Are you willing to give up your free time?", "Would you accept the possibility of uncertain and sometimes irregular income?" and so on. The interpretation of the test is based on the total score.

The second test proposes 8 questions with answer options. The interpretation is made according to the answer considered optimal. In order to be able to compare the results of the two tests, we calculate the weight of the optimal answers and also position them on a scale from 1 to 5. In the following table we present the items kept from the second test.

Table no. 1 Entrepreneurial skills identification test

Question	Optimal answer
1. The entrepreneur is a long-distance runner who runs primarily for: a) energy consumption and maintaining a good physical condition; b) for the satisfaction of defeating the other competitors in the race; c) to try to break his own record.	c
2. The entrepreneur is motivated by the need to: a) achieves a very important personal goal; b) get public attention and reward;	a

c) control a certain fortune, as well as other persons.	
3. The entrepreneur believes that the success or failure of a new business depends primarily on: a) chance or destiny; b) support and approval of others; c) his own strengths and abilities	c
4. The entrepreneur is more inclined to choose an objective: a) which involves a moderate level of risk but which contains a challenge; b) where the risks are high and the financial rewards are substantial; c) which is relatively easy and whose risks are low.	a
5. What does the entrepreneur value most in his activity: a) the importance given to competence and efficiency; b) the freedom to control the use of free time; c) the opportunity to create and achieve new things	c

Source: adaptation (Pedişcan M, & Bibu N., 2005)

An additional question was asked about the intention to start an entrepreneurial approach: a) I do not intend to start a business, I prefer to be employed, b) I am already involved in an entrepreneurial approach, c) I want and intend in the future to start a business.

The tests were applied over four years to 107 people. Considering the aim, to appreciate the potential of the presumptive interested in an entrepreneurial approach in the hospitality industry, the interviewees were those who enrolled in the master's program in Business Administration in Tourism and Hospitality Industry at the West University of Timisoara, assuming that their intention is obvious to work in this sector, either as employees or as entrepreneurs. To reduce the risk of overestimation, data were collected anonymously.

Table no. 2 Test results

	Scale				
	1	2	3	4	5
<b>Test 1</b>	0	3	29	40	35
	0.00%	2.80%	27.10%	37.38%	32.71%
<b>Test 2</b>	2	6	42	32	27
	1.87%	5.61%	39.25%	29.91%	25.23%

Source: own processing

Table no. 3 Entrepreneurial intent

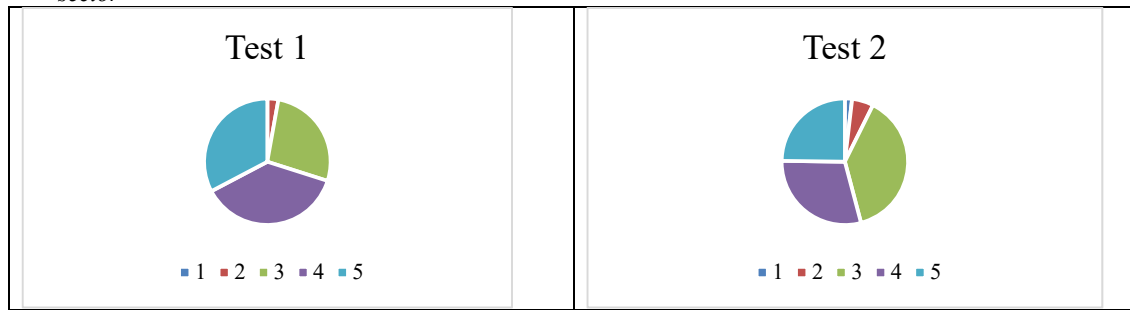
<b>I do not intend to start a business, I prefer to be employed</b>	88	82.24%
<b>I am already involved in an entrepreneurial endeavor</b>	12	11.21%
<b>I want and intend to start a business in the future</b>	7	6.54%

Source: own processing

From those tested, it results that the majority share would have the necessary qualities to start an entrepreneurial approach. However, the intention to start such an approach is very low. Those who were convinced of such an approach have already done so (11%). In fact, they are also found on the scale of test results in the area of grades 4 and 5 where the majority are found (70% and 55% respectively according to the tests).

There is a certain difference between the results from test one and test two, however, the tendency of the answers is similar. Most likely due to the types of questions - with obvious answers, with less obvious answers.

Figure no. 1. The potential of presumed persons interested in an entrepreneurial approach in the tourism sector



Source: own processing

Overall, the potential of presumed persons interested in an entrepreneurial approach in the tourism sector seems to be high. However, the question remains for future research, if the potential is high, why is there no higher percentage among those who have started or intend to start a business in the tourism area.

#### 4. Conclusions

From the point of view of the potential of people who could start a business in the tourism sector, we have a high level. However, this level does not correlate with the number of people who have started or intend to start a business. This may be due to the way the tests are administered, the self-assessment. However, the second test, which has no obvious answers, is not different from the first test in terms of results. Even if we consider only the second test, the potential seems to be 55% high and with an average level of almost 40%. Another explanation could be the fact that the probability of starting a business is not only related to the potential of the possible entrepreneur but also to the context, chance, luck etc. In other words, the alignment of qualities with the external environment.

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# Circular Economy Applied to the Automotive Industry

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## Abstract

*The subject of the circular economy is an essential societal topic in nowadays society. In the last years, in the automotive industry, the evolution of regulatory and economic circumstances has led to the development of networks to reuse, refurbish, remanufacture, recycle and recover components, elements, equipment, and materials embedded in end-of-life vehicles. The paper aims to briefly present and better understand the concept of the circular economy within the automotive industry. The methodological approach was based on a qualitative research method. The paper shows that despite the main barriers to reuse, recycling, and recovery performance improvement are economic and technical, in the automotive industry, the circular economy was based on the idea that, on one hand, over the world, the natural resources are limited and, on the other hand, it is important to augment the functioning of the ecosystem and, consequently, the human well-being.*

**Key words:** circular economy, automotive industry, company

**J.E.L. classification:** A12, A13, L62

## 1. Introduction

The subject of the circular economy is an essential societal topic in nowadays society. The theme is increasingly gaining traction in academia, business, and politics (Geissdoerfer *et al.*, 2017). It is a hot topic nowadays being of interest both for public and private organizations (Toma *et al.*, 2019), and for people, in general (Owojori *et al.*, 2022). Moreover, the COVID-19 pandemic accelerated the process focused on sustainability (Catană, 2020). In order to have sustainable economic growth, and sustainable consumption, the European Union has implemented some economic policy measures to promote the circular economy (Nistor *et al.*, 2021).

As a highly competitive industry, the automotive industry represents an environment in which is difficult to obtain considerable competitive advantages and it is rather hard to differentiate from other competitors (Catană *et al.*, 2021). Consequently, innovation is a powerful driver for companies around the world, enabling them to achieve success (Grădinaru *et al.*, 2020).

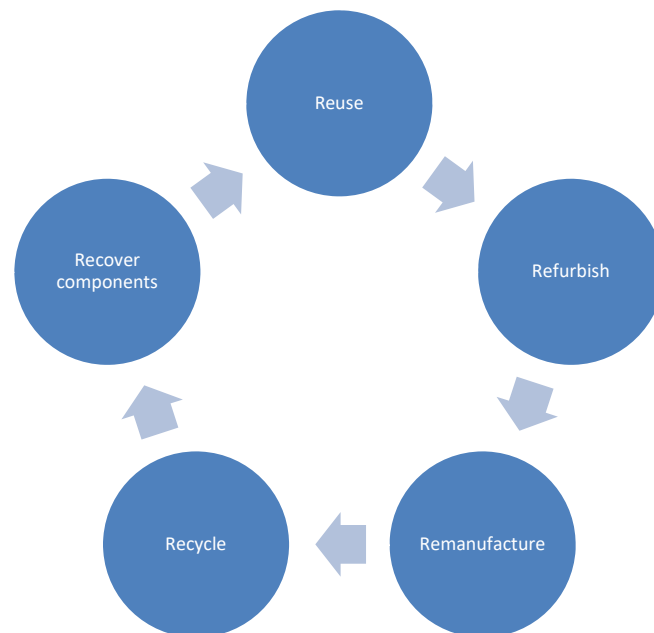
Starting from the above considerations, this study is focused on showing the implications of the circular economy in the automotive industry. The paper aims to briefly present and better understand the concept of the circular economy within the automotive industry. The structure of the paper is as follows: the second section shows the literature review. The third part of the paper displays the research methodology. The outcomes of the study are exhibited in the fourth section. At the end, the fifth section presents the conclusions along with the research limitations.

## 2. Literature review

The last decades have witnessed the rise of studies related to the circular economy (or “green economy” or “closed-loop economy” or “circularity” or “sustainable development goals”) (Kayikci, *et al*, 2021). The reason lies in the fact that pressing challenges such as environmental pollution, and climate change have led many economies to reconsider their strategies to balance growth and sustainability (Lehmann *et al*, 2022; United Nations Environment Programme, 2022). Moreover, there are authors that consider that the circular economy is a multidimensional phenomenon (de Jesus *et al*, 2018; Ünal *et al*, 2019). This is also why numerous companies, especially from the automotive industry, have fully understood the need to think and act not only strategically (Toma, 2008; Toma *et al*, 2015; Toma *et al*, 2016) but also in an creative, innovative (Toma *et al*, 2018) and entrepreneurial (Marinescu *et al*, 2013; Grădinaru *et al*, 2017; Marinescu *et al*, 2017), and social responsible (Toma *et al*, 2009; Toma *et al*, 2011) manner in an ever changing global business environment (Săseanu *et al*, 2014), specific to the nowadays Fourth Industrial Revolution (Tohănean *et al*, 2018).

There is not a standard definition for the circular economy concept (Kirchherr *et al*, 2018). As a term belonging to sustainability, it has been defined in many ways. In this respect, Geissdoerfer *et al* (p.757) define the concept as “a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops”. Starting from this conceptual definition, in the last years, in the automotive industry, the evolution of regulatory and economic circumstances has led to the development of networks to reuse, refurbish, remanufacture, recycle and recover components, elements, equipment, and materials embedded in end-of-life vehicles (Despeisse *et al*, 2015). Each of these networks influences the circular economy in the automotive industry (Figure no. 1).

Figure no. 1. The circular economy in the automotive industry



Source: (Authors, adapted from Despeisse, et al., 2015)

Over time, the scientific literature regarding the concept of the circular economy was developed and, starting from equity, transparency and resilience, there were highlighted the following 7 pillars of the circular economy (Gladek, 2017):

- The use of materials at continuous high value;
- All energy is based on renewable sources;

- Biodiversity is supported and enhanced through human activity;
- The preservation of human society and culture;
- The structural support of humans’ health and wellbeing;
- The propagation of societal value is maximized by human activities;
- The sustainable extraction and use of water resources.

### **3. Research methodology**

In the beginning, the authors investigated the scientific literature on the circular economy topic and its implications in the automotive industry. In order to attain the aim of the paper, they utilized a qualitative research method. The information was collected through desk research (Hague, 2022), and the secondary data had been gathered through the organization of an extensive literature review from different sources, such as books and journals in the fields of business and economics. The documents were originated in prestigious scientific databases, such as Web of Science, Science Direct, SAGE, Scopus, Emerald Insight, and Google Scholar.

### **4. Findings and discussion**

In essence, the circular economy was based on the idea that, on one hand, over the world, the natural resources are limited and, on the other hand, it is important to augment the functioning of the ecosystem and, consequently, the human well-being.

In order to incorporate the circular economy in their business strategies, companies in the automotive industry have different visions, as follows:

- Designing sustainable vehicles from recycled and recoverable materials is at the core of Renault Group. Its activity is also based on reconditioning spare parts, re-using batteries from electric-vehicle, or providing ever cleaner and more sustainable car-sharing services (Renault, 2020).
- Skoda perceives the circular economy based on the following concepts: minimizing negative impacts on the environment, input resources and the loss of these resources, and conversely maximizing the circulation of resources (Skoda, 2021).
- The BMW vision of the circular economy is established on protecting and preserving the environment, reusing valuable resources several times, and ensuring that nothing ends up going to waste (BMW Group, 2021).
- Mazda is expecting a significant reduction in energy and resource losses throughout the entire vehicle manufacturing supply chain, as a result of efforts to make the process more efficient (Mazda, 2021).

All in all, speaking about the green problems, the automotive industry has certainly been part of this issue, but it can be also part of the solution. Firstly, more and more companies in the automotive industry consider that the circular economy is an important topic. Secondly, all major car manufacturers have in their portfolio models of environmentally friendly cars, made of recyclable materials. Thirdly, the petrol and diesel prices crisis will conduct people to be more and more interested in acquiring electric cars.

### **5. Conclusions**

In the last years, the topic of the circular economy become present in all public debates, at all levels. Starting from this fact, from the company’s point of view, rising consumer expectations regarding the characteristics of cars, have been imposed worldwide by car manufacturers to provide their customers with the best customer experience possible (Toma & Catană, 2021). Consequently, the regulators, on one hand, and the companies and people, on the other hand, had to adapt to this new reality.

In the automotive industry, the main barriers to reuse, recycling, and recovery performance improvement are economic and technical. However, this industry has proved its capacity to provide numerous solutions to solve the problems related to the circular economy.

The paper demonstrates that the circular economy constitutes a holistic concept. It also shows the importance of this topic in the automotive industry.

Regarding the future research directions, other studies may consider a larger number of car manufacturers and analyze their visions regarding the subject. Moreover, they can reveal the perceptions of people regarding these visions and actions.

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## Analysis of the Trust Offered to Companies Based on the Number of Followers on Instagram

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### Abstract

*The presence of companies on social networks has become, in recent years, a must for attracting and retaining customers. Instagram is one of the most popular social networks, used for promotion and communication campaigns directly from the company and through "influencers". Influencers are those people who are considered role models/landmarks/people of interest by the public, promoting their values and ideas (including companies, products used, customs, etc.). In the online sphere, the more followers you have, the more credibility and importance of opinion grows, which is valid for influencers and companies. In this article, we have conducted a marketing experiment to highlight how much the trust offered to companies is based on the number of followers on Instagram.*

**Key words:** marketing, consumer behaviour, Instagram, the social networking platform

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

### 1. Introduction

Instagram is a social networking platform founded in 2010 and allows users to post images and videos, like content and connect (Casaló et al., 2020). Instagram has added additional features over the years, such as allowing users and businesses to advertise "stories" and IGTV to improve user experience and keep them engaged. As a result, Instagram has a higher engagement rate than Facebook and Twitter, receives more interactions per post, and has emerged as the most influential social network (Casaló et al., 2020).

Although Instagram is one of the fastest-growing online photo social websites where users share their life images with other users, academic research on this media is scarce (Sheldon & Bryant, 2016; Djafarova, E., & Rushworth, C., 2017). Marketers are becoming interested in using Instagram for advertising due to the mobile platform's global reach, with over 14 million users in the United Kingdom alone. This implies a larger audience for brands and merchants and more scalability for brand-specific issues in which marketers may be interested (Vizard, 2015). The more an individual has perceived social influence, the greater their number of followers (Jin & Phua, 2014). This is because photographs are transmitted to every follower, who may re-post the images on their pages, increasing visibility to an even larger audience (Scott, 2011). According to studies on social media advertising and online advertising, consumers' opinions regarding social media advertising are essential to its success (Chen, Fay, & Wang, 2011). In order to be influenced by a celebrity's endorsements, an individual must have a strong interest in the celebrity's life as well as a level of attraction and respect (Ohanian, 1990).

Instagram had 1.158 billion users in July 2020 (Statista, 2020b), and its rapid growth has enabled company owners to use it for advertising their items to the public (Zilber et al., 2019). User-generated content (UGC) on the brand by the consumers themselves is one technique to expose a product through Instagram. When a user "likes" or interacts with a social post, electronic word-of-mouth

(eWOM) is generated (Sung et al., 2010; Qin, 2020).

Because people frequently believe information offered by other individuals is more reputable than information generated by companies, UGC is predicted to result in more favourable brand responses from users (Netto et al., 2016; Zilber et al., 2019). Furthermore, user satisfaction in the use of social networks (Casaló et al., 2011; Dolan et al., 2016) appears as a crucial point for understanding social media behaviours (Casaló et al., 2017a) in light of the U&G (Pelletier et al. ., 2020; Qin, 2020).

This research, however, did not relate antecedents of satisfaction and its effects, such as the user's approved brand attitude and future purchase intention on Instagram, in an expanded model. Some were devoted to user antecedents and gratifications (Whiting and Williams, 2013; Casaló et al., 2017a), others to brand endorsement and its relationship with sales (Hung, 2014;), and others to luxury brands. Others have linked website interactions, Facebook interactions (Qin, 2020), and social media in general (Corrada et al., 2020) to buy intention, but this association with Instagram has not been established in the literature, which we now report as a novelty.

## **2. Literature review - Marketing experiment**

The experiment focuses on analyzing the trust offered by companies based on the number of followers on Instagram. Most businesses have created an active online presence with the transition to the digital environment. As the number of users of social networks is constantly growing, it is no wonder why the trust of a profile, respectively of a business, is given by the number of followers it has. At present, followers are the key feature in differentiating a solid, successful business offering confidence and an ordinary one that consumers doubt. Therefore, marketing research and experiments are crucial in developing successful marketing strategies and programs. It is an essential tool to study the behaviour of the buyer, changes in consumers' lifestyles and consumption patterns, brand loyalty and forecasting market changes. The research is also used to study the competition and analyze the positioning of the competitor's product and how to gain a competitive advantage. Recently, marketing research and experiments are being used to help create and improve brand capital (Lynn, 2003).

According to Philip Kotler, marketing research is the systematic analysis of problems, the building of models and the finding of facts to make crucial decisions and control the marketing of goods and services (Sung et al. 2019).

Making important decisions about marketing strategy and other marketing tasks depends on your findings or marketing research. The marketing research process reduces the chances of errors, lack of concepts and uncertainty in decision-making. Therefore, it is essential to conduct marketing research to identify any changes in the market environment and understand customers and the market. This is the process of strategic importance (Wierenga, 2020).

Marketing research systematically collects and analyses market data and essential market quality. Therefore, market research is an extreme part of any business that wants to offer products or services that are focused and well-targeted. It also affects the profit of a business and achieves the best return on marketing investment. For example, researching the price elasticity of a product can help you find the right or accurate information that impacts price increases on a product's sales and profits. This particular emphasis on profitability also helps the company's focus move from expanding sales to increasing a company's profits and helps the company survive longer (Gelaw,

Marketing experiments are about finding and gathering information to learn about something that is not fully known. For example, marketing research allows the company to determine if customers or consumers are happy with it. Moreover, it also provides crucial information that could affect your business. In addition, market research will also reduce risk, as it can help shape a new product or service, identify what is needed, and ensure that product development is highly focused on needs and desires (McQuarrie, 2004).

### 3. Research methodology

As mentioned above, followers are vital in identifying the trust factor in the online business environment. Unfortunately, the problem with many businesses is that they do not focus on attracting followers or using more current marketing techniques. This leads to a reduction in the growth rate of a business by simply neglecting the online presence and the importance that the number of followers has on the image and trust perceived by consumers.

This paper aims to identify the consumer's perception and the influence of the number of followers a business has on the trust and behaviour of the individual.

#### *Objectives*

- Identify the degree to which the number of followers influences people's perception of a business.
- Identify the degree of trust offered by a business with many followers compared to one with a low or average number of followers.
- Identify why people are looking for a business.
- Identify the degree of trust offered by the blue dot offered by the verification by Instagram.
- Identify the degree to which online campaigns or giveaways attract followers.

#### *Hypotheses*

- People's perception is influenced by a large number of followers of a page.
- People have more confidence in a profile with more followers
- The originality and quality of the content of the pages, as well as the reason why people choose to follow that page

According to a recent Sprout Social study, the significant reasons consumers follow businesses on social media are to learn about products/services and to be entertained.

The research was based on data from a poll of 1,011 consumers conducted in February 2019 (Nanji, 2019).

Half of those polled said they follow brands on social media to learn about products/services, while the other half say they follow brands to be entertained.

Some 40% said they follow brands to stay up to speed on corporate news, 38% to learn about promotions/discounts, 36% to connect with similar people, 36% to be inspired, and 35% to be educated.

- The blue dot adds confidence to people.
- Tactics such as giveaways, contests or various prize campaigns attract a lot of traffic and followers.

#### **Procedure:**

Our sample consists of 30 people, their choice being made equally and entirely randomly by the organizers of the experiment, the chosen people being between 19 and 26 years old, both male and female, and most of the participants being students.

The experimental model used in this research is the "before-after without control group" model. Thus, the chosen sample was tested and measured in two stages, the first aiming to identify people's behaviour without any influences from the external environment. In the second stage, the people are subjected to the experimental treatment, and the research result from the second stage is compared with the results obtained in the initial stage.

The analysis process began by organizing the necessary materials that will be used in the actual research process. In the first stage, we used the Google Meet platform because we had to comply with social distance measures. Therefore, the data was also collected through the Google Meet platform and later entered into Microsoft Excel, the program with which we processed the data for the second stage.

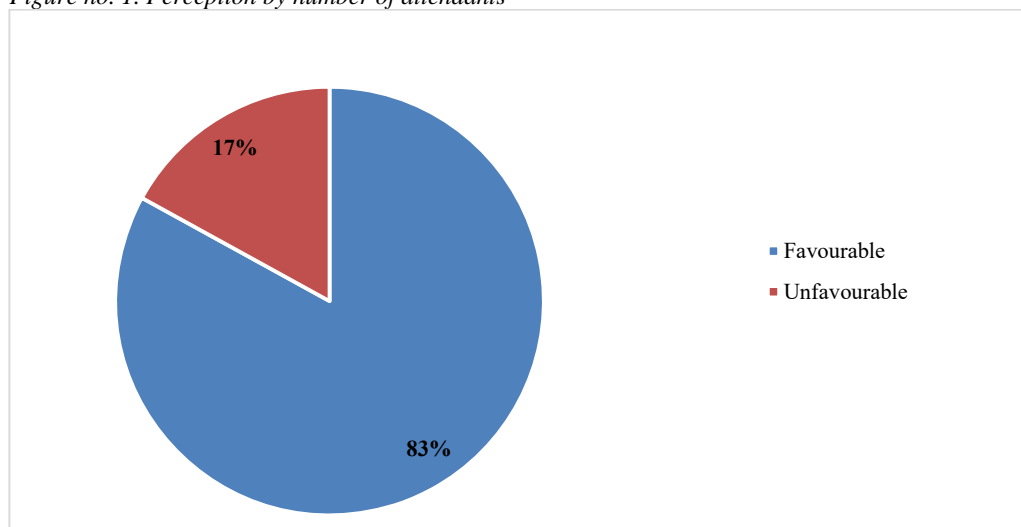
In the second stage, I also used the Google Meet platform and thus subjected the people to the experimental treatment, obtaining the results for the second stage. Finally, both results were compared and based on them, and we extracted the results of this research.

The experiment participants were shown a series of Instagram posts of specially modified accounts so that they had a small number of followers and were asked for their opinion on them and behavioural intentions as a result of viewing them. . Subsequently, another series of Instagram posts were shown to the participants. However, this time, they were intentionally modified to display a vast number of followers.

### Data analysis

- ✓ 83% of people have a better perception of the pages with more followers

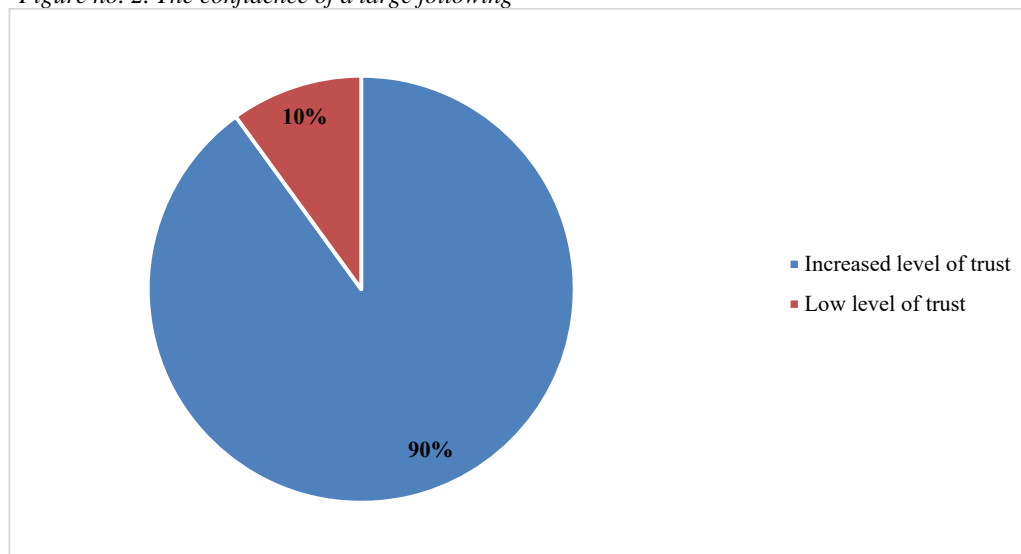
Figure no. 1. Perception by number of attendants



Source: Graph made by the authors during the research

- ✓ 90% of the subjects developed higher confidence for the pages with more followers

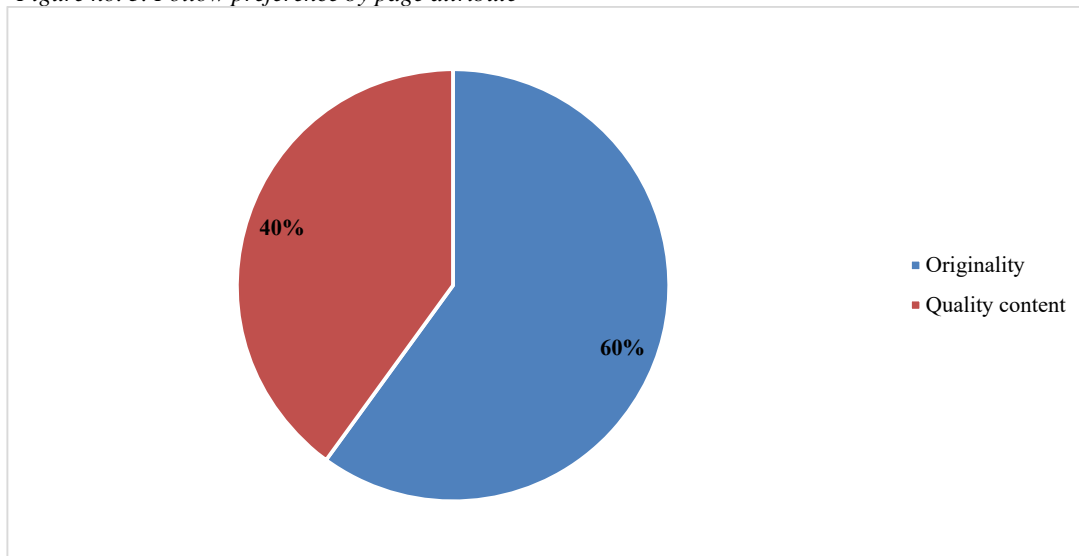
Figure no. 2. The confidence of a large following



Source: Graph made by the authors during the research

- ✓ 60% prefer original pages and 40% quality content

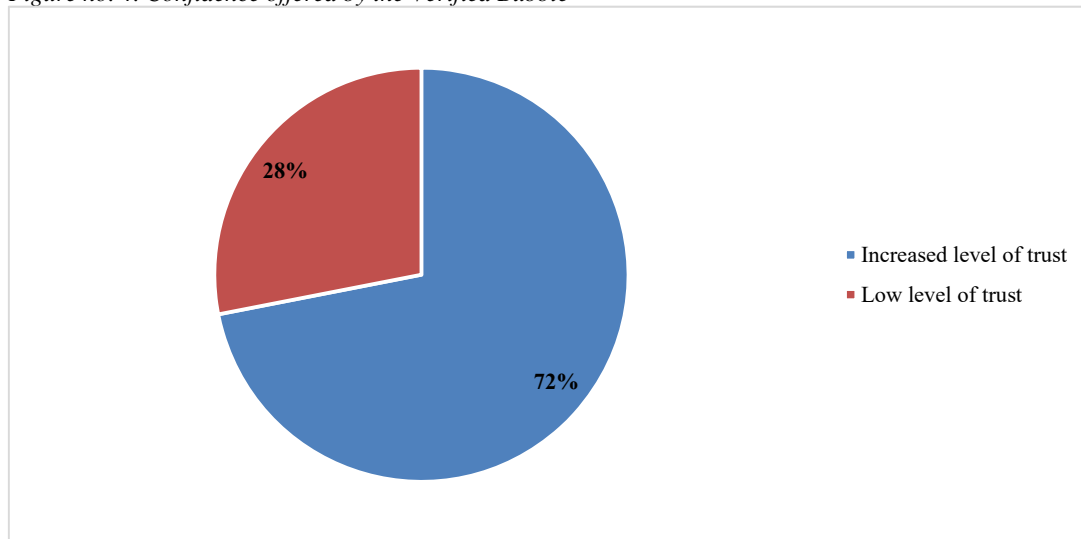
Figure no. 3. Follow preference by page attribute



Source: Graph made by the authors during the research

- ✓ About 87% of people in the experiment have more confidence in the blue dot pages

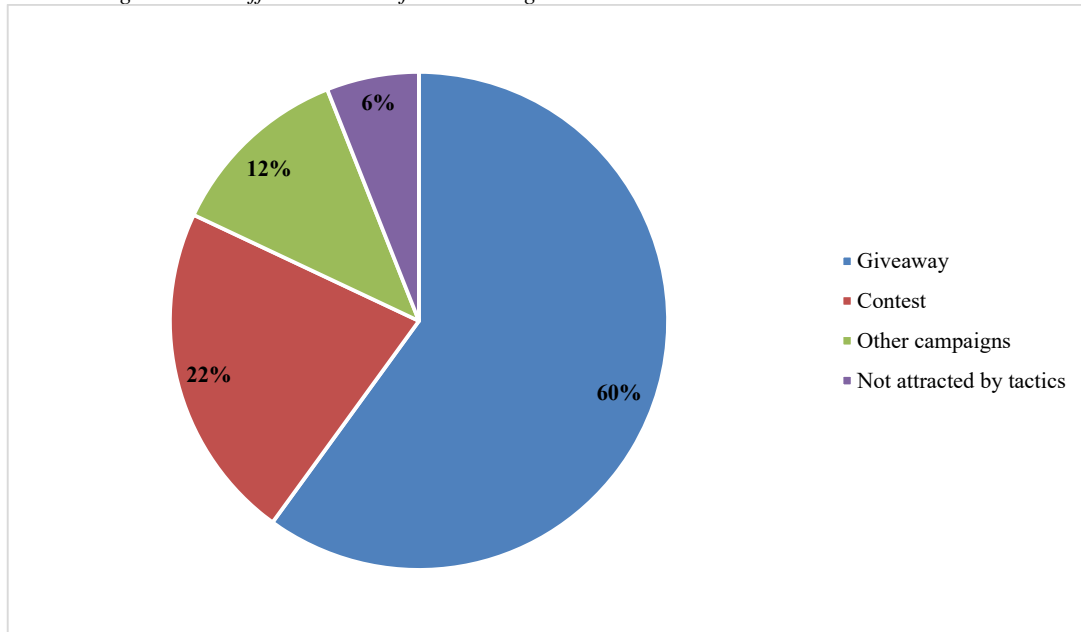
Figure no. 4. Confidence offered by the Verified Bubble



Source: Graph made by the authors during the research

- ✓ Giveaway tactics attract 60% of followers, contests attract 22% of followers, and the remaining 12% of other prize campaigns and the remaining 6% are not attracted

Figure no. 5. Effective tactics for attracting stalkers



Source: Graph made by the authors during the research

#### 4. Conclusions

According to the results collected from the analysis, most people have more confidence in the accounts with more followers. At the same time, the "verified" dot increases the trust in that page even more. So finally, a company should consider the beneficial effects of the number of followers on Instagram and not avoid allocating the budget to attract followers.

As a practical contribution, this study provides valuable information to organizations in the development of virtual engagement, allowing them to build strategies to gain new Instagram followers by evaluating the gratifications and antecedents of user happiness on Instagram. Since one of the study's conclusions was to highlight the relevance of the regular user account and its ability to influence other users through interactions within the account, businesses must grasp the Instagram advertising phenomenon. Rather than spending large sums on celebrities and digital influencers, it may be more efficient to invest in ordinary Instagram users who have many followers, a high content generation rate, and a high engagement rate.

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## Solidarity Versus Management in Local Public Administration in the Context of Expenditure of Public Resources for Humanitarian Aid to Refugees in Ukraine

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### Abstract

*The tense evolution of the conflict in Ukraine could not remain without economic and financial implications for nearby countries, such as Romania. The very large influx of refugees has put pressure on national health, defense and public order systems but also on the central public administration. The reaction of the Romanian authorities was not long in coming and consisted of the immediate mobilization of budgetary resources for accommodation, humanitarian assistance, the provision of basic necessities during the temporary stay such as food, clothing or personal hygiene materials, as well as the right to receive free medical care and appropriate treatment.*

*This article seeks to capture the reaction of local government managers and the way in which they mobilized and reacted to provide aid to refugees, although the responsibilities for providing aid and assistance rested with the central government.*

**Key words:** humanitarian aid, refugees, public resources, management, risks.

**J.E.L. classification:** H12, H59, H76, H84

### 1. Introduction

The research topic arose as a result of the fact that local public administration through town halls or subordinates from different parts of the country, has made significant purchases of goods and services to help refugees and has contributed to humanitarian campaigns, directly, or through various non-profit organizations, in border crossing areas, although the law states that only the central public administration has responsibilities for immigrants through the Romanian Immigration Office or the General Inspectorate for Emergency Situations.

The article also wants to show that in crisis situations such as the one caused by the war in Ukraine, solidarity or the feeling that causes people to help each other can influence management decisions even in the absence of legal provisions that explicitly allow such expenses.

What needs to be clarified is that these humanitarian actions are happening quickly due to the urgent and unpredictable situation, which comes with a certain lack of transparency here as well, and with an increased risk of fraud of public funds.

## 2. Literature review

To begin with, we will review some theoretical aspects that affect the research topic of the article, namely, risk management. In a synthetic approach, any organization, private or state-owned, approaches risk management in 6 stages: identification, evaluation, management, monitoring, review and reporting.

The literature reveals that decisions on risk management are based on the stages of risk identification and assessment. When management has clear information about a certain risk and the possible consequences are understood, decisions are easy to make, but this does not happen as often as we would like. Such situations are not very common in risk management, especially in terms of risks, such as those generated by major global crises. Moreover, they make it impossible to identify all possible events and potential adverse outcomes.

Any organization should work on the assumption that the information supporting their risk determinations is incomplete and that they may not be aware of all potential sources of risk relevant to the organization (Gantz and Philpott, 2013).

Therefore, any organization has to deal with risks with a very low probability of occurrence but with a huge impact, such as those generated by the Covid-19 crisis or those generated by the war in Ukraine, which may take by surprise even the best internal managerial control systems. It would also be inefficient for an organization to spend significant resources to deal with such risks. It would be counterproductive. But here that although these risks are generally accepted or ignored, they still materialize.

And yet, managers are forced to make decisions sooner or later when these risks are either accepted, ignored or transferred (Patterson and Fay, 2017).

The way to choose to respond to risk is at the discretion of the management, which is responsible for these things while also assuming the consequences. Of course, inaction cannot be a reasonable action. Leadership must do something.

But there are also organizations in which there is no risk management or if there is, it is inefficient, according to the 2019 Report of the Romanian Court of Accounts. Thus, the report concludes that following the evaluation of the internal managerial control system in public institutions in Romania, it resulted that in 2020 a number of 1,213 cases of deviations from the legal provisions was found, an important share having those on risk management (Romanian Court of Accounts, 2020).

The main deficiencies were:

- no risk alert forms have been prepared;
- no risk tracking sheets were prepared;
- the risks have not been updated in the Risk Register, although, according to the legal provisions, the risks are updated at the level of the compartments whenever this is required, obligatorily annually, by completing the changes that occurred in the Risk Register;
  - after identifying the risks, their management strategy was not established;
  - it has not been established which are the risk control measures;
- the risk situation was not periodically reported, whenever necessary or at least once a year, respectively if the risks persist, depending on the occurrence of new risks, the effectiveness of the control measures adopted, the reassessment of existing risks, etc.;
- the managers of the departments at the first management level did not report annually the development of the risk management process, which mainly includes the total number of risks managed at the level of the compartments, the number of risks treated and unresolved by the end of the year and any revisions of the risk assessment, in compliance with the risk tolerance limit approved by the management of the public entity;
  - no information was provided on the development of the risk management process at the level of the entity, to be analyzed and approved by the Monitoring Committee, then presented to the Director General, as required by Standard 8 "Risk Management" of the Order of the General Secretariat of the Government no. 600/2018.

Ultimately, however, the decision to accept, reject or transfer the risk is the responsibility of management. In general, the law considers that management is closest to its own problems and is able to respond to risk in the best way it deems appropriate. If the decision is considered reasonable

and proves to be within the limits of legal tolerances, then it would be difficult to question otherwise. However, if the case were challenged, prosecutors or petitioners would present experts in the matter to suggest that, in fact, the management's expertise is questionable and their decision wrong, contributing to the results that led to the risk. Any manager would reasonably prudently consider their decision to accept, ignore or transfer the risk, and this raises some difficulties in practice.

### **3. Issues identified regarding the involvement of local public administration managers in helping refugees in Ukraine**

Since the beginning of the refugee crisis in Ukraine, the Romanian Government, through the National Immigration Office and IGSU, have launched extensive measures to help refugees and provide accommodation, humanitarian assistance, providing basic necessities during temporary stay such as food, clothing or personal hygiene materials, as well as the right to receive free medical care and appropriate treatment. As a first reaction, the Romanian State issued the Emergency Ordinance no. 15 of February 27, 2022 on the provision of humanitarian support and assistance by the Romanian state to foreign citizens or stateless persons in special situations, from the area of armed conflict in Ukraine, which established that the acquisition of aid mentioned above will be done through the emergency public procurement procedure by the General Inspectorate for Emergency Situations and, as the case may be, by the county inspectorates for emergency situations or Bucharest - Ilfov Inspectorate for Emergency Situations (*Emergency Ordinance no. 15 / 27.02.2022 on the provision of humanitarian support and assistance by the Romanian state to foreign citizens or stateless persons in special situations, coming from the area of the armed conflict in Ukraine*, no date).

As the national press mentioned, the local authorities, town halls, cities, municipalities or county councils took part in these actions, contributing with various goods or food, either directly through their representatives in the border crossing areas or through non-governmental organizations.

In order to see how the local authorities purchased these aids, the web page of the Romanian public procurement system (<https://www.e-licitatie.ro/pub>), the direct procurement section, was consulted. To filter the search results, two keywords were used, namely "refugees" and "Ukraine", the system returning a number of 107 unique purchase codes. The total value of the acquisitions amounted to 1,109,084 lei, with an average value per acquisition of 10,365 lei. The purchases mainly related to various textiles, food, hygiene items, country beds, linens, blankets, etc.

A brief analysis by geographical areas of the mayoralties involved revealed that 40% of the acquisitions were made by institutions from Moldova, followed by Muntenia with 33%, Ardeal with 22%, Dobrogea with 4% and Banat with 1%.

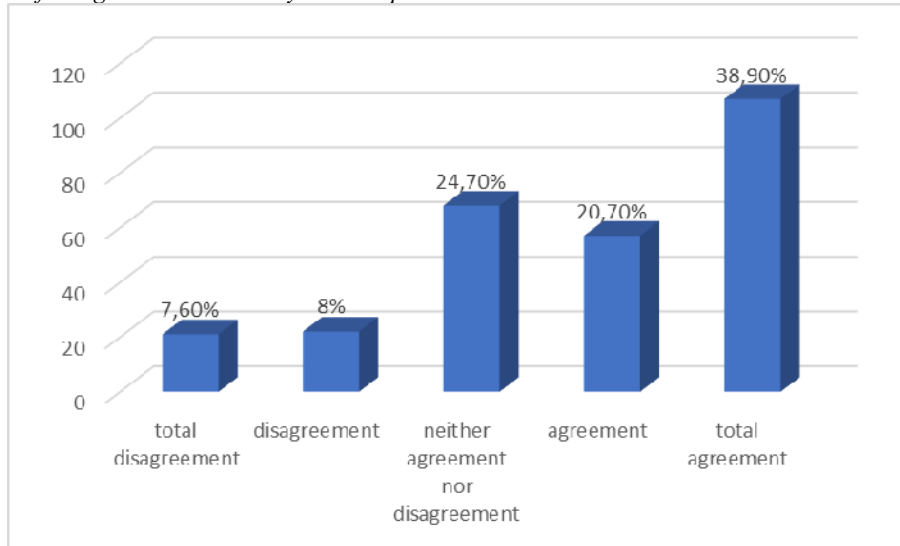
This short analysis is obviously a relative one and has its limitations, in fact there may be other purchases for this purpose that did not contain the filtering elements used by the authors, the amounts spent by the local government may be much higher in reality. The purchase of various goods and services for the endowment of their own buildings, accommodation spaces or dormitories belonging to the town halls that have been made available to the county inspectorates of emergency situations for the accommodation of refugees must also be considered.

The role of local public administration is one aimed at its own organization, as well as the organization and functioning of the specialized apparatus of the mayor, public institutions of local interest and autonomous companies and utilities of local interest, economic and social and environmental development of the commune, city or municipality, management of services of local interest, etc.

At the same time, according to the legal provisions, the Local Council has initiative and decides, under the law, in all matters of local interest, except those given by law in the competence of other local or central public administration authorities, as in this case, is given to the two central institutions mentioned above.

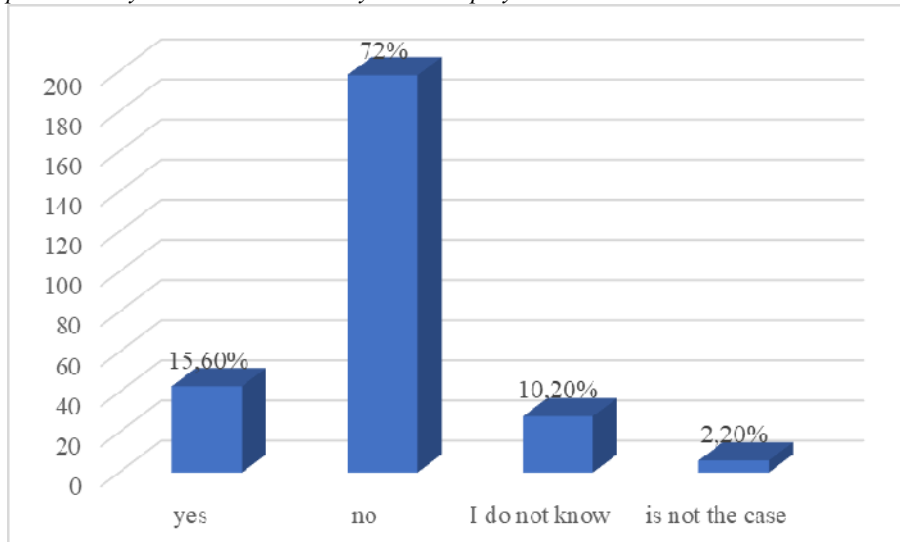
According to the answers to the questionnaire addressed to all town halls and county councils in the country, in connection with the aid granted, several aspects were highlighted that should be mentioned here.

Figure no.1. Distribution of answers to question "Do you think that the decision of the local authorities (town halls) to get involved in the process of helping refugees with goods, products or services was based on feelings such as solidarity and compassion?"



Source: authors' processing

Figure no.2. Distribution of answers to question "Were products or goods intended to help refugees purchased by the institution where you are employed?"



Source: authors' processing

#### 4. Research methodology

In order to identify the research hypothesis, respectively the way in which the decisions of local public authorities to get involved in the process of helping refugees with goods, products or services were influenced by feelings such as solidarity and compassion, we prepared and distributed a questionnaire at all territorial administrative units in the country. The questionnaire, based on Lickert's scale (5 levels of answer, ranging from total disagreement to total agreement). The questionnaire was answered by 275 employees from all levels of the institutions (employees with management or executive positions).

We used in this research the SPSS software (*IBM SPSS Statistics (Statistical Package for the Social Sciences)*, 2001) as a method for analyzing quantitative data. This statistical software allows the rapid extraction of information from the analyzed data. Advanced statistical procedures help ensure high accuracy and quality decisions.

## 5. Findings

This quantitative research aims to highlight how feelings such as solidarity and compassion have influenced the decisions of local public authorities to get involved in the process of helping refugees with goods, products or services and how they have achieved their purpose and whether they are the most appropriate method of helping refugees in Ukraine. Furthermore, it is desired to find out the respondents' opinion on the risk of fraud associated with this action, as well as on issues related to the necessity, timeliness and effectiveness of these measures.

This study is based on a conceptual model that aims to test several hypotheses:

1. Decisions of local public authorities to engage in the process of assisting refugees with goods, products or services have a positive impact on the expenditure of public resources for the acquisition of goods / services for refugees in Ukraine;

2. The decisions of local public authorities to get involved in the process of helping refugees with goods, products or services have a positive impact on the provision of aid to refugees by all those who have this possibility (public institutions / individuals / economic agents);

3. The decisions of local public authorities to get involved in the process of helping refugees with goods, products or services have a positive impact on the involvement of the Romanian state through central institutions (General Inspectorate for Emergency Situations or the Romanian Immigration Office) to ensure decent or reasonable living conditions refugees from Ukraine;

4. Decisions of local public authorities to engage in the process of assisting refugees with goods, products or services have a positive impact on the realization of such expenditures for the provision of assistance in goods / services to refugees in Ukraine by managers of public institutions;

5. The decisions of local public authorities to get involved in the process of helping refugees with goods, products or services have a positive impact on increasing the risk of fraud of public funds, given the urgency and speed with which public procurement for goods or services for humanitarian actions has been carried out;

6. Decisions by local public authorities to engage in the process of assisting refugees with goods, products or services have a positive impact on the effectiveness and efficiency of this measure, given that the speed with which events have unfolded since the beginning of the conflict in Ukraine there have been cases where humanitarian aid has not fully reached refugees or has not been of real use;

7. The decisions of local public authorities to get involved in the process of helping refugees with goods, products or services have a positive impact on spending by local public authorities only in relation to their field of activity, in this case only for the territory and own inhabitants;

8. Decisions by local public authorities to engage in the process of assisting refugees with goods, products or services have a positive impact on the legality of mayors' spending on the provision of humanitarian aid to refugees from countries involved in armed conflict (including Ukraine);

9. Decisions by local public authorities to become involved in the process of assisting refugees with goods, products or services have a positive impact on the purpose for which this action was taken;

10. Decisions by local public authorities to get involved in the process of helping refugees with goods, products or services have a positive impact on identifying the most appropriate way to help refugees in Ukraine;

11. The decisions of local public authorities to get involved in the process of helping refugees with goods, products or services have a positive impact on giving up of various services for the population or infrastructure works at the locality level in order to give priority to spending on goods and products for refugees.

The questionnaire was distributed to a number of 1220 Territorial Administrative Units (communes, cities, municipalities and county councils) in Romania, the form returning a number of 275 answers, which shows a response rate of about 23%.

Regarding the age distribution of respondents, the most significant share is between 41 and 50 years with 38% followed by 51 and 60 years with 34.5% and 31 and 40 years with 16.7%.

The positions of the respondents were in proportion of 53.8% staff with executive attributions and 46.2% persons with management positions (mayor, deputy mayor, public manager, director, etc.).

### Hypothesis testing and statistical analysis

Before testing the hypotheses, the analysis of the internal consistency of the analyzed data (how closely these data sets are related as a group) was made using the Cronbach's Alpha indicator. Given that the value obtained (0.694) is close to the coefficient of 0.7 considered acceptable in most research, this shows an acceptable internal consistency (correlation) of the research tool.

Table no. 1. Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
,694	,706	12

Source: authors' processing, adapted from SPSS

To verify the sampling, the following were performed:

- Kaiser-Meyer-Olkin (KMO) test of adequacy of sampling, where a value of 0.890 (close to 1) was obtained, which indicates that factor analysis may be useful;
- Bartlett sphericity test - for factor analysis to work, there must be some kind of relationship between variables. This test shows whether factor analysis is appropriate for a particular data set. Factor analysis can only be considered suitable for a series of data if the value of significance is less than 0.05. As the significance value for the data presented is 0.001, factor analysis is appropriate for these data.

Table no. 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,890
Bartlett's Test of Sphericity	Approx. Chi-Square	1299,007
	df	66
	Sig.	<,001

Source: authors' processing, adapted from SPSS

Due to the fact that the current data set satisfies both the KMO test and the Bartlett test, the factor analysis is suitable for this data set.

Table no. 3. Statistical analysis of the data set

Hypothesis	Correlation analysis			Correlation analysis results	Regression analysis			Regression analysis results  (Y= a+bxX)
	Chi-Square test		Symmetric Measures  (Spearman correlation coefficient)		Pearson R coefficient	Sig ANOVA	Coefficients	
	Pearson Chi-Square	Asymptotic significance						
Hypothesis 1	169,099 <sup>a</sup>	<,001	,521	Validated hypothesis	,553 <sup>a</sup>	<,001 <sup>b</sup>	Y = ,712 + ,552 x X	(X) is expected to increase by an average of 0.552 units
Hypothesis 2	168,634 <sup>a</sup>	<,001	,507	Validated hypothesis	,536 <sup>a</sup>	<,001 <sup>b</sup>	Y = 1,325 + ,562 x X	(X) is expected to increase by an average of 0.562 units
Hypothesis 3	65,428 <sup>a</sup>	<,001	,283	Validated hypothesis	,257 <sup>a</sup>	<,001 <sup>b</sup>	Y = 3,265 + ,211 x X	(X) is expected to increase by an average of 0.211 units
Hypothesis 4	121,095 <sup>a</sup>	<,001	,439	Validated hypothesis	,447 <sup>a</sup>	<,001 <sup>b</sup>	Y = 1,137 + ,474 x X	(X) is expected to increase by an average of 0.474 units
Hypothesis 5	51,810 <sup>a</sup>	<,001	-,118	Validated hypothesis	,138 <sup>a</sup>	,022 <sup>b</sup>	Y = 3,614 + (-,163) x X	(X) is expected to decrease by an average of 0.163 units
Hypothesis 6	30,246 <sup>a</sup>	,017	-,108	Validated hypothesis	,122 <sup>a</sup>	,043 <sup>b</sup>	Y = 3,363 + (-,124) x X	(X) is expected to decrease by an average of 0.124 units
Hypothesis 7	43,955 <sup>a</sup>	<,001	-,255	Validated hypothesis	,268 <sup>a</sup>	<,001 <sup>b</sup>	Y = 4,564 + (-,287) x X	(X) is expected to decrease by an average of 0.287 units
Hypothesis 8	106,443 <sup>a</sup>	<,001	,397	Validated hypothesis	,419 <sup>a</sup>	<,001 <sup>b</sup>	Y = 1,325 + ,456 x X	(X) is expected to increase by an average of 0.456 units
Hypothesis 9	122,259 <sup>a</sup>	<,001	,439	Validated hypothesis	,452 <sup>a</sup>	<,001 <sup>b</sup>	Y = 1,564 + ,457 x X	(X) is expected to increase by an average of 0.457 units
Hypothesis 10	100,289 <sup>a</sup>	<,001	,423	Validated hypothesis	,452 <sup>a</sup>	<,001 <sup>b</sup>	Y = 1,049 + ,452 x X	(X) is expected to increase by an average of 0.452 units
Hypothesis 11	45,251 <sup>a</sup>	<,001	,266	Validated hypothesis	,286 <sup>a</sup>	<,001 <sup>b</sup>	Y = ,971 + ,278 x X	(X) is expected to increase by an average of 0.278 units

Source: authors' processing, adapted from SPSS

- for hypotheses 1 - 11: the asymptotic significance coefficient has values between 0.001 (hypotheses 1 - 5 and 7 - 11) and 0.017 (hypothesis 6), lower than the allowed significance threshold of 0.05 and the value of the Pearson Chi Square indicator is higher than the tabular value in the context of 16 degrees of freedom (26.30), resulting that all hypotheses are validated;
- the value of the Spearman correlation coefficient having values between 0.266 and 0.521 shows a positive correlation between the variables analyzed by hypotheses 1 - 4 and 8 - 11;
- for hypotheses 5, 6 and 7, the value of the Spearman correlation coefficient is negative (between -0,108 and -0,255), which shows a negative (inverse) correlation between the analyzed variables.
- for hypotheses 1 and 2, the Pearson R correlation coefficient with values between 0.536 and 0.553 shows that there is a positive correlation (reasonable for values below 0.6) between the predictor and the dependent variable;
- for hypotheses 4, 8, 9 and 10 the Pearson R correlation coefficient with values between 0.419 and 0.452 shows that there is an average positive correlation between the predictor and the dependent variable;
- for hypotheses 3, 5, 6, 7 and 11 the Pearson R correlation coefficient with values between 0.122 and 0.286 shows that there is a weak positive correlation between the predictor and the dependent variable;
- the coefficient of determination with values between 0.015 and 0.306 indicates that 1.5% - 30.6% of the variation of the dependent variable is explained by the independent variable;
- the ANOVA test shows that the regression model predicts the dependent variable since the generated value of p is lower than the threshold of 0.05, which shows correlation between the predictor and the dependent variables.
- thus, hypotheses 1 - 11 are validated.
- the results of the regression coefficients show that the predictor variable X contributes statistically to the regression model and can be used to predict the dependent variables Y. For each additional unit of X, Y is expected to increase by an average between -0,287 and 0.712 units.

## 6. Conclusions

The limitations of the study are given by the fact that the sample could not be considered sufficiently representative the study being performed on a number of 1220 of public entities out of a total of 3,228 public entities across the country, according to information published on the Ministry of Development, Public Works and Administration's website.

Although local authorities have not been given legislation to assist refugees with various goods or services, they have nevertheless made such expenditures out of public funds out of solidarity and compassion. The answers to the questionnaire revealed that over 15% of the respondents stated that the institution they belong to was involved in purchasing various aids that were made available to refugees either in person or through the associations or foundations involved.

It can be concluded that the decisions of local public authorities to get involved in the process of helping refugees with goods, products or services based on feelings such as compassion and solidarity do not imply, in the view of the respondents to the questionnaire, an increase in the risks of fraud even if the public procurement of goods / services for humanitarian actions was carried out under extreme urgency. Paradoxically, in times of crisis such as that generated by the new coronavirus, the risk of fraud increases due to the emergence of the 3 recognized factors (Cressey, 1953), respectively, feel a strong pressure in their lives, identify an opportunity and find a method of justifying fraud so as not to violate its own moral values. These conclusions are also supported by the articles published by Ernst & Young (Steenkamp, 2021) and KPMG (Bell, Lowe and Preece, 2020) which highlights the emergence of the opportunity phenomenon. Even though the refugee crisis is smaller, people prone to fraud see this opportunity in making fraudulent purchases under the pretext of helping refugees, amid urgent humanitarian action and a lack of transparency regarding the actual delivery of aid. However, from a statistical point of view, our research hypothesis is invalidated in this case, the feelings such as solidarity and compassion that were the basis of these decisions negatively influencing or discouraging possible attempts at fraud.



The negative correlation with hypothesis no. 6 suggests that the goods purchased were absolutely necessary and useful to the refugees, the purchases being well-founded in terms of their choice of nature and the fact that the people involved made sure that they reached all the people in need and were of a real use.

Regarding hypothesis no. 7, the negative correlation reveals the fact that public managers should focus more on making expenses related to their field of activity, in this case only for their own administrative area and on ensuring quality public services for its own inhabitants.

What needs to be mentioned here is that 43.6% of the respondents in the sample stated that they participated in the refugee relief process in several forms, both with aid purchased from public funds and through voluntary collection activities or sorting them from individual or legal donors, transporting and distributing them in border crossing areas or even by providing food and goods of immediate necessity to refugee families accommodated in authorized centers.

According to the answers received, 92.7% of the respondents stated that the institution where they come from is not located in one of the border crossing areas and about 68% consider that they are not found on any of the natural transit routes of refugees. This aspect is all the more interesting to follow as the communal mayors from isolated areas of Transylvania, Banat or Muntenia, decided to get involved in these humanitarian campaigns by allocating public resources to this destination, although there were no explicit legal responsibilities in this regard.

Although the present research has its limits, the subject remains open to the analysis of specialists, in the analyzed situation the management decisions can be influenced by aspects related to feelings of an emotional nature, in this case, solidarity and compassion for peers.

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# The Impact of the Employees' Perception from the Educational Institutions in the Process of Organizational Change and the Implications of the Change on the Performance of the Organization

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## Abstract

*In this age of extraordinary change, educational organizations, school systems, educational institutions are under the pressure of change.*

*To determine the impact of the perception of employees of educational institutions on the process of organizational change and the implications of this complex process on the performance of the organization, the authors administered a questionnaire in state and private institutions, both qualitative and quantitative approaches were adopted. The results were analyzed using descriptive and inferential statistics (frequency analysis, correlative analysis, analysis of the degree of association between variables, multiple regression, analysis of artificial neural networks, modeling of structural equations). Based on a rich review of the literature, survey results and interpretation of these results through the concepts of change and organizational performance management, the study explored the change process, change needs analysis, quality improvement tools in the change process, and the influences of these variables on individual and organizational performance.*

**Key words:** employees' perception, educational institutions, organizational change, change process  
**J.E.L. classification:** L16, H75

## 1. Introduction

Like other organizations, organizational change in educational institutions is any change, improvement, enhancement, restructuring, or adjustment of educational processes or content in educational institutions (Dimmock, 1996). Organizational change has been extensively analyzed in the literature (Vărzaru et al., 2012; Vărzaru and Vărzaru, 2013, 2015a, 2015b, 2016). Hargreaves et al. (2005) point out that educational change processes and initiatives are intended to change learning and teaching in educational institutions. However, the change in the organization of educational institutions, for Hoy and Sweetland (2001), does not consist in trying to eliminate all the difficulties that educational institutions face, but in planning to innovate taking into account the internal and external pressures of change.

In the paper we aim to evaluate the impact of the employees' perception from the educational institutions in the process of organizational change and the implications of the change on the performance of the organization. The structure of the paper has 5 sections. In the introduction and theoretical background is proposed the research topic, the third section presents the research methodology, and the fourth the research results. The last section brings the conclusions of the research.

## 2. Theoretical background

Organizations, including educational institutions, are under constant pressure from their internal and external environment. Development and healthy change in educational institutions is essential for the survival of educational institutions as organizations and the achievement of progressive social change in society (Rosenblatt, 2004). Aslan et al. (2008) indicated that, not with standing the several tags given to change interferences, such as “reform, innovation, planned change, or improvement, it is more than just an increase in the scores of an educational institution” (Waite, 2002, pp. 161).

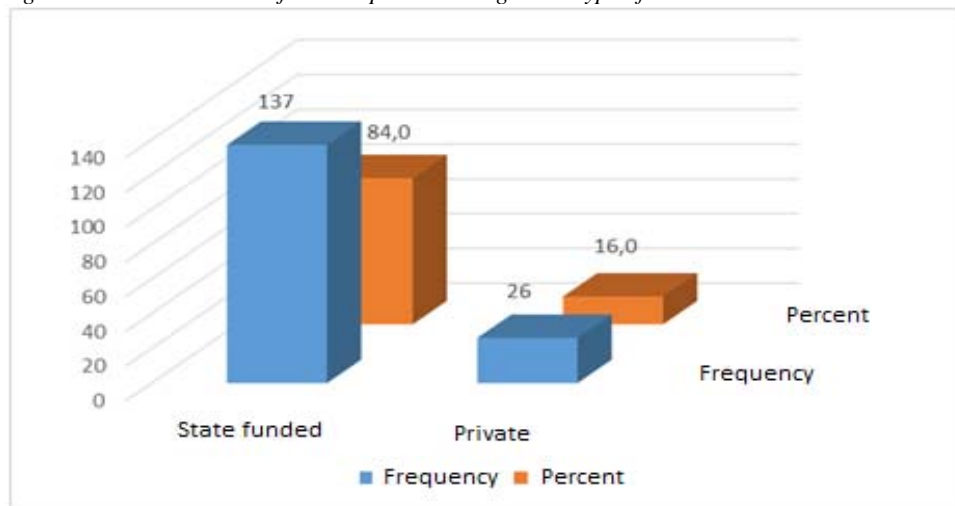
A school (generally accepted as an open system) has a more delicate assembly and is matter to unavoidable outward and inward pressures for adjustment (Fullan, 1993; Hargreaves, 2004; Hallinger, 2004; Harris, 2006; Beycioglu and Aslan, 2010). Hargreaves et al. (2005) show that change processes and initiatives in education are planned to revolution teaching and learning. The impact of the perceptions of those who teach in schools on how change is achieved is important, affecting the implementation of change and the smooth running of the organization.

## 3. Research methodology

In order to investigate the perceptions of the employees of the educational institutions on the general process of organizational change, the authors carried out a quantitative research on a sample consisting in 163 employees of some educational institutions financed from the state and private budget.

The distribution according to the type of institution of which the teachers included in the research are part aims at the type of employing institution (financed from the state and private budget). From this point of view, the proportion is unbalanced within the sample respecting the proportion at the level of the researched institutions and the proportion at the level of the Romanian educational system (figure no 1).

Figure no. 1. Distribution of the sample according to the type of educational institution



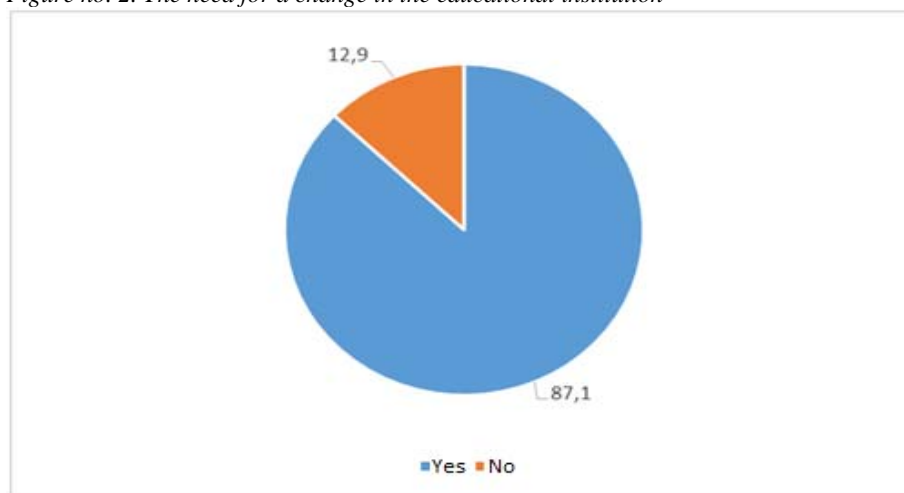
Source: authors' concept

In order to investigate teachers' perceptions of the process of change, the frequencies of variables will be analyzed and interpreted, as well as the degree of association between socio-demographic variables. We will also use neural network analysis in a similar way to other authors (Vărzaru et al., 2021a; Vărzaru et al., 2021b; Nicolescu and Vărzaru, 2021).

#### 4. Results and discussions

In order to investigate teachers' perceptions of the process of change, the frequencies of variables will be analyzed and interpreted, as well as the degree of association between socio-demographic variables and variables regarding the process of change. The analysis of the frequencies registered by the variable regarding the need for a change in the educational institution, in the perception of the teachers selected in the research, revealed an openness and a willingness to change, considered necessary by 87.1% of respondents, as can be seen in figure no 2.

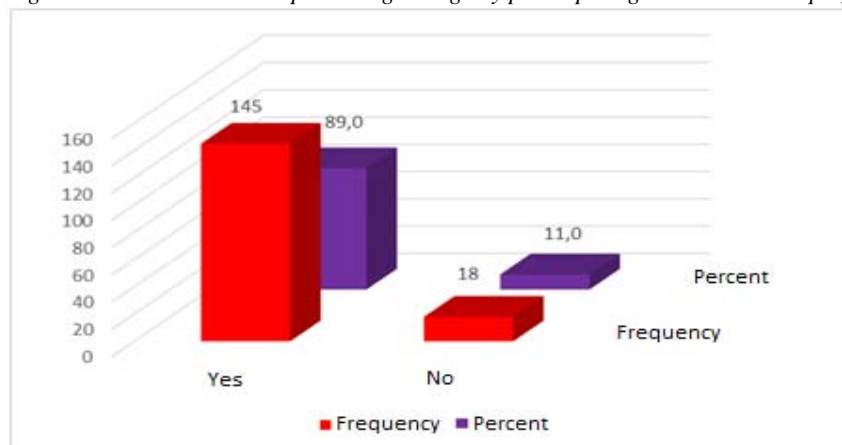
Figure no. 2. The need for a change in the educational institution



Source: authors' concept

The analysis of the frequencies recorded by the variable on involvement in producing change by participating in international projects, in the perception of selected teachers in research, highlighted a willingness of teachers to support change by improving skills and enriching experience after participating in international projects. 89% of respondents (as can be seen in Figure 3) believe that they can get involved in institutional change by participating in international projects that will allow them to create new relationships with teachers from other countries, to learn from their experience, transposing examples of good practice from other education systems in the institution where they operate.

Figure no 3. Involvement in producing change by participating in international projects



Source: authors' concept

In order to determine the optimal way to achieve organizational change in the educational institution, in the perception of teachers in the research, the authors calculated the correlations between the variable indicating the need for a change in the educational institution and the variables indicating how to participate in producing change: by supporting teaching degrees, by participating in professional development courses, by participating in international projects, in the perception of teachers.

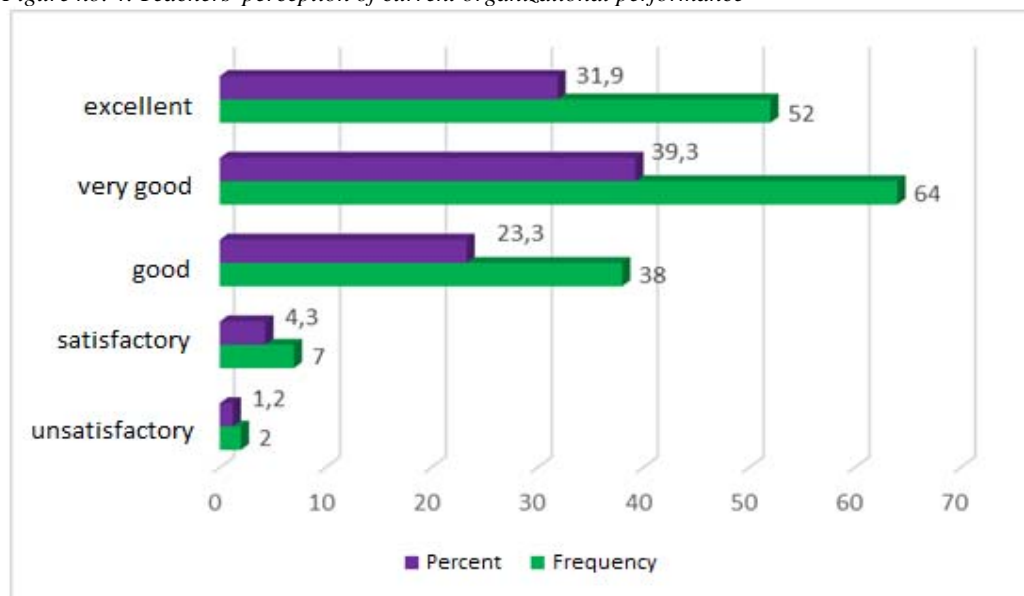
The investigation was deepened by developing a multiple linear regression model with the variable dependent on the need for a change in the educational institution, and as independent variables the variables that indicate teachers' perception of how to participate in producing change: by supporting teachers, by participating in development courses professional participation in international projects.

Following the analysis of the multiple linear regression model, it was found that in the perception of teachers, professional development is the most important way to implement an effective change in the educational institution. However, the participation of international projects also has an important role, which gives them the opportunity to create new relationships with teachers from other countries and to learn from their experience. The results of the multiple regression to which is added the analysis of the frequencies recorded by the variable on the promotion of professional development through organizational change indicate that the relationship between organizational change and professional development is a two-way one. The multiple regression shows that change can be achieved through the professional development of employees, that change encourages professional development, creating a virtuous circle that ultimately leads to organizational development. 92% of respondents believe that change encourages professional development, providing opportunities for teachers to improve and diversify their skills, increasing organizational performance.

In order to investigate teachers' perceptions on the influence of the change process on organizational performance, the frequencies of organizational performance variables, the degree of association between socio-demographic variables and organizational performance variables, correlations and analysis of artificial neural networks between variables that characterize the change process were analyzed and interpreted. in general, the variables that characterize organizational performance.

The analysis of the frequencies recorded by the variable on current organizational performance revealed that over 70% of respondents consider that the level of performance of the educational institution at present is excellent and very good, as can be seen in figure no.4

Figure no. 4. Teachers' perception of current organizational performance



Source: authors' concept

The process of change in educational institutions aims to improve the processes and ultimately the educational act, leading to better organizational performance. Among the variables of the change process, the analysis of change needs exerts the greatest influence on current organizational performance and the evolution of organizational performance in the last five years, research that involves determining the influences that are established between the change process and organizational performance. The authors used the analysis of artificial neural networks to detect influences between variables an input layer (which characterizes the process of change in general) and the variables located in an output layer (which characterizes current performance, respectively the evolution of performance in the last five years), through a hidden layer (represented by organizational culture, characteristics of students, the environment from which the students come, etc.).

The model used in the analysis of artificial neural networks is of the multilayer perception (MLP) type in which external influences are present in the form of biases that exert an action on the hidden layer and on the output layer. A sigmoid function was used to activate the hidden and output layers, which allows a better evaluation of the relationships that are established between variables that are relatively opposite. The synaptic connections that are established between the variables can be fine-negative indicating opposite evolutions, or positive indicating indications in the same direction. The most important influence among the variables of the organizational change process is the analysis of the need for change that determines an increase in organizational performance.

An analysis of the importance of input layer variables in the MLP model that indicates the amplitude of their influences on output layer variables shows that the most intense influence is the analysis of the need for change (Figure 5).

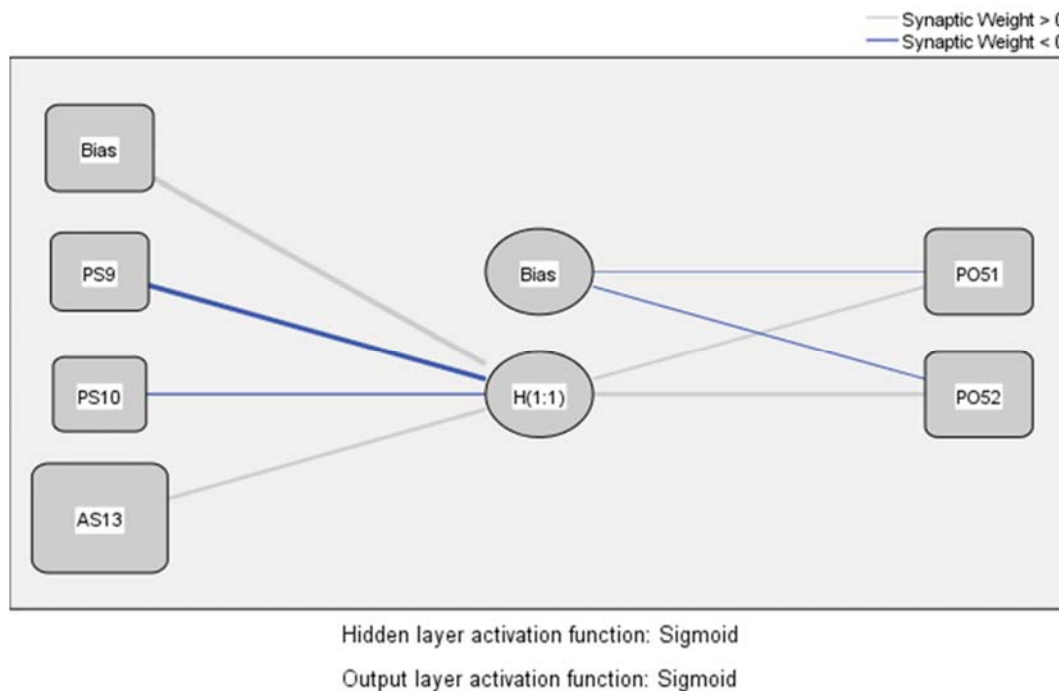
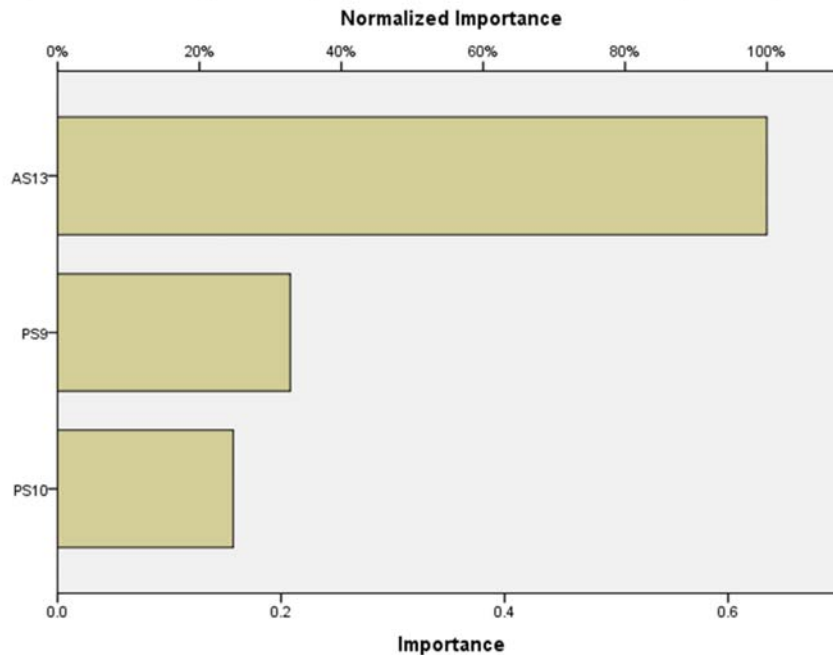


Figure no. 6. The importance of the variables that characterize the process of change



	Importance	Normalized importance
PS9	0,208	32,8%
PS10	0,157	24,8%
AS13	0,635	100,0%

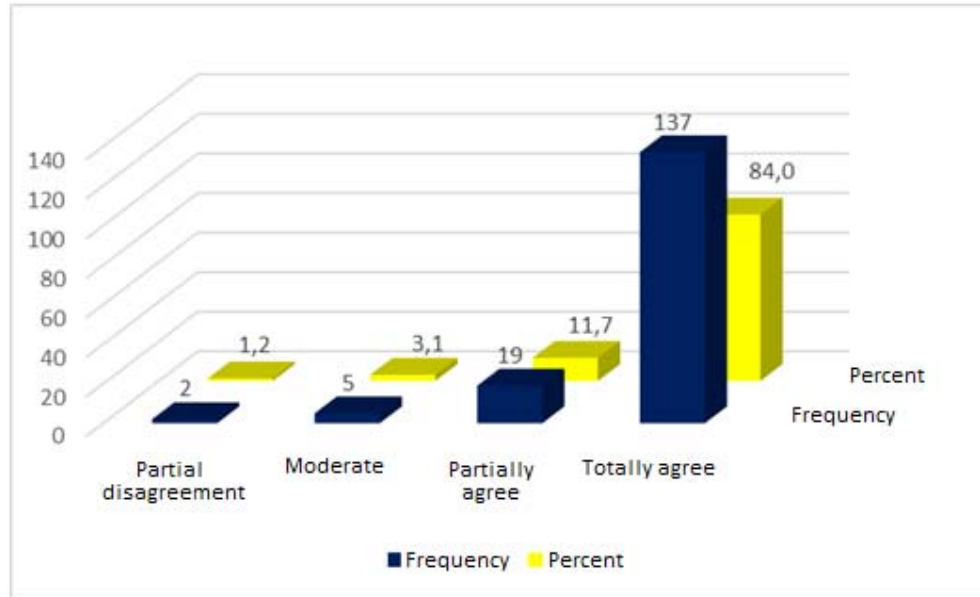
Source: Created by authors using SPSS v.20

Among the variables of the change process, the analysis of the needs for change exerts the greatest influence on the current organizational performance and the evolution of the organizational performance in the last five years.

In order to investigate teachers' perceptions of the influence of tools used to increase quality on organizational performance, the frequencies of variables on tools used to increase quality, the degree of association between socio-demographic variables and variables on tools used to increase quality and neural network analysis were analyzed and interpreted, between the variables that characterize the tools used to increase quality and the variables that characterize organizational performance.

The analysis of the frequencies recorded by the variable on ensuring well-being, in the perception of the teachers selected in the research, revealed that a significant percentage of teachers (84%) believe that increasing quality as a result of the change process should be done. by ensuring well-being, as can be seen from figure no 7.

Figure no. 7. Perception regarding the well-being of teachers



Source: authors' concept

The analysis of the frequencies registered by the variable regarding the specific attitudes of the active citizenship highlighted a support of the teachers regarding the involvement of the school by implementing changes in the community that would add the value of this community. 94.5% of respondents fully or partially agree with the statement that the increase in quality as a result of the change process should be done through an attitude specific to active citizenship.

To analyze the degree of association between socio-demographic variables and the variable on specific attitudes of active citizenship, the author used a Chi-square test, which revealed an association between this variable and the gender of the respondent. Depending on the gender, it was found that male representatives in particular are the most involved in attitudes specific to active citizenship, none of whom are in moderate positions or disagree with the statement that the increase in quality must be done through an attitude specific to active citizenship.

Increasing the quality improve the change processes. Among the tools used in the change process, the greatest influence on current organizational performance and the evolution of organizational performance in the last five years is: ensuring the well-being of teachers, open attitude towards lifelong learning, increasing system funding , groups of less numerous students In order to determine the influences exerted by the tools used to increase quality as a result of the process of change on current organizational performance and the evolution of organizational performance in the last five years, in the perception of teachers included in the research, the analysis of artificial neural networks between the variables located in an input layer (which characterizes the tools used to increase quality as a result of the change process) and the variables located in an output layer (which characterizes the current performance, respectively the evolution of performance in the last five years), through a hidden layer (represented by the organizational culture, the students characteristics , etc.

The use of e-learning platforms in the teaching process is followed in terms of the absolute and normalized importance of the open attitude towards lifelong learning and ensuring the well-being of teachers. Among the variables that characterize the tools used to increase quality as a result of the change process, the use of e-learning platforms in the teaching process exerts the greatest influence on current organizational performance and the evolution of organizational performance in the last five years crisis caused by the COVID-19 pandemic.



## 5. Conclusions

Understanding change provides a strong viewpoint on the connection amid deliberate change and constant change. Continuous change does not invalidate the structure of the organization consequently of the deliberate change approach. The achievement of defined, planned or formally constructed practices depends to a large extent on the recognition and management of the informal part. Continuous change functions not just in deliberate change practices, but likewise in further operational organizational practices.

The enlightenments for the issues in executing change in schools reveal the old-fashioned understanding of change, being complete from the viewpoint of deliberate change. The more fruitful change actions are, the better the amount of change models suggested by changing scientists. Therefore, we need an innovative attitude to direct our thoughtful and practice. With a meaningfully dissimilar understanding of the extent, speed, and source of change, numerous investigators have recognized totally dissimilar sets of errors in the method we deliberate and practice change in educational organizations.

Theorizing change as a substance of time and bringing opportunities for change interventions offers therapies not just for treating pathologies connected to the application of change, but likewise for ensuring personal development.

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## Romanian Students’ Perception of Cryptocurrency

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### Abstract

*This paper aims to find out about the perception Romanian students have concerning cryptocurrencies. Our main focus was on students from faculties of economics, but we have also gathered responses from students enrolled in other faculties, given the fact that this research is an empirical one. The method used in this research is qualitative. We have conducted semi-structured interviews which included the top of mind and Chinese Portrait method techniques. Thus, we have collected information about how students perceive cryptocurrencies (and with what they associate them), the most well-known cryptocurrencies among students, how much students are willing to invest in cryptocurrencies and from where they get their information on this topic. Our results align with results from past research, showing that attitudes concerning cryptocurrencies are in extremes, with some people being optimistic due to the facilities blockchain brings, but with others still being suspicious because of this new phenomenon.*

**Key words:** cryptocurrency, media, perceptions, social media

**J.E.L. classification:** G41, G53, M31

### 1. Introduction

New technologies can eliminate some types of jobs, change the skills requirement within other occupations and create new employment opportunities (OECD, 2017). They can also cause radical changes and innovations which generate new markets and growth (Pham, 2011 *apud*. McMorrow & Seyed Esfahani, 2021). The cryptocurrency market has been considered one of these new, revolutionary markets due to the constant technological evolution and innovation that blockchain technology provides (McMorrow & Seyed Esfahani, 2021). But attitudes towards cryptocurrencies have been “in extremes” for the past decade (Knežević, Babić & Musa, 2020). Some researchers and lay people have a very positive attitude towards them due to the new opportunities that blockchain technology brings, but others state that this is an unexplored technology and thus, an unstable market which can be used as a tool for criminal activities or for skipping social responsibilities such as tax avoidance and corruption (Knežević, Babić & Musa, 2020).

Among these contradictory opinions, we consider that it is important to know and analyze the opinions of our future generation – students. Students’ opinions, perceptions and attitudes towards this new phenomenon (cryptocurrencies) should be a point of interest for researchers in fields like sociology, anthropology, economics, business administration, human resources management and many others. Thus, studies on this topic have been applied on students and youth from Pakistan (Hasan, Ayub, Ellahi & Saleem, 2022), Croatia (Knežević, Babić & Musa, 2020), South Africa (Mazambani & Mutambara, 2020), Russia (Gagarina, Nestik & Drobysheva, 2019) and others.

Our paper aimed to complete the scientific literature by analyzing Romanian students’ perceptions of cryptocurrencies. We have found some articles related to this topic (Chivu, Popa, Orzan M., Marinescu, Florescu, Orzan A., 2022; Duma & Gligor, 2018; Chivu, Niculescu-Ciocan, Orzan &

Mitrică, 2018), but their focus was on Bitcoin, its notoriety (Chivu, Niculescu-Ciocan, Orzan & Mitrică, 2018), payment methods preferences of students (Duma & Gligor, 2018) and their perceptions of the technological integration of blockchain in the learning process (Chivu, Popa, Orzan, Marinescu, Florescu, Orzan, 2022). Also, from a methodological point of view, these studies we have found opted for a quantitative approach.

Thus, we consider that there is still a need for research on this topic. Taking this into consideration, our study goal was to do an interpretive study regarding students' perceptions about cryptocurrencies. We have conducted semi-structured interviews in order to obtain associations students make when thinking about cryptocurrencies, but also other information like their willingness to invest in cryptocurrencies and how they get information about this topic. The interviews included questions based on the top of mind and Chinese Portrait techniques. Hence, students were asked things like *If cryptocurrencies were a gender, then what gender would they be?*, *If cryptocurrencies were an occupation, then what occupation would they be?*, *If cryptocurrencies were a nationality, then what nationality would they be?* and others.

## 2. Literature review

Cryptocurrencies have a short history, starting slightly after the economic crisis in 2008. This is the reason a lot of people think or might think cryptocurrencies were invented as an answer to the physical money that were starting to depreciate and inflate then. But some experts say that the inception of cryptocurrencies was not a reaction to the economic crisis, but “a solution to the fundamental issue of financial sovereignty” (Acheson, 2021). As stated in the Bitcoin white paper, “the root problem with conventional currency is all the trust that's required to make it work. The central bank must be trusted not to debase the currency, but the history of fiat currencies is full of breaches of that trust” (*apud.* Acheson, 2021).

Since the inventor of cryptocurrencies is not really known (he/she/they just goes by the fictive name of Satoshi Nakamoto), we cannot truly know what his/her/their intentions were when this entity invented the first cryptocurrency. But we can say that regardless the economic crisis, it seemed (at least by reading the posts on the <https://satoshi.nakamotoinstitute.org/> website) that the main purpose of this first cryptocurrency was to give people a sort of freedom: doing payments without the intervention of a third-party system (which is, in general, represented by the banks).

Anyway, like many other information about cryptocurrencies, the discussion about the reason they appeared is still under the sign of uncertainty, because people in general and also scientists are just starting now to develop their understanding about this new phenomenon. Thus, there are not so many scientific articles on this topic, but researchers covered research areas like technology behind cryptocurrencies (blockchain) and the way they work (Nakamoto, 2008; Härdle, Harvey & Reule, 2018; Berentsen & Schär, 2018), impact of cryptocurrencies on global economy and politics (Perkins, 2020), the acceptance of this new technology (Dudukalov, Geroeva, Shtepa & Ushakov, 2021), motivations people have for investing/not investing in cryptocurrencies (Smutny, Sulc & Lansky, 2021), risks related to cryptocurrencies (Chan, Chu, Nadarajah & Osterrieder, 2017) and people's perception and sentiments regarding them (Knežević, Babić & Musa, 2020; McMorrow & Seyed Esfahani, 2021).

As mentioned in the introduction section, this last topic was our area of interest, because people's perceptions and opinions about this new trend can dictate how it will go in the future. By its definition, perception is the process by which people select, organize, and interpret sensations. In other words, it is what people add to raw sensations in order to give them a meaning (Madichie, N., 2012). Thus, we wanted to see what meaning students give to the concept of cryptocurrency. In order to find out about this, we have introduced in our interviews questions regarding sources of information about cryptocurrencies, as there are indirect effects of social media on attitude formation and intention towards engaging in cryptocurrency through the processes of social influence (Wokke & Rodenrijs 2018). It is stated that heavy social media users are more likely to engage in online trading but are largely affected by online herding behavior, and are four times more likely to blindly follow other traders (Bizzi & Labban, 2019). Bloggers, influencers, social network contacts, and social media news shape these users' online trading behaviors.

### 3. Research methodology

The research problem is that we don't have hard evidence about how cryptocurrencies are perceived by students, especially students in Romania. The purpose of this research is to find out the cryptocurrency associations formed in students' minds and interpret them.

The main objectives of this research are:

- O1. To identify cryptocurrency associations between students.
- O2. To identify how willing are students to invest their money in cryptocurrencies.
- O3. To identify how cryptocurrencies are perceived by students.
- O4. To identify from what media sources students are taking their cryptocurrencies information.

The method used in this research is qualitative research and the tool used is a semi-structured interview. The semi-structured interview about cryptocurrencies can be found in Annex 1. This was the tool that helped gather the information needed in order to conduct our research and we learned more about the respondent's perceptions, feelings, emotions, about their behavior and personal experience. The semi-structured interview consisted of 23 questions and was distributed online in groups on the most known social media platform, Facebook. Since our target population consists of Romanian students, the groups we chose were official groups that represent the Universities of Romania, with a focus on groups that represent Faculties of Economics.

The sample considered consists of 98 respondents (66 females, 31 males and one person who did not want to disclose this information. The respondents come from 11 different universities in Romania, and they are from more than 18 different specializations. The majority of them fall into the 21-27 age category.

### 4. Findings

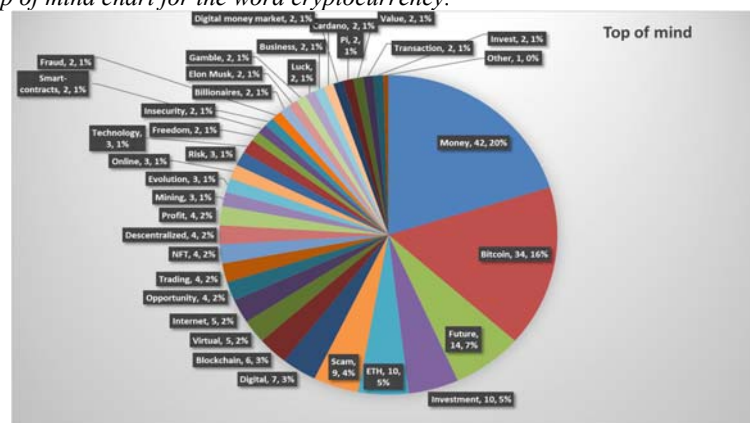
We divided our findings based on the objectives set for this research.

#### 4.1 Objective 1. To identify cryptocurrency associations between students.

In order to accomplish the first objective, we dedicated a couple of questions in our interviews. The first question refers to the associations formed in the students' mind. They were asked to name the first three words that came into their mind when thinking about cryptocurrencies.

Table 1 shows the top-of-mind associations that we got for the word “cryptocurrency”, and based on it we created the chart below. However, the last position is occupied by “other” meaning that we have got several other responses that only showed up one time. Due to space restrictions, we restricted the table to only what you may see here. Other valuable responses that were found in the top-of-mind test are money laundering, volatile, dreams, Tesla, influencer, knowledge, power, salvation etc.

Figure 1: Top of mind chart for the word cryptocurrency.



Source: own processing

As we can observe in Figure 1, there are many associations students have formed in their minds regarding cryptocurrencies. As expected, the most frequent word mentioned by our respondents was *money* (42,2% of our respondents mentioned it). The second most mentioned word was Bitcoin (34,16%), which was again, an expected word between the answers to this question, being done that this was the first cryptocurrency ever created (Antonopoulos, 2017) and it is considered the “leader of cryptocurrencies” (Chan, Chu, Nadarajah & Osterrieder, 2017). Another popular cryptocurrency that students mentioned in their answers was Ethereum, which was the fifth most mentioned word (10,5%). Students also associated cryptocurrencies with *future* (14,7%), *investment* (10,5%) and *scam* (9,4%). Here, it is worth mentioning that the association between cryptocurrencies and scams is not surprising, especially because cryptocurrencies frauds have become a growing global concern (Trozzie et al., 2022).

#### **4.2 Objective 2.** To identify how willing are students to invest their money in cryptocurrencies.

In order to see whether students are willing to invest into cryptocurrencies in the future, we asked them if they had invested already. We calculated their responses and got the following results: the majority, 59,2% said they did not, and this could be happening because students do not have an income in general. The other 40,8% said they had invested and if we further analyze them, we notice that they are not willing to invest anymore at the moment.

Surprisingly, most of the respondents (34%) said that they were not willing to invest in cryptocurrency at the moment of the interview. It is a surprise because most respondents found cryptocurrencies reliable, secure, and trustworthy. Therefore, we expected that a more significant number of respondents answered that they are actively implicated in cryptocurrencies via investing. One of the reasons may be the lower incomes as they are still students and focused more on studying than making money.

After gathering our information about whether they want to invest or not, we asked them how much they would be willing to invest and only 24.5% would want to invest in cryptocurrencies less than 100 RON (aprox. 20 EUR), 15.1% would invest between 101 and 500 RON (aprox. 21 - 101 EUR), 13.2% would invest between 501 and 1000 RON (aprox. 101 - 202 EUR) and, finally 13.2% of the respondents would invest more than 1000 RON (aprox. 200+ EUR)

Next on our semi-structured interview was to ask them if they would invest their scholarship from the University. This could have eliminated the risk of the “I don’t have money to invest” reason. We assume that the students from Romania have a high aversion to risk, because over 70% of the respondents said that they would not invest all the money from the scholarship. Interestingly, a small percent of almost 4% would invest a portion of the scholarship in cryptocurrencies.

We also asked the respondents which cryptocurrencies they know best and Bitcoin and Ethereum are the most known cryptocurrencies right now. Bitcoin, on the one hand, has the largest market cap (around 880 \$ Billions in April 2022, via coinmarketcap.com). On the other hand, Ethereum is the number one contestant of Bitcoin. With lots of application you can make on its blockchain, Ethereum is the second largest market cap in the cryptocurrency’s world (around 420 \$ Billions) and over 75% of respondents have heard of it. Dogecoin is the third most known cryptocurrency among Romanian students. This coin is the 12th largest cryptocurrency by market cap and the world knows about this coin because it is a highly “memeable” coin that marketed itself via meme marketing.

In correlation with the previous question, the overwhelming majority would invest in Bitcoin, the oldest and the most popular cryptocurrency. However, 28.6% are not willing to invest in cryptocurrencies at the moment.

#### **4.3 Objective 3.** To identify how cryptocurrencies are perceived by students.

In order to conduct a precise and worthy research we asked our respondents whether they had heard about cryptocurrencies before the day they responded to our semi-structured interview. From a total of 106 responses, 103 respondents have heard about cryptocurrencies and 3 didn’t. Another question was whether our respondents are students or not, since we base our study on students that have heard about cryptocurrencies before. From this question we saw that only 98 are students.

After the eliminatory questions, we started our interviews with the Chinese Portrait Technique (CTP), meaning firstly, we asked our respondents if cryptocurrencies were to be a currency, which currency would they be? The other questions from the CPT were referring to gender, age, occupation and nationality.

Most of the people associated cryptocurrencies with Bitcoin which was the most associated currency. It's a good sign meaning that the respondents know a lot about cryptocurrencies since they mentioned a few like ETH, Doge coin, Shiba inu. On a second position we have the association "euro" which symbolizes the fact that cryptocurrencies are viewed as a strong currency.

Our next question made the respondent's a little bit confused, giving the fact that we asked them to associate cryptocurrency with a gender. Most of them associated cryptocurrencies with being a male. This might bring out the fact that they view cryptocurrencies as a strong currency, that can have a say between other currencies. A few people mentioned that cryptocurrencies are neutral or gender fluid and this can highlight that crypto is a volatile currency that can change fast over periods of time.

From our question which we asked in which age category they see cryptocurrencies, we divided the answers into age intervals. The age interval that had the most responses is 18-25, a lot of people answered that cryptocurrencies are like late teenagers because as their age, they change a lot, or they are volatile. Some of the responses were not numbers and we want to highlight them. One person said young and futuristic and this can be interpreted as even though cryptocurrencies are pretty young on the market they might have a bright future just like any 18 year old.

Coming in second place is the age category which is below 17. This might get a lot of answers because cryptocurrencies are also at less than 17 years on the market.

After asking our respondents about their perceptions, we wanted to know how reliable, secure and trustworthy they find cryptocurrencies. When asked about how reliable cryptocurrencies are, most of them gave a strong 6 on a scale from 1 to 10 (where 1 means least reliable and 10 is very reliable), which means that people rely on cryptocurrencies but not that much. Probably they rely on other currencies better. However, most people gave numbers higher than 6, so overall cryptocurrencies are perceived as a reliable currency.

When asked about how secure cryptocurrencies seem, most of them also gave a strong 6 on a scale from 1 to 10, which means that people find cryptocurrencies as being pretty secure. Most people gave numbers higher than 6, so overall cryptocurrencies are perceived as a secure currency. A worth mentioning thing is that 7 people gave only 1 on the security scale, so some of them don't find cryptocurrency secure at all.

When asked about how trustworthy students find cryptocurrencies, most of them gave a strong 8 on a scale from 1 to 10. This is a very good sign of how they are perceived. However, 12 people gave 1 on the trustworthy scale, which means this is a phenomenon to further investigate, because it revealed the negative perceptions. This phenomenon might have happened because of the cryptocurrency falling back in a short time, when it was announced by Elon Musk. Even though we have a high number of people giving just 1, the majority falls into the half after 6, so overall cryptocurrencies are perceived as a trustworthy currency.

#### **4.4 Objective 4.** To identify from what media sources students are taking their cryptocurrencies information

We continued our semi-structured interview with a question where the participants could choose one or more options from where they get their information about cryptocurrencies because we assumed that one can and should take information from multiple sources, especially in this field. Therefore, Youtube is the predominant channel for gathering cryptocurrencies information. Friends and family come second on this behalf. We can see that *Social Media* has a cumulative majority of the responses. That indicates a higher use of the social platforms for gathering cryptocurrencies information. This is also an indicator for further research on this matter. We also assumed that the respondents follow crypto influencers and asked this question. The results are in the following paragraph.

We analyzed the influencers the respondents watch the most and we saw that over 50% of the respondents chose Elon Musk, the wealthiest person alive at the moment as the main cryptocurrency influencers. The second chosen influencer is George Buhnici. The curious thing here is that neither George Buhnici nor Elon Musk is a cryptocurrencies influencer. Buhnici is a tech journalist, and Musk is a tech mogul. Both have affinities related to cryptocurrencies and promote various projects in this field.

Another aspect worth mentioning is that Romanian students prefer to follow local influencers specialized in cryptocurrencies to the detriment of international ones, and some of the students do not follow influencers or consider that they do not follow influencers (if we assume that anyone you follow on social media can be, in a way, an influencer for you).

## 5. Conclusions

In conclusion, this research shows that cryptocurrencies are known between students. The majority of them would like to invest into cryptocurrencies, but not their whole scholarship, if they are getting one. As for the way cryptocurrencies are perceived, we can conclude that most people think of Bitcoin and money when it comes to cryptocurrencies. But beside the positive associations we also encountered some negative ones like scam, money laundering and insecure.

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# The Impact of HR Activities on Organizational Performance

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## Abstract

*Human resource management is a factor in increasing the competitiveness of the company and the national economy as a whole, an essential factor of economic and social progress. Furthermore, human resource management contributes decisively to the harmonization of individuals' interests with the enterprises' objectives, to the harmonious interweaving of economic reasons with social reasons, both within enterprises and at the scale of the entire sector and the national economy. The paper studies and evaluates the impact of various human resource management activities on organizational performance, which is determined by the efficiency and effectiveness of human resources. Following the application of structural equation modeling to identify relationships, we concluded a significant influence of HR activities on organizational performance. Working relationships and conditions are the most critical activity that significantly impacts organizational performance.*

**Key words:** human resources, activities, performance, efficiency, effectiveness

**J.E.L. classification:** O15

## 1. Introduction

Human resource management, as it results from the way it is defined and the principles underlying its exercise in practice, is a subsystem of general management. The literature highlights a wide variety of structures, more synthetic or more detailed depending on a wide range of factors and requirements, among which an important role has the size of the company (large, medium, small).

In most organizations, there is a structure of medium complexity, which can be extended or, on the contrary restricted, according to the needs and particularities of the company. For example, the big players in the economic sector have significant human resources departments in the form of directions. These domains can be restricted or extended on the principle of harmonics, depending on the enterprise's size, just as each domain's content can be extended and concretized.

The main activities that are the object of human resources management are the following (Vărzaru et al., 2012; Vărzaru and Vărzaru, 2013, 2015a, 2015b, 2016; Bocean, 2015; Bocean and Sitnikov, 2015; Dessler, 2019; Valentine et al., 2019; Wilkinson 2021):

- staff recruitment and selection,
- performance management,
- personnel files management,
- reward system management,
- training and personal development of employees,
- management relationships and working conditions.

The paper's objective is to assess the impact of various human resources management activities on organizational performance, which is determined by the efficiency and effectiveness of human resources. The paper has a structure of five sections. After an introduction and theoretical background, the methodology, research results, and conclusions are presented.

## 2. Theoretical background

The procedures for recruiting, selecting, and hiring staff should be reviewed annually to avoid obtaining unnecessary information that will not be used in the recruitment and selection process.

Essential for an organization, in the process of applying for a job, must be the experience in the previous activities of potential employees and the possession of diplomas and certificates that entitle them to exercise the profession for which they are employed. In the application documents for a job (CV, letter of intent), the organization will request the applicant the agreement to verify the information provided by him. The application documents will also include the certification from the applicant of the veracity and accuracy of the information (Wilkinson 2021).

Large organizations can decentralize the candidate selection process, allowing functional managers to participate in interviews and selection of future employees in their departments. A necessary tool in conducting the interviews should be a standardized questionnaire provided by the human resources department, even if the answers will lead to further questions.

In the recruitment and selection process, an organization must ensure that the practices and policies used do not lead to direct or indirect discrimination between candidates in terms of gender, race, ethnicity, marital status, family responsibilities, religion, political opinion, sexual orientation, the existence of a disability, language.

After identifying the right candidate, it is recommended that the organization hand him a letter of offer in which he indicates the position offered, the duties of the position, the date of commencement of the employment contract, the size of the salary, the frequency of payment and the date of payment. In addition, if the offer provides for certain conditions, they must be indicated to avoid further confusion.

It is recommended that the performance appraisal system in an organization be recorded in the organization's documents (internal operating regulations or in the organization's policy manual). Evaluators must be objective and not use the evaluation's conclusions to solve personal problems. Prior to the evaluation, it is necessary to self-evaluate the employees to compare the evaluation results with the employees' considerations. In order for the evaluation to be effective, permanent feedback is needed to ensure that the performance of the employees is rewarded (Valentine et al., 2019).

Personnel files must be prepared following legal regulations. In this regard, a periodic random check leads to keeping them in order. Staff files should contain information on: application documents for vacancies, offer letters, job descriptions, personal data of employees, periodic performance appraisals, employment contracts, salary changes, documents on the actions of the human resources department, workbooks, internships, and medical records (Vărzaru et al., 2012; Vărzaru and Vărzaru, 2016).

The components of the reward system must include basic salary, bonuses, percentage commissions, incentives, shares or bonds issued by the organization, and various other benefits. In addition, the reward system must consider the results of the organization and the systems within similar organizations (Dessler, 2019).

Training and human resource development are attempts to improve employees' current and future professional performance by developing their professional skills and abilities.

The employer should ensure the safety and health of workers in all aspects related to work. The employer must also ensure an appropriate work environment that leads to good results for the organization (Bocean, 2015).

In conclusion, the purpose of human resources management is to manage human resources and provide solutions to improve the practices and procedures used in the field of human resources to increase the organization's efficiency and effectiveness. Consequently, starting from the theoretical considerations, we built the following hypotheses of the research:

H1. Among the HR activities, the management of relationships and working conditions is the most influential antecedent in employees' perception.

H2. HR activities have a significant positive impact on organizational performance.

### 3. Research methodology

To evaluate the impact of various human resource management activities on organizational performance determined by human resource efficiency and effectiveness, we used structural equation modeling to determine the relationships between unobservable latent variables based on exogenous observable variables. Structure equation modeling was used with success by other researchers (Vărzaru et al., 2021a; Vărzaru et al., 2021b; Nicolescu and Vărzaru, 2021). Exogenous observable variables are represented by a questionnaire's items that were applied to 239 employees of some Romanian organizations. The structure of the questionnaire is presented in table no. 1.

Table no. 1. Questionnaire structure

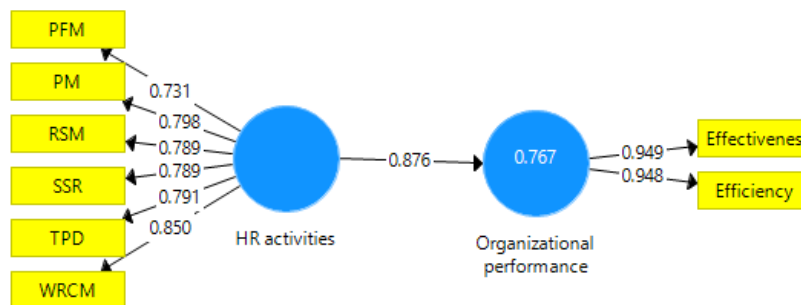
Variable	Scales
Sex	Male, Female
Age	18–30 years, 31–45 years, 46–65 years
Staff selection and recruitment (SSR)	1 to 5 (1—non-important, 5—most important)
Performance Management (PM)	1 to 5 (1—non-important, 5—most important)
Personnel file management (PFM)	1 to 5 (1—non-important, 5—most important)
Reward system management (RSM)	1 to 5 (1—non-important, 5—most important)
Training and personal development (TPD)	1 to 5 (1—non-important, 5—most important)
Working relationship and conditions (WRCM)	1 to 5 (1—non-important, 5—most important)
Efficiency	On a scale of 1 to 5 (1—very small, 5—very high)
Effectiveness	On a scale of 1 to 5 (1—very small, 5—very high)

Source: Own construction

### 4. Findings

Following applying the theoretical model within the SmartPLS V3.0 software, a model of the relations between HR activities and organizational performance is illustrated in figure no. 1.

Figure no. 1. Empirical model



Source: Own construction using SmartPLS v3.0

It can be seen from Figure 1 that the working relationship and conditions (WRCM) are the most important antecedent of HR activities; the H1 hypothesis is valid.

The reliability and validity of the empirical model are presented in table no 2.

Table no. 2. Validity and reliability

	Cronbach's Alpha	Composite Reliability	AVE
HR activities	0.881	0.910	0.627
Organizational performance	0.888	0.947	0.899

Source: Own construction using SmartPLS v3.0

Table no. 3 presents path coefficients for the relationship between HR activities and organizational performance.

Table no. 3. Path coefficients

	Original Sample	Standard Deviation	T Statistics	P Values
HR activities -> Organizational performance	0.876	0.015	59.517	0.000

Source: Own construction using SmartPLS v3.0

From table no. 3, it can be seen that HR activities exert a significantly positive influence on organizational performance, which is determined based on the efficiency and effectiveness of human resources, which makes the H2 hypothesis to be validated.

## 5. Conclusions

Human resources management contributes through its activities specifically to any organization's economic and social efficiency by integrating at a higher level the company's activities in the market and the national economy based on economic criteria. Organizational performance results from absolute and relative labor savings alive and materialized, both at the level of economic unity and at the level of the systems in which it is integrated (Bocean, 2007a, 2007b).

In conclusion, it can be stated that the main problem of an organization is to promote the most appropriate human resources management and create a proper motivational or organizational climate. By good managing relationships and working conditions, in which individuals need to be integrated into the organization's needs, the individual can better meet their own goals, working for the organization's goals.

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## Evaluating the Implementation of an Integrated IT Solution for HRM on the Organizational Efficiency and Effectiveness

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### Abstract

*Using an integrated human resources IT application as a document management service provider assumes that all relevant information can be found in a single integrated archive, ready to be constantly updated and intended to protect the organization in the event of a problem employee or control of the authorities. In the paper, the main objective is to evaluate the implementation of an integrated IT solution in human resource management on the efficiency and effectiveness of the organization. Furthermore, we also aim to identify the area in which the implementation of an IT solution will significantly contribute to the efficiency and effectiveness of an organization.*

**Key words:** human resources, IT solution, efficiency, effectiveness

**J.E.L. classification:** O15

### 1. Introduction

Over the years, the role of the human resources department has evolved from an administrative to a strategic one, overcoming its classic duties of employment, professional development, and pay (Vărzaru and Vărzaru, 2013, 2015a; Bocean, 2015; Bocean and Sitnikov, 2015; Dessler, 2019; Wilkinson 2021). Some human resource managers believe that the responsibilities of a human resources department revolve around document management. The requirements of legal or internal regulations determine the managers of human resources departments to develop planning and harmonization activities with labor regulations.

The most important activity of the human resources department is the organization and management of information (Vărzaru and Vărzaru, 2015b). While some information should be made available to the general public, other documents should only be available to authorized personnel. Maintaining clear, complete, and accurate documentation is the only way to reduce and eliminate the risk of conflict (Valentine et al., 2019). This activity involves the assimilation of structured and unstructured documents that come from various sources in various formats (paper or electronic applications). The difficulty of the process increases as the volume of documents increases, especially when they require long-term archiving or periodic updating (Vărzaru et al., 2012). Therefore, it is necessary to implement an integrated IT solution to ensure efficient human resources management.

In the paper, the main objective is to evaluate the implementation of an integrated IT solution in human resources management on the efficiency and effectiveness of the organization. Therefore, the paper includes five sections in which the information on how the research is conducted and its results are presented: introduction, theoretical background, methodology, findings, and conclusions.

## 2. Theoretical background

While some information should be made available to the general public, other documents should only be available to authorized personnel. Maintaining clear, complete, and accurate documentation is the only way to reduce and eliminate the risk of conflict. This activity involves the assimilation of structured and unstructured documents that come from various sources in various formats (paper or electronic applications). The difficulty of the process increases as the volume of documents increases, especially when they require long-term archiving or periodic updating. To cope with these difficulties, any enterprise must build an information system of human resources (Vărzaru and Vărzaru, 2016).

The human resources information system is an integrated system designed to provide information used in human resources decision-making. A human resources information system serves two essential purposes within organizations. One refers to administrative and operational efficiency, and the other to organizational effectiveness (Wilkinson 2021).

The primary purpose of a human resources information system is to improve the efficiency with which employee data is collated based on human resources activities. Many human resources activities can be performed more efficiently and with less paper, if they are automated. Databases that can be accessed through the intranet allow storage of employee information in a minimal space and avoid unnecessary, time-consuming, and paper-intensive operations.

The second goal of a human resources information system is to target the organization's strategic level and allow for better human resource planning. The human resources information system makes the managerial decision-making process more information-based than the manager's perception and intuition.

Implementing a comprehensive document management program is the first step toward efficient human resource management. An effective human resource management program must ensure (Dessler, 2019):

- electronic capture and processing of documents on physical media,
- document management,
- secure delivery and archiving for each document used in human resources management regardless of its original form and format.

The use of an integrated human resources IT application as a document management service provider assumes that all relevant information can be found in a single integrated archive, ready to be constantly updated and intended to protect the organization in the event of a problem employee or control of the authorities, but also for finding the "unpolished diamond" in the great mass of CVs (Bocean, 2015).

In order to be efficient, an integrated computer application specialized in the field of human resources must cover a series of fields presented in table no. 1.

*Table no. 1 Modules of an IT application in HRM*

<b>Module</b>	<b>Utility of the module</b>
Recruitment and selection	In the field of recruitment, the IT solution will provide electronic archives with the applicants' information that ensures the extraction of the information by searching by keywords. Furthermore, the electronic environment itself can remove unnecessary or outdated information.
Payroll	In this area, an efficient IT application must ensure the security of the environment so that employees can access their information on payroll information and provide the human resources department with a quantity of payroll information.
Self-Service Tool for Employees	The computer application must ensure an integrated and secure environment in this field, where employees can search and access individually beneficial and relevant information. This service helps employees manage their situation.
Personnel evaluation	This application module should provide data on employee performance, employee gaps, and training needs.
Personnel files	In this field, the integrated application can offer a series of services: drawing up employment contracts, generating job descriptions, generating employee certificates, and drawing up the general register of employees.

*Source:* Based on Bocean, 2015; Bocean and Sitnikov, 2015; Dessler, 2019; Wilkinson, 2021

Consequently, starting from the theoretical considerations, we built the following hypotheses of the research:

*H1. Integrated IT solutions for HRM have a significant positive impact on efficiency and effectiveness.*

*H2. The personal assessment is the most influential antecedent in employees' perception of the IT solution for HRM modules.*

### 3. Research methodology

We use artificial neural network analysis to evaluate the implementation of an integrated IT solution for HRM on organizational efficiency and effectiveness, similar to other research methodology (Vărzaru et al., 2021a; Vărzaru et al., 2021b; Nicolescu and Vărzaru, 2021). An artificial neural network analysis involves defining an input layer that includes input variables and an output layer that includes output variables. Connections are established between them through a hidden layer. In our research, the input variables are the modules of a computer application in human resources management (recruitment and selection, payroll, self-service tool, staff evaluation, personnel files). The output variables are the efficiency and effectiveness of human resources. Biases are external influences. Data for all variables were obtained by administering a questionnaire to 239 employees of some Romanian organizations. The structure of the questionnaire is presented in table no. 2.

*Table no. 1. Questionnaire structure*

Variable	Scales
Sex	Male, Female
Age	18–30 years, 31–45 years, 46–65 years
Recruitment and selection (RS)	1 to 5 (1—non-important, 5—most important)
Payroll (P)	1 to 5 (1—non-important, 5—most important)
Self-service tool (SST)	1 to 5 (1—non-important, 5—most important)
Personnel evaluation (PA)	1 to 5 (1—non-important, 5—most important)
Personnel files (PF)	1 to 5 (1—non-important, 5—most important)
Efficiency	On a scale of 1 to 5 (1—very small, 5—very high)
Effectiveness	On a scale of 1 to 5 (1—very small, 5—very high)

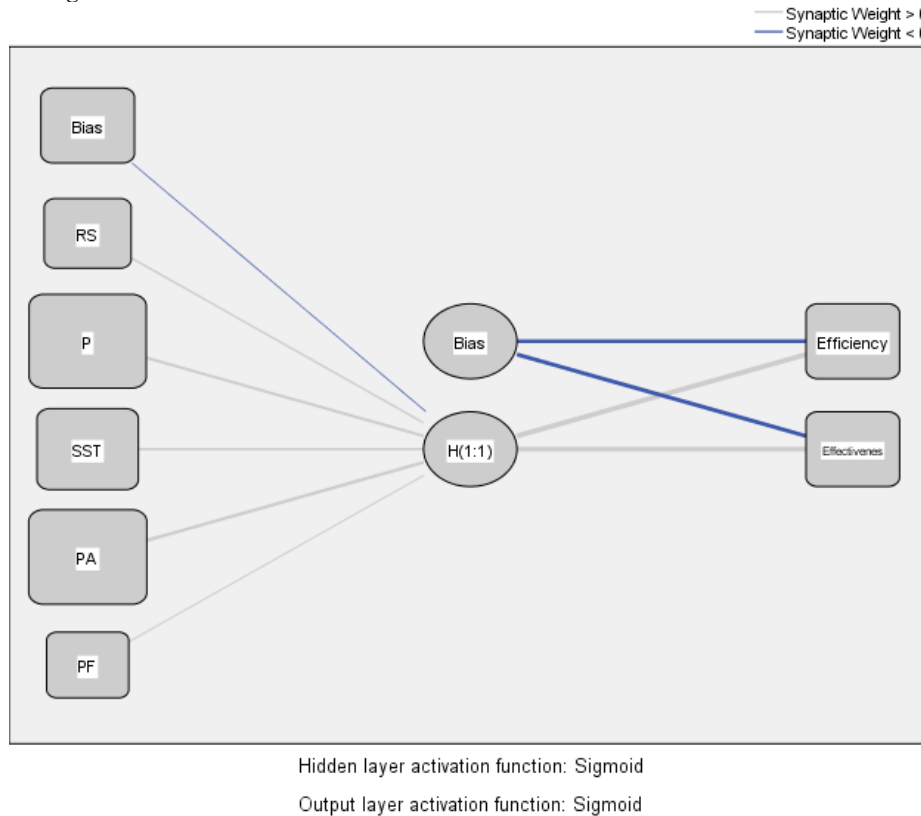
*Source:* Own construction

### 4. Findings

Using analysis of artificial neural networks, we established the synaptic links that are formed between the modules of the integrated IT solution in the field of human resources management, on the one hand, and the efficiency and effectiveness of the organization, on the other hand, through a hidden layer that can be defined as leadership. Figure no. 1 shows the relationships established between variables in a multilayer perceptron (MLP) model.



Figure no. 1. MLP model



Source: Own construction using SPSS v.20

Analyzing figure no. 1, we can conclude that hypothesis H1 is valid. Therefore, integrated IT solutions for HRM have a significant positive impact on efficiency and effectiveness.

Table no.3 presents the coefficients that characterize the relationships established between the modules of the integrated IT solution in the field of human resources management, on the one hand, and the efficiency and effectiveness of the organization, on the other hand.

Table no. 1 Table title (Times New Roman, 10 pts, italic, left)

Predictor		Predicted values			Importance	Normalized importance
		Hidden Layer 1	Output Layer			
		H(1:1)	Efficiency	Effectiveness		
Input Layer	(Bias)	-0.083				
	Recruitment and selection (RS)	0.170			0.112	36.6%
	Pay (P)	0.341			0.300	98.3%
	Self-service tool (SST)	0.224			0.201	65.8%
	Personnel evaluation (PA)	0.384			0.305	100.0%
	Personnel files (PF)	0.136			0.082	26.9%
Hidden Layer 1	(Bias)		-2.177	-2.224		
	H(1:1)		5.507	5.467		

Source: Own construction using SPSS v.20

Table 3 also contains information on the importance of input variants. Starting from the coefficients of the variables and their importance, we can say that the H2 hypothesis is validated. The personal assessment is the most influential antecedent in employees' perception of the IT solution for HRM modules.

## 5. Conclusions

The broad scope of human resources management activities is evident, even if in some companies, at different times, the interest is shifted only to one or a few, considered of utmost significance in the respective stage of organizational evolution. Overall, the most common personnel-related activities that substantially affect efficiency and effectiveness condition the company's organizational development, namely staff evaluation and payment. On the other hand, much less attention is paid to personnel file management, staff training and development, and recruitment and selection.

Over the past decade, the organization's priorities have also influenced the order in which interest has focused on certain human resource management activities. Thus, the evaluation of the staff dethroned its reward, and the desire to allow development at any level (individual or organizational) encouraged the training and professional training and motivation of workers.

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# Role of Leadership in Modern International Organizations

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## Abstract

*Defining the importance of leadership is directly related to the way leaders manage to act as agents of change. The importance of leadership also is related to the state of society, the structure of organizations and the type of reform adopted. Leadership development is more important in a diversified society than in a homogeneous one, because leaders are required to pass on new values, mediate conflicts, and form coalitions to support reform. International organizations play their part into shaping leadership development, and thus leaders play their part into changing societies. The purpose of this article is to identify which are the indicators that characterize a modern leader, but also to identify the environment of an international organization that influences the context in which the organization is being lead.*

**Key words:** leaders, leadership, international organizations, context

**J.E.L. classification:** F53; O15; O19; H10

## 1. Introduction

The emergence and development of leadership in an organization depends on many variables. One of the key aspects of leadership is managing both the organizational context, but also being able to create one in which leaders and their followers can perform. After several definitions and a series of ideas drawn from several authors or specialists, the current article aims to underline that leadership is an important part in the development of a business because it is an activity that encourages individuals to cooperate in achieving their goals. When the manager of a company is a good leader, work is not only an obligation but also a pleasure.

Even if there are several leadership styles, it has been shown that, as a rule, a leader does not practice exclusively one leadership style and that no style is suitable for all the situations that a leader faces.

## 2. Literature review

Organizations must be aware that individuals feel a real need to have power and to influence the existence of those around them. The goal theory (one of the motivational theories) suggests that leaders are more effective when they are able to clarify the routes of the various goals of their subordinates, or of people that are of interest to the company. Initial leadership studies have focused on identifying the physical, psychological, and intellectual traits that can predict a leader's effectiveness.

While some authors referenced in the current paper (Allen W.E, Brookes S., Grint K., Hart P.) focus on presenting the importance of leadership in the modern context, they also focus on presenting the importance on modern day leadership especially in what they find as being "the public sector". It is essential to understand that their views, shared through out this article underline the fact that international organizations are being management just as public organizations are, in a sense that their leadership needs. Other authors (Barkin J.S., Carpinshi, Collins R. etc.) focus on the particularities of international organizations.

### 3. Research methodology

The current article tries to answer the following research question: *What are the variables that might influence the leadership in an international organization?*

In order to do so, we must first see what is the role of a modern leader, but also to understand the challenges international organizations face today. Last (but not least), there needs to be an understanding of the environment and its influence over the leadership in an international organization. Finally, the analysis will consist in to scenario-matrixes, two scenario-analysis which will try to identify the variables depending on the actions an international organization can take.

The first research hypothesis is: there are at least four stages that affect the evolution of leadership at an organizational level: respecting its mission and values, implementing organizational practices, developing the internal and external environment.

The second research hypothesis is: There are certain variables that influence the leadership process in the case of international organizations.

### 4. Findings

#### 4.1. The role of a leader

Understanding how leadership works, means understanding the roles of a leader.

A leader must know how to gather people around realizing the organizational goal, to give them hope for what they do together, otherwise managing people will be counterproductive and they will feel that their aspirations are lost.

A leader must never forget that he is a human being like everyone else around him. What best reveals how human a leader is, is the way he treats people from whom he has nothing to gain.

A leader must know and admit that no success is his only merit.

Modern leaders are transformational leaders. They change the beliefs and attitudes of people to fit a new vision. They provide intellectual stimulation and individualized consideration.

The leader is the one who leads: people, communities, parties, an organization, a team and who has certain human traits, such as: the talent to bring people together, to make them act for a common goal, to feel fulfilled as part of a group, organization or nation, and help contribute to the achievement of favorable performance. (Allen, 2018)

Leadership is important because those who lead organizations make things happen. Those who lead efficiently achieve high performance, and true leaders and dedicated members of the organization and are committed to customer satisfaction/achieving goals.

Leadership is the process by which a person sets a goal or directive for one or more people and causes them to act together with competence and full dedication to achieve them. In short, leadership is the process of influencing a group to achieve its goals. The leader always takes into consideration interpersonal relationships. The leader inspires the desire of people to think, to feel, to behave harmoniously, to be fulfilled and devoted to the organization, by sharing a common vision and purpose. (Brookes & Grint, 2010)

Are all modern-day managers leaders? Ideally, yes, all managers should be leaders. Even if we examine leaders from a managerial perspective, we are aware that groups often have unofficial leaders who come out, and are able to influence others without using the power of their position.

Leaders are the ones who design policies, strategies, management system and organizational culture and make them operational by generating effectiveness, sustainability, competitiveness and efficiency. On the other hand, the manager is the one who coordinates and oversees the resources of the organization and the activity of subordinates, so that the organizational objectives are met. (Hart & Tummers, 2019)

The diagnosis of the organization's leadership is the first step, indispensable in the elaboration of any management strategy and policy. The diagnosis must assess the state of the organization, the causes and factors that determine the performance or counter-performance of the company. All of this makes sense and purpose in a strategy, if the diagnostic analysis measures and evaluates the possibilities, ways and directions of actions of the leader, in order to strengthen his relationship with employees and other stakeholders of the organization.

Diagnosing the leadership of the organization, by evaluating the leadership variables, is a necessary operation, but not sufficient for effective leadership. It is also necessary to quickly intervene on issues that need to be improved in the leadership style of the leader and to follow the effective leadership model.

A leader does not constantly use the same leadership style. The situational approach of leadership tells us that this is not even desirable, because the specific aspects of each case are very important when the leader has to choose a certain leadership style. However, the leadership style characteristic of people in leadership positions can be classified as predominantly (largely) authoritarian or democratic.

#### 4.2. Understanding international organizations

International organizations are a structured set of participants, formed on the basis of an agreement, with a continuous operation in order to achieve common objectives, by coordinating resources and actions. (Barkin, 2006)

From this definition the main characteristics of an international organization can be understood:

- first, the organization has a framework that brings together several participants, which can be either states (in the case of governmental organizations), or private or associations (in the case of non-governmental organizations such as Amnesty International)
- secondly, the organization results from an act of will of the participants, manifested in an agreement which takes the form of a constitutive act, bearing different names: statute, pact, charter, convention, etc.
- thirdly, the organization is a mechanism for coordinating resources and actions in order to achieve certain objectives;
- fourthly, the organization has a materiality distinct from that of its members: a permanent establishment, an organizational structure and its own functional autonomy.

With regards to international organizations and the public system in general, referring to the notions set out above, Warren Bennis spoke since 1985 of his book "Leaders" about the desperate need to have "*new leaders in public organizations*" foreshadowing the failure the public sector would have to deal with in crises such as the war in Iraq and the war in Afghanistan or Syria, corporate scandals culminating with the Great Recession, the devastation caused by natural disasters and, more recently, the COVID-19 pandemic. This is because trust in public organizations (whether national or international) decreases when faced with many challenges. Therefore, modern leaders can no longer afford to take too many risks, which erodes the distinction between modern leaders and managers.

The leader of a modern international organization has to be a strategic thinker, with no prejudice whatsoever, capable of being inclusive and manage complexity, but also capable of planning long term and being conscient about the global environment he operates in.

The roles of international organizations usually are:

Figure no.1. The role of modern international organizations



Source: self-processing

International organizations are usually under the constraint of 3 different forces (Carpinschi, Mărgit, 2011):

- bureaucratic forces – the top management of the international organizations
- political forces – such as the members of the governments of member states
- socio-economic forces – such as external stakeholders (NGO's or other international organizations)

#### **4.3. Understanding the environment and its influence over the leadership in an international organization**

The first problem that leaders face is to determine which specific factors influence the organization and determine its success, because it is impossible to take into account all the factors. For this reason, external factors are classified into two groups:

- a) Environment of direct action.
- b) Environment of indirect action.

According to Elbing, the environment of direct action includes the factors that directly influence the activity of the organization. (Collins & White, 2013) These are: suppliers, labor resources, laws, state regulatory organizations, consumers and competitors.

Indirect action means factors that may not act directly on the organization, but still have some influence. These are the following factors:

- the state of the economy;
- technical-scientific progress;
- socio-cultural and political changes;
- the influence of group interests;
- events in other countries, etc.

The interconnection of external environmental factors is the force with which the modification of a factor influences other factors. According to researchers F. Emery and E. Trist, the interconnection of external environmental factors should have changed the internal environment of organizations currently operating in a rapidly changing environment. Leaders can no longer look at external factors in isolation. They need to understand that these factors are constantly interacting and changing. (Chumakov, 2016)

The complexity of the external environment implies the number of factors to which the organization is obliged to react. If it is pressured by state decisions, the frequent renewal of contracts with trade unions, a lot of competitors and rapid technological changes, it can be said that this organization is in a much more complicated environment than, say, the organization concerned with the activity of some suppliers, some competitors, in the absence of unions and with a slow change of technology.

The uncertainty of the external environment is the function of the amount of information available to the organization regarding a certain factor, as well as the function of trusting this information. If we have little information or we are not convinced of its veracity, then the environment becomes more vague, more uncertain than when we have adequate and secure information. The more uncertain the external environment, the more difficult it is to make an efficient decision.

We must also not forget the importance of respecting the mission and objectives on which the international organization was created, but also its organizational practice (Ionescu et al, 2011):

- On one hand, respecting its mission and objectives can help develop procedures on which the international organization is being governed.
- On the other hand, the organizational practice means that those procedures are being put into action.

## 5. Scenario analysis regarding the future of leadership in international organizations. Findings

Figure no. 2. Positive scenario-matrix regarding the future of leadership in international organizations



Source: self-processing

Figure no. 3. Negative scenario-matrix regarding the future of leadership in international organizations



Source: self-processing

**The findings** regarding *the variables* that influence the leadership process in this care are:

- a) the duration of a crisis (economic, sanitary etc.)
- b) the organizational capacity of developing an independent body that can analyze and award independent sanctions to member states that do not comply with the agenda of the international organization;
- c) the availability to renegotiate with member states the compliance with the sustainable development of the international organization, and the measures that are taken towards this goal.

## 6. Conclusions

Leadership is important because those who lead organizations make things happen. Those who lead efficiently achieve high performance, and true leaders and dedicated members of the organization and are committed to customer satisfaction/achieving goals.

Leadership is the process by which a person sets a goal or directive for one or more people and causes them to act together with competence and full dedication to achieve them. In short, leadership is the process of influencing a group to achieve its goals. The leader always takes into consideration interpersonal relationships. The leader inspires the desire of people to think, to feel, to behave harmoniously, to be fulfilled and devoted to the organization, by sharing a common vision and purpose.

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# Understanding the Effects of Leadership within the 2030 UN Agenda

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## Abstract

*The 2030 UN Agenda aims to solve much of the world's problems, and thus, it has a defining importance over the way member states decide to organize their public policies. The present article aims to reveal the ways leadership is understood in international organizations, particularly within the United Nations. Also, the article takes a look at how leadership has been affected by the latest contextual factors, both internal and external, the ones affecting the implementation of the UN 2030 Agenda objectives.*

**Key words:** United Nations; 2030 UN Agenda, leadership, context

**J.E.L. classification:** F20; F50; O10; O19

## 1. Introduction

The UN has set an agenda that by 2030 has concrete goals to achieve such as: eradicating poverty, hunger, ensuring a better life, ensuring inclusive and equitable quality education, promoting gender equality, ensuring access to accessible energy, reliable, sustainable and modern measures, urgent action to combat climate change and its impact and last but not least, the conservation and sustainable use of oceans, seas and marine resources for sustainable development, and the protection, restoration and promotion of sustainable terrestrial ecosystems.

Leadership at the UN level is supported on several pillars such as: the normative basis, principles, inclusive character, responsibility, multidimensional character, transformative, participatory, self-applied, which helps to formulate any possible strategy, as it outlines its guidelines.

## 2. Literature review

The pandemic context that has irreparably affected the UN's ability to operate, mainly due to the fact that, by applying measures to prevent the spread of the disease, Member States have severely affected the global economy, which essentially reduces their ability to act towards compliance with the SDG of the UN 2030 Agenda. Thus, it is an extremely complicated subject which the specialized literature still has difficulties understanding it. But many authors have tried to answer some of these challenges in a short period of time such as: Turner S., Reinalda B., Trent J., Schnurr L. and Hochschild F.

Carrying out activities taking into account primarily the impact of these objectives, without taking into account its place and culture, when they are carried out, opening local public actors to support the implementation of actions taken and measures taken, are threats to the current system which the current article also aims to underline.

## 3. Research methodology

Before we begin with the main features of UN leadership, some key questions need to be asked:

- a) What does it mean to be a leader in the UN?
- b) What are the key elements of the UN leadership?
- c) What distinguishes UN leadership from other leadership models and approaches?
- d) How has the leadership model changed as the UN system has evolved?

The current questions will serve as starting point for both the theoretical analysis that will be made, but also for the practical analysis. In order to answer these questions, the findings of the current article will focus on a comprehensive cause-effect analysis regarding the objectives of the UN 2030 Agenda.

## **4. Findings**

### **4.1. The qualities of a leader in the context of international organizations**

Regarding the degree of concern of leaders for staff, we have the following indicators and indices that characterize a leader with a high degree of concern for subordinates (Charbonneau, 2020):

- The leader involves subordinates in the decision-making process: the leader frequently encourages the creativity of subordinates; the leader frequently encourages subordinates to participate in important decision-making; the leader takes into account the opinions and ideas of subordinates when making a decision;

- The leader is interested in the well-being of subordinates and their professional development: the leader frequently provides advice to subordinates on how to behave and how to improve personal performance; manifesting the leader's willingness to teach subordinates new ways to accomplish a task;

- The leader attaches great importance to the development of the relationship between him and his subordinates: the leader frequently shows pleasure (and patience) in explaining all the implications of a complex task; the leader respects the limits imposed by subordinates; the leader is concerned with developing new methods for improving relations with subordinates; the importance that the leader attaches to the formation of a team at work;

- The leader has a strong relationship with subordinates (this cannot be easily damaged), which is why he can intervene to solve problems without worrying that the relationship could be damaged;

- The leader has as a priority the fulfillment of the objectives of the institution in which he works. Clues: The leader's most common concern is to achieve goals and accomplish tasks; the leader ensures that the tasks will be completed on time; the leader frequently analyzes the organization's problems in order to find a solution;

- The leader attaches great importance to planning. Hints: The leader has a habit of dividing complex goals into achievable tasks; the leader is concerned with the efficient use of time and conducts frequent monitoring to ensure that goals are met on time;

- The leader likes challenges and reacts positively to crisis situations. Clues: often the high degree of difficulty of a goal or task is a motivating factor for the leader; the leader has no problem performing several complex tasks at the same time;

- The leader wants to improve in his field of activity.

Other aspects that could influence managerial behavior are related to: the degree of maturity of subordinates, the degree of responsibility of the leader and the leader's philosophy about people.

So far no one was able to send in the perfect solution, which is not strange. Although behavioral theories have tried to show that the democratic style is more efficient than the authoritarian one, criticizing the latter; Empirical studies have shown that authoritarian style can, in some situations (in crisis situations), be more powerful than democratic. (Hochschild, 2010)

### **4.2. UN Leadership**

To answer these questions, the Charter of the United Nations must first be studied; UN rules and standards, as set out in its treaties and declarations; its central mandate to promote peace and security, protect human rights, address humanitarian needs and advance economic and social progress and development; the imperatives of the sustainable development agenda; and the UN political framework in general (as all were previously promoted). Once studied, they offer eight defining characteristics of leadership at the UN level (Alkiviadou, 2019):

- 1) Leadership is based on rules;
- 2) Leadership is based on principles

- 3) Leadership is inclusive
- 4) Leadership must be responsible
- 5) Leadership is multidimensional
- 6) Leadership is transformative
- 7) Leadership is participatory
- 8) Leadership is self-applied

Earlier we talked about the global challenges for leadership. However, in order to be able to correlate the contextual factors with the directions of action of the UN and the challenges they face.

Context is therefore important, especially when it comes to implementing a strategy such as the United Nations Agenda 2030. What can be seen from the previous figure is that at both level 1 and level 2 of the contextual factors, what is repeated is the leadership style and structural capabilities. (Jesenský, 2019)

The external environment of the organization (Level 3) highlights several contextual factors, and behind them lies primarily the willingness to contribute to the implementation of organizational objectives by: public authorities and the community (society) in general. As is well known, culture can influence market characteristics and the level of coordination / involvement in society. (Reinalda, 2020)

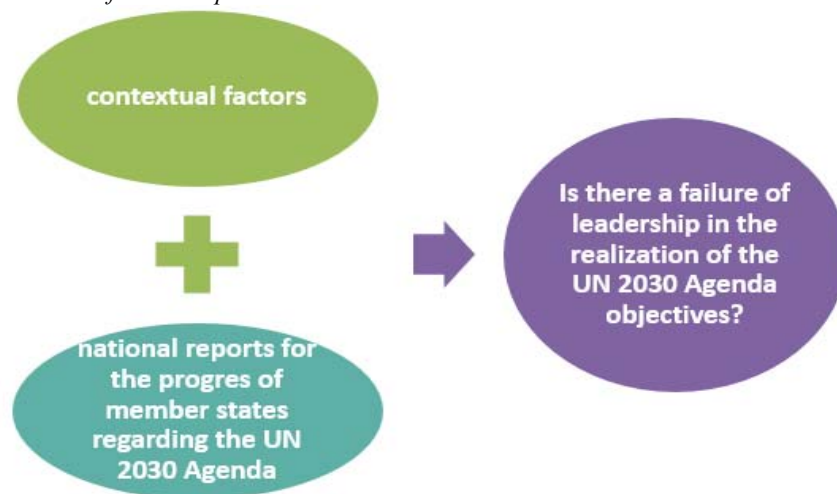
The environment close to the organization (Level 2) highlights several contextual factors, and these are much closer to the organizational practice than those from the external environment, more precisely they refer to the direct way to affect the organizational activity without being part of it.

Organizational practice (Level 1) highlights several contextual factors that are closely correlated with organizational practice. Whether we are referring to the mix of employees, the demographics of their attitudes or the training process, organizational practice is directly related to how the organization's activity is directly affected by the interactions between its members.

Regarding the identification of the link between the theory of leadership applicable to the organization and the achievement of sustainable development goals, there must be a correlation of contextual factors with national reports on progress towards sustainable goals from the UN 2030 Agenda.

For this reason, a key point of the research must be the correlation of contextual factors (regardless of their level) with the reports made by the states regarding the achievement of the UN objectives on the 2030 Agenda.

Figure 1. Failure of leadership at a UN level



Source: self-processing

Another key point of the contextual factors is the emphasis on the interest of public actors and society in general to correlate national interests with those of the international organization. Specifically, a central idea that has emerged throughout the research of this topic is that public

authorities often either do not want or cannot correlate their work with the policies of the United Nations. Member States must accept that beyond the consensus almost always unanimously given to projects The UN must understand that the achievement of the objectives is to their advantage and apply the measures for the implementation of the UN plans. (Turner, 2021)

### 5. Cause-Effect analysis regarding the objectives of the UN 2030 Agenda. Findings

Table no.1 Cause-Effect analysis

CAUSE	EFFECT
Transformational change, and the inability to always fulfill the 4 roles of international organizations (financial support, dispute resolution, application of sanctions and / or peacekeeping);	Creating a global climate where the organization's trust and influence are not complete, where geopolitical and geostrategic instability still exists and due to it, the number of migrants and / or people who have left their homes increases; where living standards are still framed in what the UN itself calls the "extreme poverty line".
A leadership model oriented more towards management, based on answers to the "how and when" questions, to the detriment of a leadership model based on the "what" and "why" questions at the UN level.	Confidence in the leadership of the international organization is assimilated to those in public organizations, and by definition it is much more deficient compared to one of private organizations.
The current context confirms Ronald Reagan's statement: " <i>In this current crisis, government is not the solution to our problem; government is the issue</i> " from the perspective of availability to the unity of action of the UN member states;	Member States follow their own public policy agenda, independent of the UN's sustainable development goals, and/or taking into account only the interests of their leaders or the political culture of which they are a part.
Confronting the effects of global climate change has failed to provide a global consensus.	Countries such as Indonesia, the United States, Saudi Arabia, Egypt, India, Mexico, Thailand and Australia have difficulty convincing the population that global warming exists and that national leaders must act to combat it.
Managing the migration phenomenon and discrimination. Reports on Goal 5 on the SDGs show that no country in the world is on track to achieve gender equality by 2030. Target 7 on the SDGs also shows that more than 3 billion people do not live in conditions. minimum hygiene.	With each passing day, there are growing views of migrants and the positive effects that migration can have. Also, the increase in the number of people in refugee camps and the worsening of the conditions in which they live can give rise to other health crises or can lead directly to huge loss of life.
Education reform. UN data show that with regard to Objective 4 on the SDG list, more than half of children and adolescents do not meet minimum education standards, and reports on Objective 8 show that young people are 3 times more likely to become unemployed as opposed to grown ups.	The level of education decreases every year, although the technological capacity increases. International organizations fail to directly and sufficiently support research and development that can only be done as a result of increasing the level of education of the population.
The pandemic context that has irreparably affected the UN's ability to operate, mainly due to the fact that, by applying measures to prevent the spread of the disease, Member States have severely affected the global economy, which essentially reduces their ability to act. towards compliance with the SDG of the UN 2030 Agenda;	Without the right tools to adapt to new organizational capacities in the current context, the 2030 Agenda is largely in danger of not being realized.

<p>The systemic thinking of the 2030 Agenda, as the SDGs had to be analyzed in concrete terms, depending on the capacity of each Member State to submit to such a process and to achieve its objectives;</p>	<p>This means that there are currently large discrepancies between the achievement of the objectives by the Member States, but also in terms of the progress itself. In essence, in the same progress report of a state there may be areas where the state has exceeded expectations, the state has not made any progress or even regressed, or areas where there is no data to provide an answer as to the stage at which the state is achieving that goal. That is why there are already at least 3 objectives on the SDG agenda that will not be achieved by 2030</p>
<p>One of the pillars of UN action is: "Developing an active and enjoyable work environment with a sense of purpose and inclusion"</p>	<p>The lack of studies to show that some resolutions (or directions of action) are passed and accepted as the result of cohesion or are the result of the concession, endangers the long-term desired inclusion at UN level.</p>
<p>The deficient direct relationship between citizens and the UN, they appear more only in the surveys of the organization</p>	<p>National leaders succeed in better convincing citizens of the importance of the national policies they pursue, gaining the vote of confidence (in any form) on action at the level of state leadership. Civil society plays an extremely small role in linking international and national policies, with citizens often being completely surprised by the goals on the UN agenda.</p>
<p>The focus of the organization was on setting achievable goals and did not focus on motivating Member States to achieve them.</p>	<p>From the perspective of the distinction between leaders and managers, it should be emphasized that more has been organized at the UN level and no means have been developed to differentiate the capacity of states to achieve their objectives.</p>
<p>The effects of the Covid-19 virus pandemic</p>	<p>The UN estimates that the number of people living in poverty will increase by more than 905 million by the end of 2030 (by more than 44 million compared to those currently existing), thus announcing another failure on the list of the 17 SDGs.</p>

Source: self-processing after data collected from " UN Sustainable development report 2020", [online]  
Available at:  
[https://s3.amazonaws.com/sustainabledevelopment.report/2020/2020\\_sustainable\\_development\\_report.pdf](https://s3.amazonaws.com/sustainabledevelopment.report/2020/2020_sustainable_development_report.pdf)

## 6. Conclusions

The performance of any country in pursuing the UN's sustainable development goals will largely depend on its leadership. An effective one will translate into the prudent formulation and implementation of useful public policies, which correlate the interests of citizens with those of the UN. Achieving the goals of sustainable development will also require the concentrated efforts of citizens, governments and the business community. (Trent & Schnurr, 2018)

In conclusion, the inability of UN leadership to correlate its efforts with national ones and given the context and environment in which it operates will result in altering some defining elements of the international organization: such as autonomy, the limits and relevance of autonomy, its ability to effectively abolish poverty, to have the capacity to rebuild obsolete infrastructure in the current conditions and to create a general framework of instability.

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## Models of Participative Management that Can Be Applied in Romanian Public Institutions

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### Abstract

*Improving the efficiency of a public institution but also increasing the professional performance can be achieved by implementing a participative management.*

*In this paper we will focus on participative management that will approach from the point of view of a process of change, using elements from the theory of exchange (Chardwick-Jones, 1976), as well as from the point of view of cognitive-expectation theory. Thus, following some research in the field, we proposed three managerial models in order to support the implementation of a participative type of management in the Romanian public institutions. All these models can lead to organizational success and advocates a flat organizational structure, shows that the management team receives ongoing monitoring and guidance from the public administration managerial professionals and also shows the interaction between managerial team, staff at the central level and the associates.*

**Key words:** participative management, participation, cooperation, theory of exchange, models  
**J.E.L. classification:** M12

### 1. Introduction

Participative leadership is thought to motivate employees as a result of their line managers' involvement and engagement in the various aspects that define their key roles in the organization. This, in turn, purchases the psychological contract and commitment of organizational members as a result of the sense of responsibility bestowed upon them by management, and this, in turn, induces their motivation to work.

In this paper we will focus on participative management that will be approached from the point of view of a process of change, using elements from the theory of exchange (Chardwick - Jones, 1976), as well as from the point of view of cognitive-expectation theory.

### 2. Theoretical background

Participatory leadership is defined as a process in which a leader and his or her subordinates make joint decisions or have a shared influence in decision-making (Koopman and Wierdsma, 1998). Participatory leadership also entails consulting with colleagues and considering their opinions and suggestions when making decisions. As a result, it is a process in which the leader has a professional relationship with the group members. The leader employs a consultative approach to encourage group participation in decision making, and the approach is democratic and that decisions are made while organizational members are engaged. According to Gaertner (2000), more flexible and participatory management styles can significantly and positively enhance organizational contribution. Organizations must ensure that leadership strategies improve employee commitment rather than compliance, as is the case with autocratic leadership styles.

Before making a final decision, participative leadership consults with subordinates and evaluates their opinions and suggestions (Mullins, 2005).

Participatory leaders accommodate employee concerns through the use of participative decision making (PDM), which allows employees at all levels of the organization to be involved in the final decision. According to various studies, participative decision-making (PDM) has a number of potential benefits, including increasing employee job satisfaction and the level of innovation in organizations (Somech, 2002).

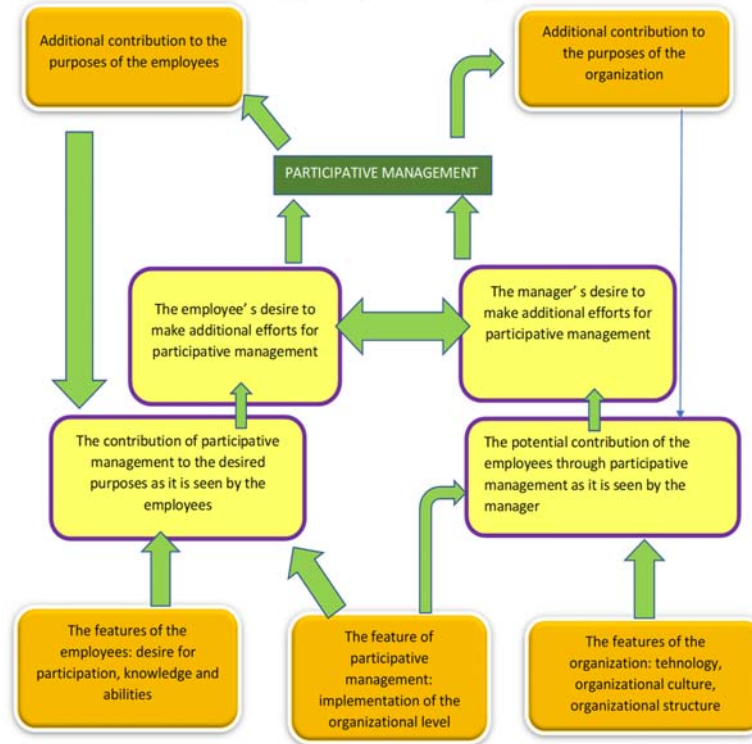
According to Somech (2002), motivated employees believe they are doing something worthwhile and that their contributions are valued. As a result, participative leadership focuses on followers' intrinsic motivation by enriching subordinates' jobs with autonomy, variety, and empowerment. Furthermore, when employees participate in democratic decision making, they realize that their ideas are respected and taken into account by higher-ups; they feel connected to the organization as if they are important parts of it, and they strive for maximum performance. Somech (2002) opines that, when participatory decision-making strategies are implemented in the workplace, both leaders and employees benefit greatly. It improves employee motivation, increases the level of innovation in organizations, improves decision-making quality, and contributes to organizational success.

Despite the above beneficial arguments in supporting participative leadership, Yammarino and Naughton (1992) stated that the time and effort spent calling meetings, enlisting ideas, and trainees may have an impact on deadlines. Subordinate active participation may be regarded as a loss or division of powers, generating hostility at the managerial level. This could have an effect on the effectiveness of leaders, which in turn may have an impact on work performance. Some workers may not want to be involved in job decision-making. Subordinates may see their participation as "doing management's job" when the leader is distrusted or when there is a poor labor relations climate. When governments try to involve the community in education reform, health care, economic and social development, it may be perceived as "down loading," especially if these activities are undertaken alongside other programs and economic cutbacks. Broad-based participation in short-term projects appears to be less advantageous than implementing a participation model among a group of employees who will be part of the same team for an extended period of time and have become very knowledgeable and proficient at their job. Inability to recognize this can lead to a lack of trust in the process and the leaders, as well as resistance to change.

The effort or investment in management can involve making time and facilitating participative management by providing adequate feedback on the questions and suggestions raised. Heads of department have to deal with additional requests, they need to consult regularly with employees as a group. They are expected to behave in a participative style that requires different attitudes and abilities from those previously used, as were the people selected in the past. Increased involvement in the functioning of the organization is expected from the employees, as well as an active contribution of ideas. In this model it is assumed that different groups will want to make this extra effort, only if there is enough confidence that this effort will lead to an improvement in their position, or to results with positive values. The two groups referred to in the model are managers and employees. Each group makes its own values. Management wonders what is the potential contribution of employees, through participative management, to organizational goals as listed by management. Employees want their cooperation to depend on expected success. Figure no. 1 presents a diagram of the model proposed by us.



Figure1 The Ciclic Model of participative management



Source: Authors' contribution

To simplify the presentation, we will focus on the two groups, managers and employees, which stand out very well in the figure. We can say that it is a simplified version of a complex reality, but it allows us to evaluate participation as a way to gain influence, or as a right. The main objective of the model is to create a language that facilitates a debate about participation in which the interdependent relationship between workers and management is placed in the context of achieving different goals.

If we look closely at figure no. 1 we are talking about the Cyclic Model which for participative management is a dynamic process through which expectations, choices, behavior and reinforcement take place in a succession, and tomorrow's choices are largely determined by today's experiences. Behavior often precedes a change of attitude. The continuity of the consultation is largely determined to the extent that both groups see their goals and interests as a result. This shows us that we do not believe in the continuity of participative management, if it is a tool for the interests of one of the partners. The frequent debate in the literature on the true managerial reasons in the introduction of participative management refers to the limited value. The implication of this is that participative management offers a lesser chance of increasing influence, if the manager initially sees it as a tool, it seems only partially true. This view assumes that management is the only party that is able to determine the nature of participative management. However, participative management does not have the approval of the employees involved and has no possibility to maintain or develop. If in the eyes of the manager, employees have a certain contribution to do something, then without doing so it becomes an interesting option and a negotiating situation. The extent to which the situation assumes a bargaining measure is partly determined by the extent to which management is dependent on employees' efforts and opportunities to sustain their influence. Participation is a relational concept and therefore the circular mutual influence of each group's actions on the other is crucial.

According to Watson, 1986, we consider, on the one hand, that the employment strategy will be a reflection of the dominant values and the attitude of the manager and on the other hand the circumstances perceived by the manager, making the relationship with work a problematic factor, by the efforts of employees. The literature provides us with a number of circumstances or contextual factors that can improve the relative positioning power of employees. In this sense we list some

examples are: a complex organizational structure, complex tasks for which mutual knowledge is required, a tight labor market with the consequence of high labor costs, strict social legislation, a high level of unionization and finally a society friendly to democracy.

The dominant values, preferences and visions of the manager determine or temper the strength of the relationship. Some of the factors can be explored. Our focus is on structural factors, such as task characteristics, organizational and environmental structure, and cultural factors.

The figure below shows an assumption of this cyclical process, in which the factors presented on the right side of the image provide for the adoption of an employment strategy that places a strong emphasis on participative procedures and on the approach to improving involvement. The dominant values, the preferences and the points of view of the manager, determine or temper the value of a relationship.

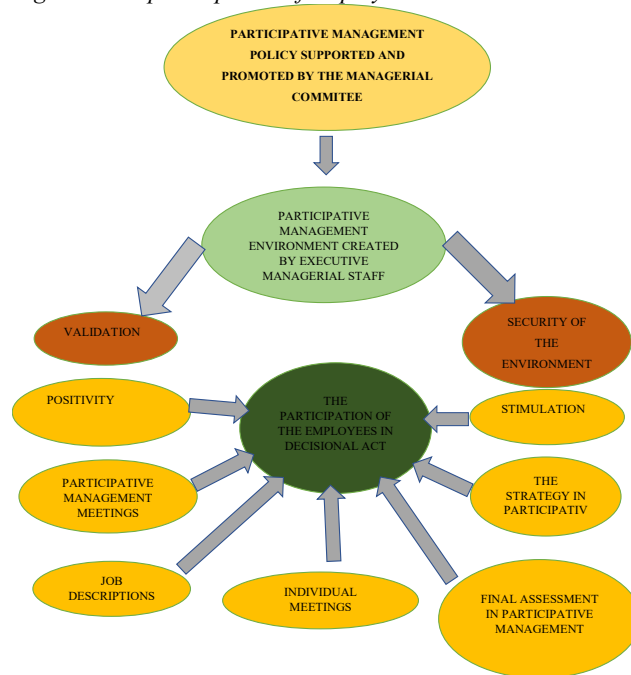
In the structure of organizations Mintzberg (1979) distinguishes five ideal configurations: simple structure, bureaucratic mechanization, professional bureaucracy, divisive and adaptable organization. The shape of each type and the way in which coordination takes place is strongly intertwined with the nature of the environment, primarily with its stability and complexity.

In a simple, stable environment, internal processes take a predictable course. This leads to routine and formalization. Tasks are specialized and short-circuited. Coordination takes place by standardizing procedures. There is little need for participative management: the functioning of the organization does not require it and the potential contribution of employees is generally modest. In this situation, participative management serves the communication channel best.

In an organization with a complex dynamic, the possibilities of participative management are completely different. The functioning of such a network of organizations depends on the good vertical as well as on the horizontal consultation. Good results are conditioned by the use of valid employee expertise. Participative management is a coordinating mechanism in the organization.

Participative management as a communication channel is characterized by routine tasks, poor expertise and coordination through standardization, which leads to satisfaction or frustration. Participative management as a coordination mechanism with complex tasks, relevant expertise and coordination through consultation leads to the use of expertise and better results.

Figure 2 The participation of employees in decisional act.



Source: Authors' contribution

Participation, a term increasingly used today, has different connotations in various contexts. In the case of vocational training, participants have the opportunity to learn directly and concretely

through real-life examples. In the case of a community activity, participation means that the whole community, even those who often do not express themselves, participate in decision-making and are interested in the future of the community to which they belong. In the case of gambling, participation means the opportunity to play for money. There are many examples that show that participation means involvement. By extrapolation, participative management assumes that employees, as well as bosses / directors, contribute and influence decisions within the organization. It does not mean that we are talking about a cooperative management, in which each employee has an identical contribution in the decision-making process. A majority vote or a match of ideas does not imply the final resolution for the issue under discussion.

In participative management, appointed heads / directors are responsible and accountable for decision-making, with the involvement of directly involved employees actively participating in providing feedback, analyzing, making suggestions and recommending solutions in the decision-making process. These are just a few of the steps you can take when setting up a new service or organization.

Benefits of participation:

- Loyal employees
- Useful and desired employees
- Respected employees
- Employees' opinions matter

When employees support a certain decision but the law, the financial part, the board of directors / director or the boss do not support that decision, the employees may feel disappointed; they may even state that their opinion was no longer necessary if it could not be considered. It is desirable for the director / boss to tell them that, although a decision was unanimously supported, they were determined to resign due to non-management factors. When employees are divided on a particular situation it is reflected when it manifests itself as a management decision. Misunderstandings affect work. It is desirable that the manager, with the help of employees, invest more time and effort to make a decision that will reduce that syncope.

A manager can promote all these benefits by following their input into the decision-making process. The wider the range of knowledge and personal experiences, the better the decisions tend to be. No matter how cognitively and professionally gifted the manager is, he still does not have as much experience as the entire number of subordinate employees. Participative approaches lead to a transparent decision-making process, thus increasing the level of confidence of employees but also the ability of the boss to be a true leader. Transparency adds value to the participative approach. Making decisions through active consultation with employees leads to a decrease in the number of suspicions related to immoral or illegal decisions caused by dubious contexts. A participative preliminary result also involves some costs. It is obtained in time and the decisions are more static than in the situation where it would be taken unilaterally.

When employees support a certain decision but the law, the financial part, the board of directors / director or the boss do not support that decision, the employees may feel disappointed; they may even state that their opinion was no longer necessary if it could not be considered. It is desirable for the director / boss to tell them that, although a decision was unanimously supported, they were determined to resign due to non-management factors. When employees are divided on a particular situation it is reflected when it manifests itself as a management decision.

### **3. Research methodology**

The descriptive correlational design was used to collect data from Romanian public institutions employees which promote a participative management in the local public institutions of Arad. The design allowed for the investigation of current phenomena in the field of management (job satisfaction, organizational climate, managerial style), allowing us to describe the real phenomenon of the problem under investigation.

The study target group was 213, from where a sample size of 160 respondents were chosen using Slovens Formula to participate in the study by filling out a questionnaire. From the 160 questionnaires administered, only for 151 the researcher retrieved, edited, coded, and analyzed the data. The response rate was 92.5 percent, which was considered adequate for the study because it

was significantly higher than the 50 percent recommended by Tomaskoviv Devey et al., (1994), proper for a social research. In order to ensure validity and reliability, the research instrument was reviewed by content experts who rated it for wording, relevancy, and omissions, and a content validity index of qualified the instrument as reasonably content validity, according to Amin (2005). Pre-testing ensured reliability, and Cronbach Alpha Reliability Statistics were computed, making the instrument reliable and consistent according to Cronbach and Shevelson (2004), as it is shown in the following table: .

Table 1: The validity and reliability of the tests

Factor	Number of Items	Cronbach Alpha	ContentValidity Index
Job satisfaction	16	0.876	0.814
Organizational climate	05	0.887	0.877
Managerial style	9	0.891	0.865

Source: Authors' contribution

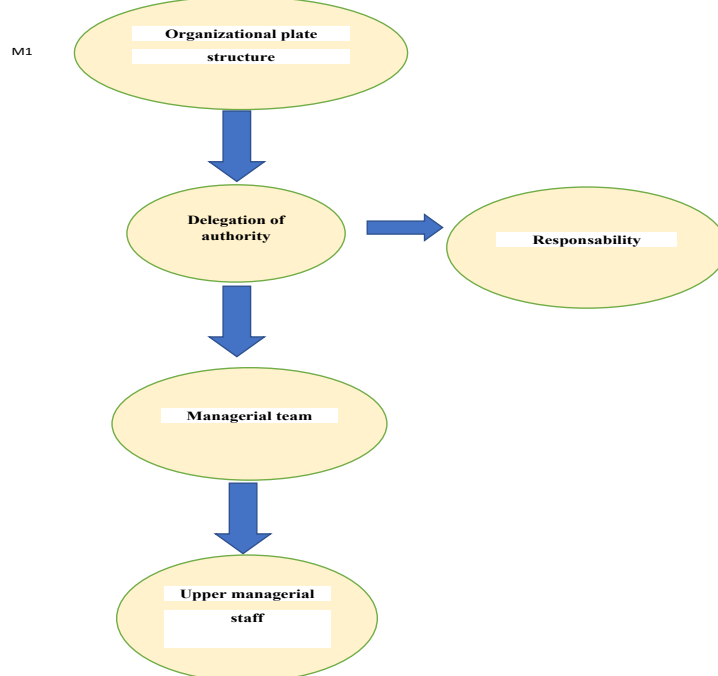
#### 4. Findings

Data from questionnaires were compiled and analyzed in order to identify those models necessary in Romanian public institutions so that increase the use of participative management style in public administration.

There are three very good models resulting from the previous analysis of the data (job satisfaction, organizational climate, managerial style) provided by the study participants The models at first sight can give us an idealistic impression of what is to be implemented. These models are derived from both quantitative and qualitative data from other previous studies and are presented as follows:

The first participative management model can lead to organizational success. He advocates a flat organizational structure.

Figure 3. The Participative Model no. 1 which could lead to the organizational success

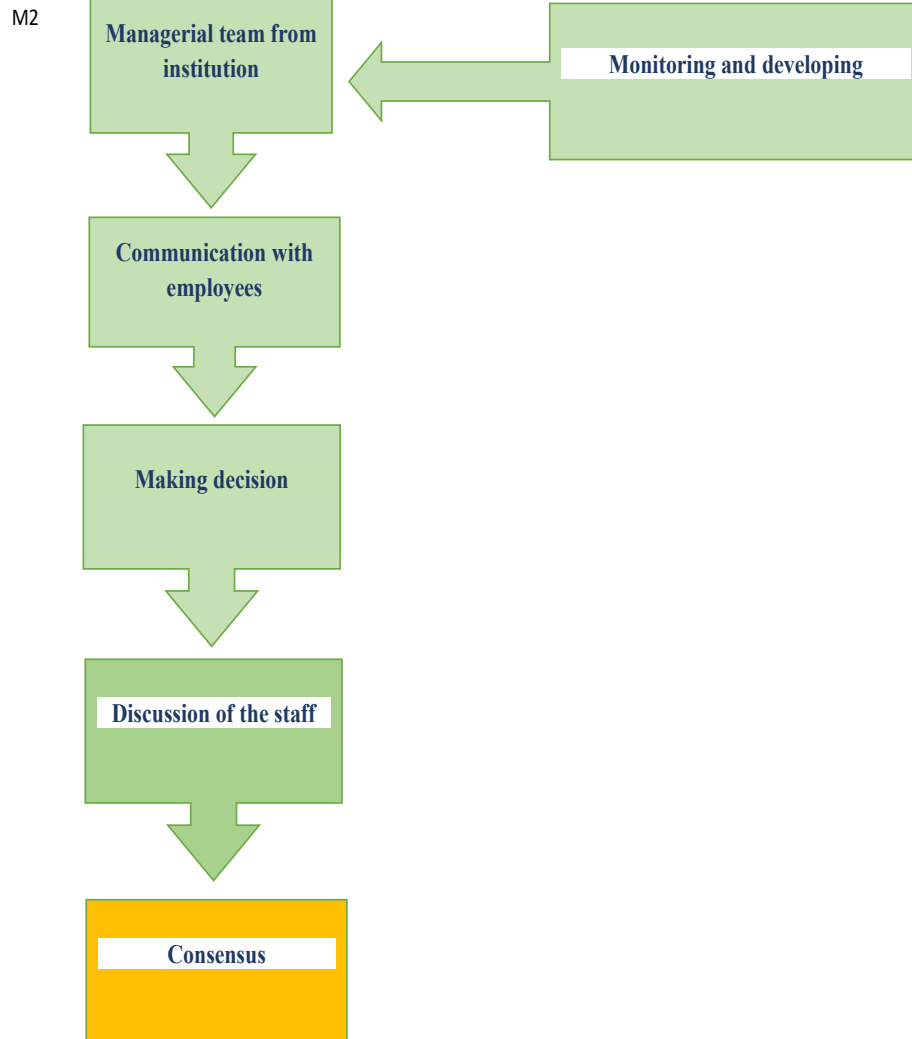


Source: Authors' contribution

The model describes how the members of the management team become responsible in the execution of the functions held by the institution. In this model, the members of the management team delegate the authority of the staff or other committees. There could be many benefits to delegating authority to staff. Leithwood (2006) quoted in Bush (2011: 90) agrees with the statement that staff delegation and participative management are significantly linked to the effect of change in training capacity while developing the right formal leaders for the future. Participative management requires flattened organizational structures. Delegating authority to a management team is associated with a participative approach. The management team is also responsible for carrying out the tasks.

The second model of participative management.

Figure 4. The Participative Model no. 2

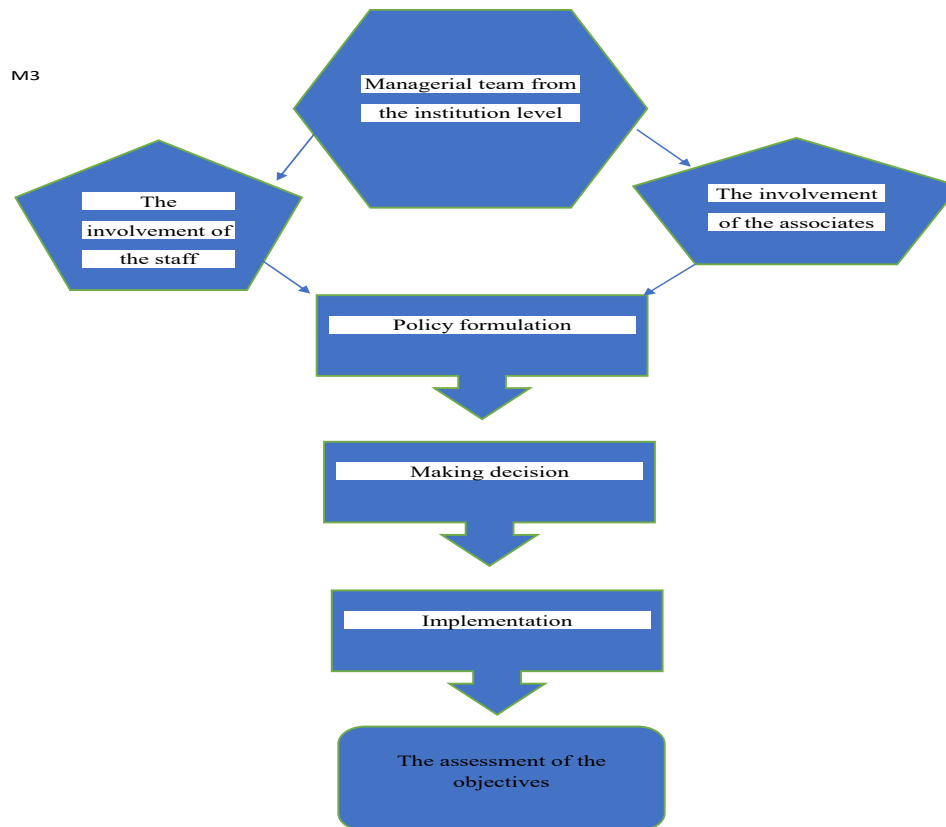


Source: Authors' contribution

The participative management model presented above shows us that the management team receives permanent monitoring and guidance from experts in public administration management. Once the management team has been empowered by experts, it as a structure becomes confident in its ability to communicate information to other staff members through managerial faith. Discussions take place through the participation of all members in the decision-making process. The decision leads to a consensus on the issue. We believe that this model provides essential clues about participative management.

The third model deduced from the data collection of the correspondents participating in this study looks as follows:

Figure 5. The Participative Model no. 3 which could lead to an organizational success



Source: Authors' contribution

This model shows us the interaction of the management team with the central staff and associations. This interaction leads to the formulation of a participative managerial policy. When the policy is formulated, the parties are involved in the decision-making process. Once the decision is made it is implemented. It should be noted that there is a collective agreement on the decision taken. Following the implementation of the decision, the evaluation follows as a way to monitor and ensure the agreed decision. This model is different from the first two because it shows the involvement of both senior staff and associations. This participative model also provides us with the creation of a participative management policy that can provide a framework for all participative initiatives. The model assures us that the evaluation of the process shows us that we are on the right track but it is essential to have checks in all participative management activities.

## 5. Conclusions

Choosing a plan and implementing a model to increase the participation of subordinates in managerial decision-making lead to a more participative organization. In order for employees to participate in decision-making, it is necessary to have good communication; The more the manager / boss opens the communication channels, the more employees will participate in the management of the institution. The head is preferable to constantly looking for opportunities to open the channel of communication in the institution. He must be open to listening to the achievements but also the

frustrations of the employees in a sincere and not formal or superficial way, showing a real interest and concern towards the employees and towards what they do.

Establishing a routine or regular participative management meeting through which the boss will encourage and allow employees to make personal contributions by using job descriptions as a program to increase employee participation at the management level and prepare annual reports for employee participation in tasks. For work.

Another way to identify proactive employee participation in decision-making is through brainstorming, a method that seeks to make decisions at the community level and not to make decisions directed by the boss / manager.

Both employees and managers have a common desire for respect and seriousness. A manager who discourages and disregards his employees may lose them as an integral part of the institution. On the contrary, if the manager listens to his employees, asks for their opinion, takes them seriously and treats them with respect, then he will gain their trust, self-esteem, respect for institutions and work but also respect for the manager. Employees will be more serious in performing their duties, will make greater efforts to perform tasks and will be more productive. The more positive the manager is towards the employees, the more he exercises leadership. Thus, we can say that participative management means the attention given by the manager / boss, to the employee.

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## Helpful or not? A Review about the Role of Social Media in Higher Education Admission Campaigns.

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### Abstract

*Communication through the social networks in the educational field has been and continues to be a rather under-researched topic. This study is a synthesis of literature which aims at shedding some light at how higher education institutions use social media during the admission campaigns. Findings shows that strategy regarding the content posted on social is very important and without interesting and captivating content, the presence on social networks is not useful for an institution. Public institutions should understand the market dynamics and technology evolution and try to find and apply new, more effective communication tools.*

**Key words:** higher education, Romania, social media, literature review

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

### 1. Introduction

According to researchers Lovari and Giglietto (2012), universities use social networks for two interdependent purposes: to promote the university and create a sense of community for current graduates and students and to disseminate information (such as news about campus activities or job). Both goals are frequently fulfilled through the digital communication activities of the Romanian institutions, because the aim is to involve the students in the university life and to create an impact on the target audience. By promoting the activities carried out, the higher education institutions create a sense of belonging to the university community among the pursuers. Social media offer universities a valuable opportunity to improve the relationship with potential students by facilitating dialogue and their integration into university culture, but also by creating a sense of community. Higher education institutions have the opportunity to post interactive content to give potential students the chance to interact with the university brand. Online social networking platforms offer a variety of engagement and productivity benefits from employee brainstorming, enhanced collaboration, and knowledge transfer. Therefore, these favorable technologies can have an effect on student satisfaction levels, while creating a positive image for the university.

### 2. Theoretical background

The progress of marketing communication in higher education, from traditional marketing materials to the implementation of social media on various platforms, as well as connections between institutions and students in today's world with technological knowledge, can generate quantitative but also qualitative benefits. The quantitative potential of the number of potential students that can be addressed through messages sent through social networks is growing, and attracting those students who are really interested in studies is also a goal that can be achieved through social media.

In addition to building a connection with users, brands need to foster a sense of belonging through interaction and involvement, where involvement can take the form of content that fits certain user groups (Lasorsa, Lewis, & Holton, 2012), e.g. future students. Foulger (2014) explains that successful higher education institutions use social media as a traditional marketing funnel. Therefore, a university brand must take into account when analyzing the SMM strategy the level of involvement



(interaction) and external content (links to websites) related to the interest of the target audience (followers). External content, ie links to university websites that can provide more details, is an equally important element to consider when discussing the SMM strategy. Social networks provide higher education institutions with an opportunity to promptly provide useful information about the admissions process that can positively influence the perceptions of potential students. However, the information posted on social media is not always very detailed, in order to preserve the informal nature of the platforms used. Therefore, the possibility to make references in the text of the posts to the official website of the universities is an advantageous functionality that must be taken into account.

Detailed analysis of potential target audience or audience is vital to the social media communication process. As I mentioned when analyzing the importance of the recipients, segmenting the target audience is a stage that can make a difference then in the planning process of the promotion strategy during the period of university admissions. Who is the main audience of university social networks? Constantinides (2012) shows that higher education institutions address especially those who will financially support the university by enrolling in courses, purchasing university equipment and support through donations, ie potential and current students, but also the alumni community. and former students). Yang and Lee (2018) also point out that if a person attends a university on Facebook, it will increase the likelihood that the person will complete the courses at that university, or offer donations to the institution. This suggests that university marketing on Facebook is indeed successful, but little is known about the factors that influence the effectiveness of this type of marketing.

Another reason that demonstrates the effectiveness of social media is that they offer a unique opportunity to customize messages according to the language needs and preferences of the target audience. Thus, international students can translate the information available on various digital platforms to find out about the admission process, but also about the schedule and study offers. Given the current context of budget cuts and growing competition, resource management in recruiting international students is becoming even more important. While some institutions support the use of intermediaries to promote educational offerings, more credible and cost-effective connections with potential students can be created through social networks.

A useful tool for recruiting through digital technologies is to use online videos to help potential students understand campus life and clarify their concerns about the options available to their preferences. Such videos provide students with an extremely compelling communication channel, given that many students cannot visit the campus before making a decision. The emergence of social networks in the online environment is a major impact factor in the analysis of the future of higher education, and adapting to this change is essential in achieving recruitment goals.

Social networks are cost-effective and efficient, but building a community and measuring digital results can be a challenge, especially for universities that do not have a marketing department. Also, the use of social media may conflict with the established norms and traditions of higher education institutions related to the informal style of communication. Online social networks are a new communication channel for universities, with the advantage of distributing well-targeted messages (Moogan, 2011). The key to effective use of social media is to create a two-way communication that seeks engagement, rather than simply being an additional channel for broadcasting or advertising (Constantinides & Stagno, 2012). If social networks are used in the process of promoting university admissions, it is necessary for specialists responsible to know both the content of social networks and their operation (Rekhter, 2012). With the development of competition between universities, institutions feel the pressure to be creative and memorable on social networks. According to Reuben (2008), almost half of all official university social media accounts are managed by one or more people in the marketing / communications / public relations office. Other official accounts are managed either by the admissions committee of each university, or by graduate offices, or even by specialized agencies in the field of web development (Reuben, 2008). Some universities also have a second account managed by their admissions office (Thornton, 2017).

### 3. Research methodology

This paper is a literature review on how higher education institutions use social media during the admission campaigns. Research indicates that to determine if there is a link between social media communication of educational institutions and the attraction of potential students for admission, it is important to analyze the types of posts distributed on social networks and understand the role that the level of involvement and commitment has in the success of university marketing communication.

### 4. Findings

#### 4.1. How do universities engage students through social media?

One measure often used to measure the success of an initiative is through user involvement (Peruta & Shields, 2017). Involvement in social networks has been defined in various ways, including the fact that a visitor to the social platform performs certain actions beyond viewing or reading, for example, by appreciating, sharing, commenting, or other available forms of interaction (Paine, 2011). On the other hand, Sashi (2012) is of the opinion that involvement can be defined by interactions that "extend the role of customers by including them in the process of adding value as co-creators of value" (Sashi, 2012, p. 259). However, researchers agree that involvement in a social media setting is most often a behavioral manifestation of a deep commitment or loyalty to a brand (Bowden, 2009; Van Doorn et al., 2010). In the communication of higher education institutions, the involvement of the target audience is intended to manifest their commitment to the posts and activities distributed on the official website of the university.

The findings show that a single post on social media is not enough to persuade the target audience; rather, involvement and commitment (through feedback and comments) is needed to see substantial change. Stvilia and Gibradze (2017) found that the type of content distributed in a post on social networks (e.g., information about academic support for studies, events, etc.) can affect the level of involvement and, consequently, the effectiveness of the information in the post. to make a conative change among social network users (for example, sign up for an event or share a post).

Several theorists have shown the important value that the degree of engagement on social networks has in the process of communicating information and academic ideas among potential and current students, but also among students (Stewart & Walker, 2018; Stvilia & Gibradze, 2017). Much of this research focuses on how academic libraries use digital social networks to attract students to the library and engage them in the activities of librarians. However, the same strategies can be used in the activities of attracting candidates for admission. Communication through social media can meet the marketing objectives targeted in the marketing strategy.

Student engagement is an important concept when it comes to social media. To increase the engagement, social media communication specialists use various tools. For example, a popular type of posting on social networks is that of campus events (Taecharungroj, 2017). These may include campus photos, news about a new project, new grants, or policies. There are also frequent posts about extracurricular activities, whether they are sports events, activities carried out by associations supported by the university or personal development courses. Romanian universities ensure that social media posts promote interactive activities in order to attract as many potential students as possible. In addition to interactive posts, educational institutions promote both potential jobs available and activities that can support students in the post-graduate employment process.

Cialdini's (2014) principles can be used as a starting point for creating university marketing strategies on social networks. He stipulated that there are six principles of persuasion, if used correctly, not only stimulate the conversions in online marketing, but can also have a positive effect on the admission campaigns. The principles are the following: consistency, reciprocity, social proof, authority, sympathy and rarity.

Reciprocity. This principle involves invoking a sense of duty among the target audience. In the case of higher education institutions, the principle of reciprocity can be used in creating qualitative messages that highlight exclusive benefits or information. By providing quality content, universities can influence online users to join their community (ig, they can follow the Facebook page) to receive equally useful information later or even create a behavioral effect among followers. Also, if the

messages communicated through social networks are built on the principle of reciprocity, the rate of commitment and involvement will increase through favorable responses from the community created. From model lessons to present the educational offer, to tutorials to facilitate the enrollment process, public institutions could provide students in the final years with various materials to induce the feeling of debt.

**Consistency.** This principle is met in online marketing through those free samples or interactive materials that involve the target audience who, once they have deposited sufficient resources (energy, emotional, etc.), will be much more willing to make available personal data (such as would be phone numbers or email addresses that can later be used in direct marketing) or buy something. In the case of higher education institutions, this principle can be used in social media communication to determine the commitment and consistency of potential students. The e-mail addresses or telephone numbers the potential students will provide as a result of these campaigns are very valuable for universities.

**Social proof.** For universities, this principle can be used to create persuasive messages that demonstrate the social power of existing communities within the university. For example, by mentioning the large number of current students or alumni who have chosen to attend university, a public institution can determine a cognitive effect among potential students who can be convinced of the notoriety of the university. These messages work especially among potential students interested in social status and the opinions of those around them.

**Authority.** In general, people have the tendency to follow the advice of those with authority and expertise in a particular field. This is why social media marketing based on influencers is a good example of sales practices. For higher education institutions, arguments based on expertise or authority are very useful to create a positive image of the university brand. For example, a professor may well represent the interests of a university on social media platforms. Also, alumni who have come to hold an important position in the field they have studied can be points of reference in the promotion strategy of educational institutions.

**Sympathy.** People tend to have more confidence in the brands they identify with. Through the similarity offered, brands seem to be more attractive, and by providing enough details about the brand's history and the team behind it, a higher education institution can attract more potential students.

**Rarity.** Offers posted on social networks which are only valid for a limited period of time or that they are highly desirable. Department stores use this principle when promoting Black Friday offers. For universities, presenting the limited number of places available for a particular faculty or the deadline by which potential students can enroll for university courses is a useful approach in the admissions process.

These principles can be used both in messages transmitted through social networks and in messages communicated in the traditional way (through radio, TV or unconventional advertisements). Using the principles of persuasion described by Cialdini are useful in creating impact messages. Along with an attractive visual, university communication specialists can influence the number of students at admission and can successfully meet the proposed marketing objectives. In addition, messages that follow the principles of persuasion have a higher degree of involvement from online users.

Habibi et al. (2014) argue that user involvement means strengthening the relationship between the organization and the "customer". Involvement can be quantified (to a sufficient extent) in social networks such as Facebook through feedback (appreciation), comments and sharing. According to the authors, there are two approaches that can identify the independent factors that could create a greater commitment: qualitative methodologies, such as analyzing the content of posts and associating the types of posts (those about campus activities, those about graduates, those about sports ) with the level of commitment; and quantitative methodologies, such as quantitative analysis of university social networks (number of followers on Facebook, number of students who appreciate the posts). While the former is useful for content developers, the latter can test the significance of relationships and predict involvement based on university attributes. No method has been used in detail in social media marketing research, so more research is needed in this area, and especially in higher education marketing.

Some studies have indicated that the ways in which individuals react to posts on social networks (their behavior) may vary depending on geographical factors or other factors (Taecharunroj, 2017). In other words, the psychological response of viewing and reaction to a post may be influenced by sociological and political factors (geographical location; university prominence). The findings of these studies are supported by research into the search and use of information, which demonstrates that the type of information sought, how it is searched and how it is used can be influenced by contextual factors depending on each user (Johnson, 2003; Wilson, 1999). At present, there is insufficient evidence to provide a clear indication in any direction of the effect of geography and other factors on interaction with social networks.

#### **4.2. Using social media in admission campaigns - lessons from the corporate environment applied in higher education**

Employee engagement through social media is essential for organizations that want to be successful and universities have begun to consider the benefits of using social media to maintain a beneficial relationship with current and potential students. The individuals involved are described as more attentive, emotionally connected, integrated, focused on their organizational performance (MacLeod & Brady, 2008), being willing to put more effort into their tasks. The employee involved will usually demonstrate initiative, proactively looking for opportunities to contribute to organizational activities, will be willing to share information with colleagues and will try harder to meet customer needs. Similarly, students with a high degree of involvement / commitment may share educational information more easily and may have a greater impact in admissions campaigns.

Following the corporate model, some universities use students with attractive social media accounts to be "brand ambassadors," offering potential students different perspectives on student life (Davis, 2016). In college communication, student blog posts are used to increase engagement with the target audience, as well as YouTube videos. Southwest Wisconsin Technical College (SWTC) has improved its recruitment efforts through social networking with six student ambassadors. The SWTC found that most potential students preferred to learn about college and student life directly from a current student rather than a member of the university staff. These student ambassadors provided potential students with a variety of information distributed in an informal manner, which further attracted the target audience. Thus, sharing content that promotes a sense of friendship also generates a sense of belonging to the community created among current students and can be a viable tactic for younger students.

Despite the widespread adoption of social networks by students, there are key challenges for the effective recruitment process. First of all, the popularity of social networks has divided the public on several platforms. Potential students regularly check more than Facebook. They use Pinterest, Vine, Snapchat, among many others. For the staff in charge of the marketing campaign since admission, this means more time spent attracting a less captive audience. Second, college recruiters often struggle to calculate a reliable return on investment (ROI) for their socialization efforts. For many higher education institutions, when analyzing social media statistics, they pay attention to the number of friends, followers, comments and likes. Unfortunately, these numbers express a superficial connection with the target audience and it is likely that a small number of very involved followers will generate more sign-ups than a large group who visit only once and never return.

Although there are many benefits to using social media, such as communication transparency and user-generated content, there are considerations to consider when setting your university communication strategy, including responsiveness, confidentiality and control. Although transparency is an advantage of social networks, it can quickly become a disadvantage if organizations try to hide things from public control (Constantinides & Stagno, 2012). Social networks are designed for user-generated content, which can cause problems if students or staff make public complaints (Constantinides & Stagno, 2012). Complaints on social networks can have a negative impact on a university's brand if not treated properly (Leng, 2012).

In addition, despite the widespread adoption of social networks by potential students, these present two key challenges for the effective recruitment process. First of all, the popularity of social networks has divided the public on several platforms. For the staff in charge of the marketing campaign since admission, this means more time spent attracting a less captive audience.

However, social networks have the ability to build or destroy trust, both at the university level and in the corporate environment. Nine out of ten students expect a response on social media in 24 hours, according to TargetX (2020). This means that it is important for universities to constantly monitor their social networking accounts. Leng (2012) said that when the level of responsiveness on social networks is low, it can lead to a lower level of trust and therefore to a lower level of participation from members. Due to the power of social media, privacy and control over content remain concerns (Rekhter, 2012; Reuben, 2008). Research suggests that universities create social media-focused policies and new organizational structures of marketing departments to ensure that social media is monitored and kept up to date (Constantinides & Stagno, 2012).

A recent study (TargetX, 2017) showed the importance of distinguishing between the social media platforms that students are active and the ones they use to find information about the universities they want to enroll in. The most important platforms used by potential students when analyzing study options are Instagram, YouTube, Facebook and Snapchat (Ruffalo Noel Levitz, 2019; TargetX, 2017; TargetX, 2020). Twitter and Pinterest are the least used platforms during the process of choosing the study institution. In recent years, students have preferred Instagram over other platforms, with 51% of students reporting that they followed university Instagram feeds when making a decision on where to apply (TargetX, 2020).

Potential students use social networks to find and connect with other students, older or from the same generation. Students use digital platforms to find colleagues with similar interests, in the same courses or in the same country. Other uses include searching for roommates, searching for colleagues attending some events, and obtaining information about college courses (Leng, 2012). While social media can help students learn more about other potential students, they have also used them to make quick judgments about others. Some students use social networks to find information about their future roommates before moving in together.

In a recent study by TargetX, only 32% of students responded that they did not or would not use social media as a resource to decide which faculty to enroll in (TargetX, 2020). Some students who reported not using social media or other internet-based resources while searching college said that their choices were limited by themselves or their families, so they did not search for information about other institutions. (Burdett, 2013). Therefore, in university marketing strategies, communication specialists should not ignore the role that external factors play in the decision-making process regarding the university chosen for the study. Thus, the messages promoted through social networks must also be adapted to parents, teachers or relatives who consult digital platforms for more information and who then influence potential students in choosing their study options.

Although not all students use social media as a resource when choosing a faculty, there are still many who use it and find value in the information distributed online. Rather, students use social media to gather information and form impressions about the potential university (TargetX, 2020). Other ways in which students use social networks include following updates from the admissions office regarding the formal registration process, but also getting in touch online with professors and / or non-teaching staff (Burdett, 2013). Interactions with admissions staff on social media have proven to be extremely important for over 60% of students (TargetX, 2020). The most frequently asked questions that universities receive on social networks are about admission requirements, application deadlines, acceptance decisions, and tuition fees (Leng, 2012).

## **5. Conclusions**

Therefore, the use of social networks in university admissions campaigns plays an important role and can determine the success of the communication strategy. The choice of university is an area of interest for communication specialists. Studies confirm that there are a variety of individual characteristics of students and external influences that can determine the choice of faculty by potential students, and the emergence of social networks has added another potentially influential factor in choosing the university. This analysis of the literature confirms that social networks are used by enough potential students in the process of documenting the university they will attend, as well as in the admissions process itself.

All in all, the strategy regarding the content posted on social networks has the ability to influence the success of university marketing communication. Without interesting and captivating content, the presence on social networks is not useful for an institution. Thus, decisions about the type, tone, format and style of content, as well as the time and frequency of posting need to be planned ahead and adjusted according to the different strategies of universities. The type, tone, format and style of the content should depend on what is appropriate, taking into consideration the platforms used to share the content and the voice that an institution wants to embrace on its online social networks. All things considered, public universities can find ways to promote their educational offer, to communicate with its their communities and convey a coherent and consistent image, if they are willing to implement new marketing tools and strategies.

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## Brief Analysis of the Evolution of Female Employees in Recent Years. Research Using Mathematical Modelling

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### Abstract

*The numbers of male against female employment are still an actual and sensitive issue. Thus, the forecast of male and female employment evolution can offer the possibility to make decisions for the minimization of female employment disadvantages. One of the best used methods for model and simulation to forecast is the mathematical applications as artificial neural networks. This kind of method offers the possibility to enhance, understand and forecast the evolutions and influences between different data values. The objective of this paper is to find the proper artificial neural network for modeling and simulating of female employment evolution, under the influence of different indices. The structure considered the best for the simulated values was using hyperbolic tan function and quasi-Newton solver. Also, the ANN structures provide an average feature importance of 51.62% for Total investment, 19.95% for GDP, 15.06% for GERD and 13.37% for Production values.*

**Key words:** female employment, data model, artificial neural network (ANN)

**J.E.L. classification:** J21

### 1. Introduction

Artificial neural networks (ANN) have demonstrated their usefulness in forecasting, clustering simulation, etc. ANN is now an important tool that overcome majority of other mathematical models and algorithms in processing speed, level of simulation, accuracy and level of mathematical integration.

Following the analysis of present research, about the employment of Romanian female, the results look to conclude in the same way: the employment is far to equal the men employment and, even more, in the last years the values of Romanian female employment drop further.

The present data values belong to years 2011-2021 and consider the Romanian employment as total, as males and as females. Also, in order to analyze how these values are influenced, more data were implemented in the model and simulation: GERD by sector of performance (Total intramural expenditure on R&D performed during a specific reference period, broken down by the institutions corresponding to each sector (business enterprise, government, higher education and private non-profit organizations), independent of the source of funds), Gross domestic product at market prices, Total investment in industrial field and Production value.

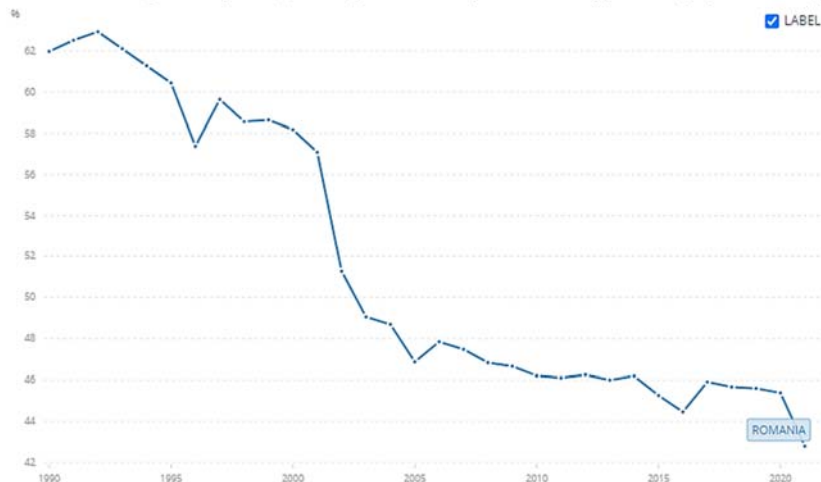
Thus, the main objective of the present paper is to apply mathematical application in form of artificial neural network. The ANN will be elaborated in several structures to find the one with the best result in training (the smallest training error) and show the feature importance that each ANN give to the input indices have in the training process.

### 2. Literature review

Females continue to be a disadvantaged social group at regional and national level and their existence in the labor market is insufficiently noticeable (Ștețiac, 2015). According to Word Bank (2022), participation rate of the female to the labor force decreases with 20% from 1990 to 2021, see figure 1.



Figure no. 1. Evolution of labor force participation rate, female (% of female population ages 15+).



Source: World Bank Group, 2022

Also, according to European Institute for Gender Equality (2017), after an analyze on gender equality in Romania between 2005-2015, the equality has seen a slight decline, as gender equality gender gaps in labor market participation and segregation have widened. The employment rate (20-64 years) is 57% for female compared to 74% for male. When the number of hours worked is considered, the full-time equivalent (FTE) employment rate for female is around 41%, compared to 58% for male.

The use of artificial neural networks for the mathematical model of employment evolution overcomes the dependency on index choice in the model process of the traditional econometric model, but also overcoming the flaw that the linear econometric model cannot incorporate the nonlinear interaction of variables. The interest for the use of artificial neural network in employment forecast has several objectives. Some of them are directed towards forecast, like computing short-term forecasts of regional employment patterns (Gopalakrishnan et Konstantina, 2013) or regional employment Blien et al., 2006) in Germany or forecast of the employment situation of college graduates (Xing Li and Yang, 2021) or prediction of employment index for college students (Wu, 2022). Other research directions cover subjects like what factors affecting employment of women (Karimi et al., 2013) or employee turnover (Randall et al., 2005).

### 3. Research methodology

The applied method is construction of code modules in Python, using Colab Notebooks from Google Drive, for the visualization of data representation and emphasis of evolutions. The python modules used were:

1. sklearn.model\_selection with train\_test\_split
2. numpy as np
3. MLPRegressor
4. matplotlib.pyplot as plt
5. torch.nn as nn

The used data are the following indices:

- GERD by sector of performance (Total intramural expenditure on R&D performed during a specific reference period, broken down by the institutions corresponding to each sector (business enterprise, government, higher education and private non-profit organizations), independent of the source of funds);
- Gross domestic product at market prices;
- Total investment in industrial field;
- Production value;

- Female employment.

Example of the applied Python code is:

Figure no. 2. Code example for Training process (than adam).

```
Network = MLPRegressor(max_iter=5000,  
                        verbose=True,  
                        tol=0.00001,  
                        activation = 'tanh',  
                        solver = 'adam',  
                        learning_rate = 'constant',  
                        learning_rate_init = 0.001,  
                        batch_size = 2,  
                        hidden_layer_sizes = (9),  
                        #early_stopping = True,  
                        n_iter_no_change = 200)  
network.fit(X_train, y_train)
```

Source: Author's model in Python.

Data values belong to years 2011-2021 and consider the Romanian indices values. In order to determine a forecast through mathematical model of artificial neural networks, the values data for GERD, GDP, Total investments and Production were used as one year behind the values for female employment (e.g. GERD, GDP, Total investments and Production values from 2011 were used for the values of female employment from 2012). This link between annual values allows to forecast the female employment values for the next year, using values from the present year for all the other indices.

To determine the best structure for the ANN several activation functions and solvers for weight optimization were applied. Activation function for the hidden layer.

- 'identity', no-op activation, for linear bottleneck implementation,  $f(x) = x$ .
- 'logistic', logistic sigmoid function,  $f(x) = \frac{1}{1+\exp(-x)}$ .
- 'tanh', hyperbolic tan function,  $f(x) = \tanh(x)$ .
- 'relu', rectified linear unit function,  $f(x) = \max(0, x)$ .

The solver for weight optimization.

- 'lbfgs' is a quasi-Newton methods optimizer.
- 'sgd' is the stochastic gradient descent.
- 'adam' is a stochastic gradient-based optimizer proposed by Kingma, Diederik, and Jimmy Ba

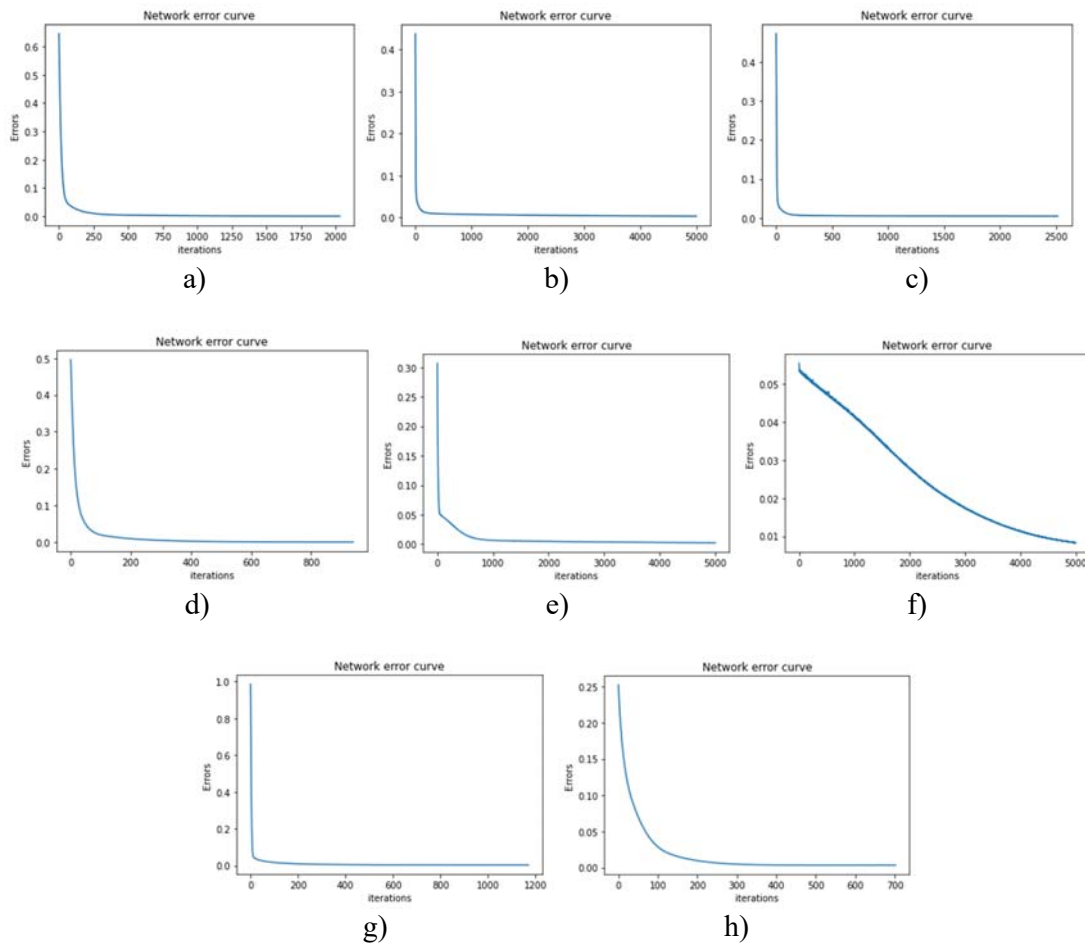
Also, some values for training process were preserved constant for all the different functions and solvers that were used: the learning rate was 0.001; the number of hidden layers was 1, with 9 hidden neurons; batch size was 2; numbers of maxim iterations were 5000, with maxim number of iterations with no change in network error equal with 200. These values can be seen in figure 2.

The application of different functions and solvers for weight optimization in several figures, that show the errors of training results as error curve (figure 2) and the feature importance of the indices in the training process as ratio influence (in figure 3). Also, in table 1, the results of different activation functions and solvers in training process can be traced, in conditional color table and in table 2 the feature importance values for each ANN structure.

#### 4. Findings

After the application of Python code to the data values the following results were obtained. Figure 2 shows the evolution of network error curve on the training process. Analyzing the graphics, we saw that the smallest numbers of iterations belong to the identity\_adam structure, as the highest number goes to tanh\_sgd and logistic\_adam structures. Also, we must emphasize that structures with lbfgs solver does not have graphics representations of network error curve, as the structure does not calculate evolution of this index.

Figure no. 2. Network error curve under the use of different ANN structures: a) tanh\_adam; b) tanh\_sgd; c) relu\_sgd; d) relu\_adam; e) logistic\_adam; f) logistic\_sgd; g) identity\_sgd; h) identity\_adam.



Source: Author’s model in Python.

Table no. 1 Results of different activation functions and solvers in training process.

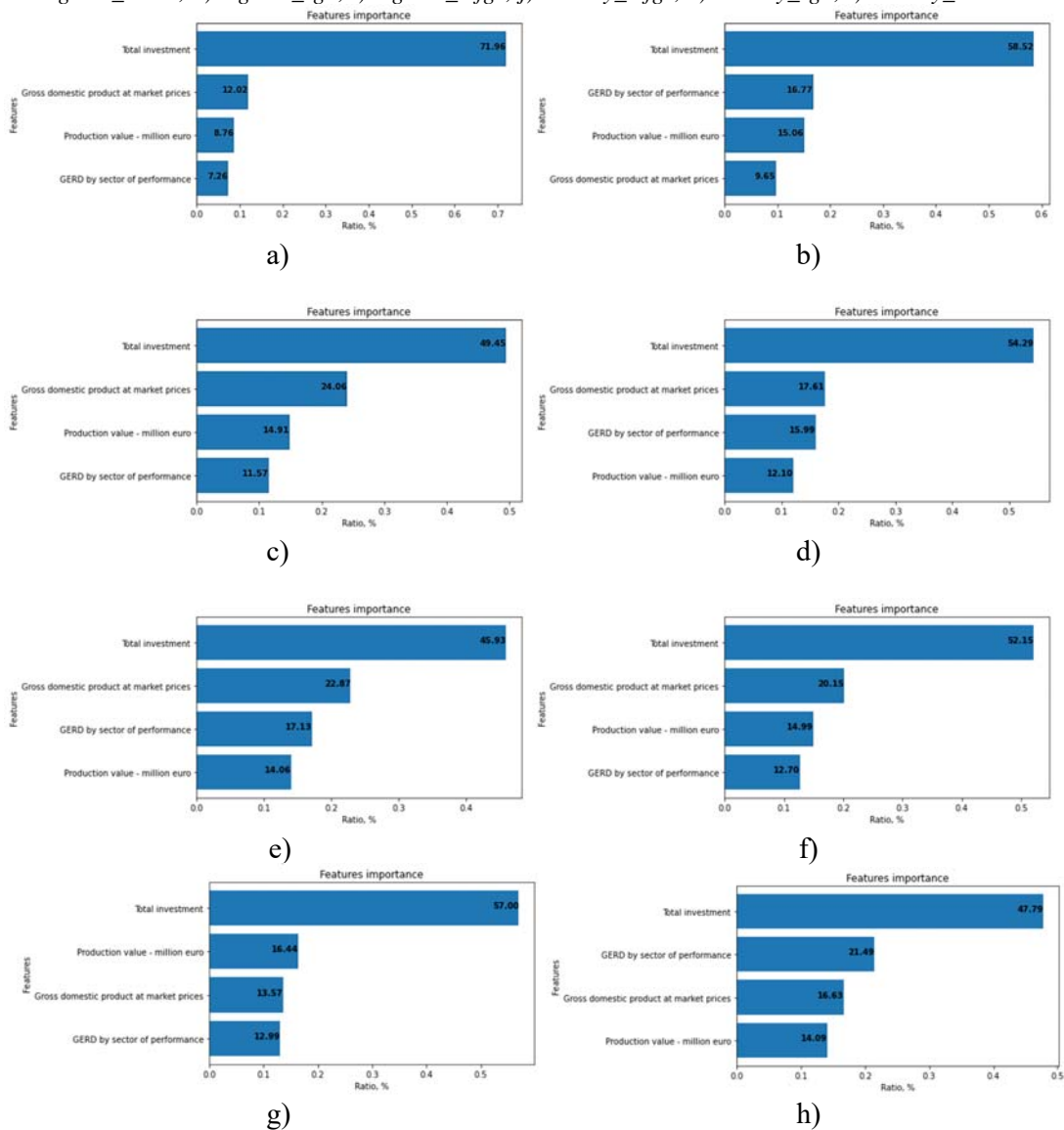
Activation & solver functions	Network loss	Mean absolute error testing	Mean squared error testing	Mean absolute error training	Mean squared error training	Model score on training data
tanh_adam	0.00037	0.30209	0.11534	0.00559	7.87339	0.8248
tanh_sgd	0.00315	0.08632	0.00773	0.05732	0.00573	0.7803
tanh_lbfgs	0.00035	0.30621	0.12354	0.00086	0.000002	0.85941
relu_lbfgs	0.00081	0.28207	0.14073	0.0023	0.000007	0.81071
relu_sgd	0.00419	0.2942	0.08658	0.05345	0.00792	0.81882
relu_adam	0.00038	0.23652	0.06204	0.01466	0.00031	0.81752
logistic_adam	0.12603	0.0163	0.03458	0.00293	0.12603	0.79638
logistic_sgd	0.00828	0.03381	0.00128	0.11247	0.01578	0.80327
logistic_lbfgs	0.00024	0.40975	0.20596	0.00218	0.000007	0.8067
identity_lbfgs	0.00647	0.09413	0.01441	0.10548	0.01285	0.75288
identity_sgd	0.0033	0.2549	0.07271	0.06796	0.00609	0.90154
identity_adam	0.00329	0.24971	0.07128	0.06603	0.00608	0.88468
Minimum	0.00024	0.0163	0.00128	0.00086	0.000002	0.75288

Source: Author’s model in Python.

The results of training are presented in table no. 1. To simplify the evaluation of ANN’s results and reading easier the errors, the higher values are in red and smallest ones in green. All other values and colors show the values between min and max.

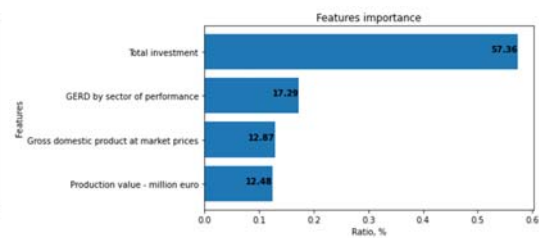
Analyzing table no. 1 one can see that the smallest network loss belongs to logistic\_lbfgs structure. Also, the mean absolute error and mean squared error on testing data set belong to logistic\_adam and logistic\_sgd, respectively. The smallest errors for mean absolute error and mean squared error for training data set can be found in tanh\_lbfgs structure, and the best model score on training data is on identity\_sgd (the closer to 1.00, the better the model score is). This makes it difficult to choose the best structure. To help the selecting process we narrow down the error that we should consider by concentrating the attention on error on training data set. This choice was motivated by the fact that the test set was too small to consider (only 2 values). Thus, the best structure was tanh\_lbfgs with the best mean absolute error and mean squared error and the 3<sup>rd</sup> model score.

Figure no. 3. Feature importance of indices, as influence over the training process for different structures: a) tanh\_adam; b) tanh\_sgd; c) tanh\_lbfgs; d) relu\_lbfgs; e) relu\_sgd; f) relu\_adam; g) logistic\_adam; h) logistic\_sgd; i) logistic\_lbfgs; j) identity\_lbfgs; k) identity\_sgd; l) identity\_adam.

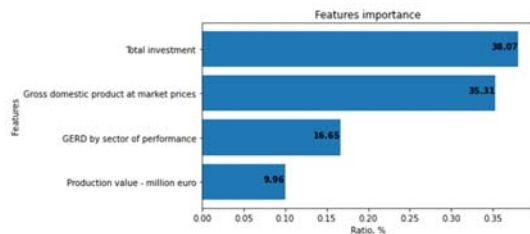




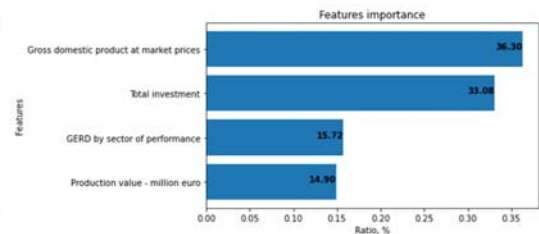
i)



j)



k)



l)

Source: Author’s model in Python.

Analyzing figure 3 we can conclude that the values of feature importance is very different from one structure to another. As the hyperbolic tan function give the more importance to the Total investments (between 49.45 and 71.96%) and the less to the GERD (between 7.26 and 16.77%) or Production values (between 8.76 and 15.06%). The identity function put on the smallest values (compared with the other functions) to the Total investments and increases the importance for the GDP. The chosen structure tanh\_lbfgs had the following feature importance values: Total investments - 49.45%, GDP - 24.06%, GERD - 11.57%, Production values - 14.91%. This puts the Total investment to all most 50% influence over the training process results, followed by the GDP with almost a quarter influence. The last are Production values and GERD as the last.

For an easier reding and analysis of figure 3, the values were translated in table no. 2.

Table no. 2 Feature importance for different activation functions and solvers in training process (%).

Activation & solver functions	Total investments	GDP	GERD	Production values
tanh adam	71.96	12.02	7.26	8.76
tanh_sgd	58.52	9.65	16.77	15.06
tanh_lbfgs	49.45	24.06	11.57	14.91
relu_lbfgs	54.29	17.61	15.99	12.1
relu_sgd	45.93	22.87	17.13	14.06
relu adam	52.15	20.15	12.7	14.99
logistic adam	57	13.67	12.99	16.44
logistic_sgd	47.79	16.63	21.49	14.09
logistic_lbfgs	53.89	18.2	15.21	12.7
identity_lbfgs	57.36	12.87	17.29	12.48
identity_sgd	38.07	35.31	16.65	9.96
identity adam	33.08	36.3	15.72	14.9
Average value	51.62	19.95	15.06	13.37

Source: Author’s model in Python.

Table no. 2 also, shows the big difference on how the different structure evaluate the feature importance. This big gaps between values are due to the small amount of data and the decision of combining the different years for inputs and output.

## 5. Conclusions

Even that the research is based on a small number of data sets and the data have a small heterogeneity level, the results are satisfying, considering the very small values of errors that were calculated. From the representation of the network error curve, we can show that the smallest numbers of iterations belong to the identity\_adam structure, as the highest number goes to tanh\_sgd and logistic\_adam structures.

Comparing different structures in terms of activation functions and solvers for weights, we concluded that the best structure was tanh\_lbfgs with the best mean absolute error and mean squared error and the 3rd model score. Also, this decision was taken in view of a difficult choice of the best structure, as the different type of errors were split between different structures.

For the feature importance, the chosen structure tanh\_lbfgs had the following values: Total investments - 49.45%, GDP - 24.06%, GERD - 11.57%, Production values - 14.91%. Also, hyperbolic tan function gives the more importance to the Total investments (between 49.45 and 71.96%) and the identity function put on the smallest values (compared with the other functions) to the Total investments and increases the importance for the GDP. So, the feature importance depends on the ANN's structure.

For future research more data sets are needed, and more indices should be introduced. This will make the training more accurate but will make the feature importance more difficult to determine.

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## Brief Analysis of the Evolution of Female Employees in Recent Years. Research Using Visual Representation

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### Abstract

*The numbers of male against female employment is still an actual and sensitive issue. Thus, the actual analysis of male and female employment evolution can offer a more accurate image of the present state of female disadvantages or advantages. One of the more used methods of analysis is visualizations of data evolutions with the help of coding modules. This kind of method offers the possibility to enhance the evolutions and influences between different data values. The objective of this paper is the use of this method to show the evolutions of male and female employment under the evolution of different indices. The obtained visual representation showed, clearly, a more pronounced upward trend for the male employment than female. Also, the number of female employments is more likely to remain constant even in the case of increasing values of other indices.*

**Key words:** female employment, data visualization, employment evolution

**J.E.L. classification:** J21

### 1. Introduction

Data visualization, enabled by the power of computing, is one of the essential tools of modern data science. The graphs expose features of the data that statistics and models may slip: unusual data distributions, local patterns, clustering, gaps, missing values, evidence of rounding or crowding, default bounds, outliers, and so on. Graphs advance questions that inspire research and propose ideas.

Following the analysis of present research, about the employment of Romanian female, the results look to conclude in the same way: the employment is far to equal the men employment and, even more, in the last years the values of Romanian female employment drops further.

The visualization analysis can be used to easily show the evolutions of these data and reveal the differences between the female and male employment.

Brush & Burns (2020) said that “benefits of data visualization include the following (Brush & Burns, 2020):

- the ability to quickly absorb information, improve insights and make faster decisions;
- a better understanding of the next steps that need to be taken to improve the organization;
- an improved ability to keep the public interested with information they can understand;
- an easy sharing of information that increases the opportunity to share perspectives with all stakeholders;
- the elimination of the need for data scientists because data is more accessible and easier to understand; and
- an increased ability to act quickly on findings and therefore achieve success with greater speed and fewer mistakes.”

The present data values belong to years 2011-2021 and consider the Romanian employment as total, as males and as females. Also, in order to analyze how these values are influenced, more data were implemented in the visualizations: GERD by sector of performance (“Total intramural expenditure on R&D achieved during an explicit historical reference, broken down by the institutions corresponding to each sector (business enterprise, government, higher education and private non-

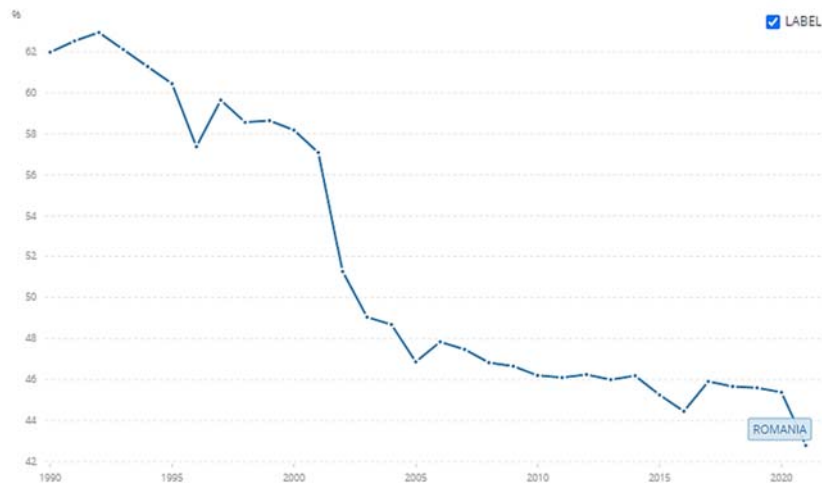
profit organizations), independent of the source of funds”, according to EUROSTAT), Gross domestic product at market prices, Total investment in industrial field and Production value.

Thus, the main objective of the present paper is to model data to a better visualization of female against men (and total) values of employment. The main objective is to conclude the evolution of these values. The importance of the research comes from the development of codes that can be further used for different types of data values. Also, the values representation can be very easy read and understood.

## 2. Literature review

Females continue to be a disadvantaged social group at regional and national level and their existence in the labor market is insufficiently noticeable (Ștețiac, 2015). According to World Bank (2022), participation rate of the female to the labor force decreases with 20% from 1990 to 2021, see figure 1.

Figure no. 1. Evolution of labor, female force participation rate (% of female population ages 15+).



Source: World Bank Group, 2022

Also, according to European Institute for Gender Equality (2017), after an analyze on gender equality in Romania between 2005-2015, the equality has seen a slight decline, as gender equality gender gaps in labor market participation and segregation have widened. The employment rate (20-64 years) is 57% for female compared to 74% for male. When the number of hours worked is considered, the full-time equivalent (FTE) employment rate for female is around 41%, compared to 58% for male.

## 3. Research methodology

The applied method is construction of code modules in Python, using Colab Notebooks from Google Drive, for the visualization of data representation and emphasis of evolutions. The python modules used were:

1. numpy as np;
2. pandas as pd;
3. pyplot from matplotlib as plt;
4. seaborn as sns

Example of the applied Python code is:



Figure no. 2. Code example (sns) for total employment vs. 'GERD by sector of performance.

```
sns.jointplot(y = table['Employment_Total'], x = table['GERD by sector of performance'],
kind='kde ', fill=True, cmap='brg_r', space=0.2, zorder=20, levels=100)
```

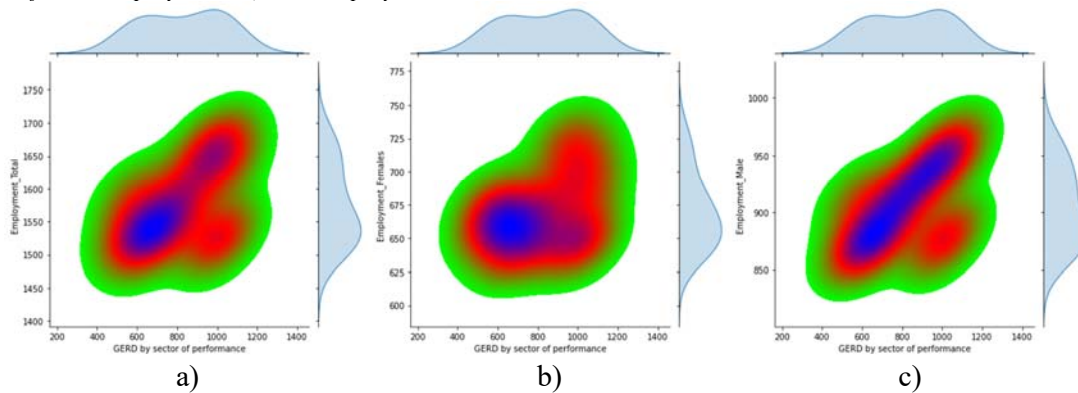
Source: Author's model in Python.

The application of coding results in several figures, that show the evolutions of employment under the influence of growth of the following indices, as follows: GERD by sector of performance, Gross domestic product at market prices, Total investment in industrial field and Production value.

#### 4. Findings

After the application of Python code to the data values the following visualization were obtained.

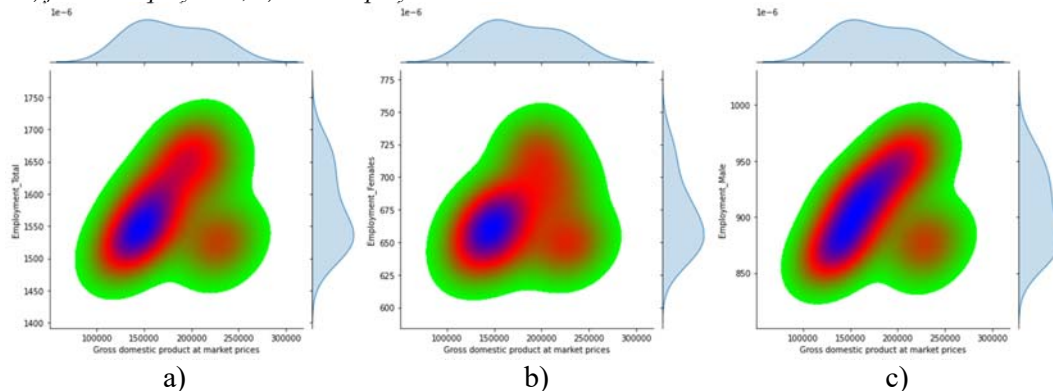
Figure no. 3. Evolution of employment vs. GERD by sector of performance: a) total employment; b) female employment; c) male employment.



Source: Author's model in Python.

Analyzing the image from figure 3 we can conclude that the GERD increase is directly proportional to the increase of male employment, which has a more accentuate growth as the total employment. This can be explained by the evolution of female employment, which remain almost constant even with the increase of the GERD. Thus, the evolution of total employees do not have the same evolution as GERD. More than that, there is a number of employees that remain constant even with the rise of GERD, fitting to the values near the 1000 GERD. This belongs to the employees that are not influenced by GERD evolution and is looks specific to female employees.

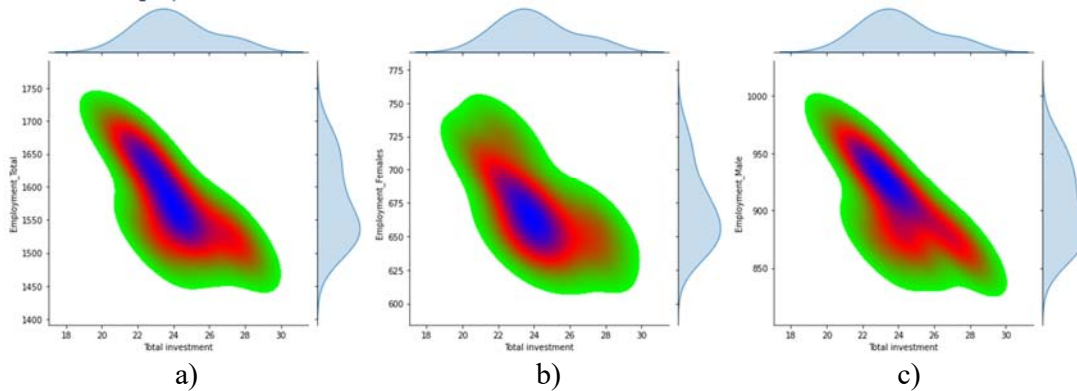
Figure no. 4. Evolution of employment vs. Gross domestic product at market prices: a) total employment; b) female employment; c) male employment.



Source: Author's model in Python.

Almost the same as the evolutions from figure 3, we can see in figure 4. The differences occur when we are looking to the female employment. The number looks smaller when we analyze the GDP evolution. This shows that the number of male employees is more likely to be influenced by the GDP evolution. Also, the constant number of total employees is less influenced by the GDP than by the GERD.

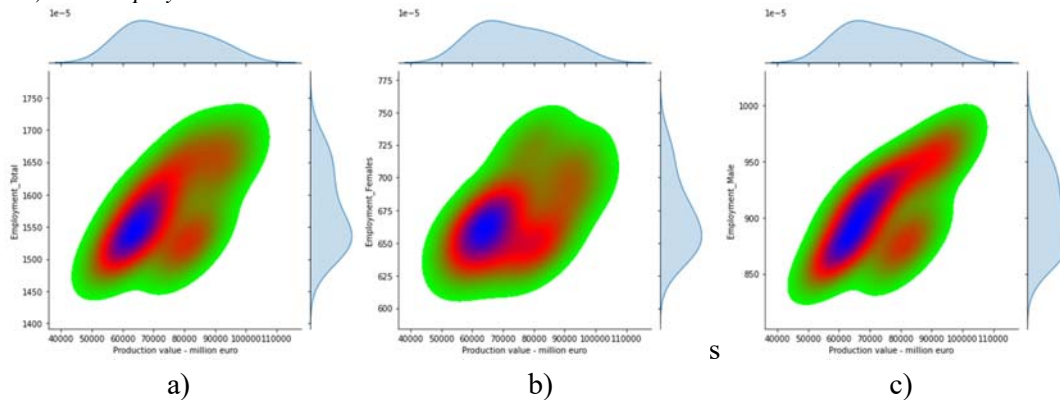
Figure no. 5. Evolution of employment vs. Total investment: a) total employment; b) female employment; c) male employment.



Source: Author’s model in Python.

The first conclusion from analyzing figure 5, is the relation of inverse proportionality of total investments to all form of employment. The largest number of male employees belongs to the higher values of investments, while the most female employees fit to the median values of investments.

Figure no. 6. Evolution of employment vs. Production value: a) total employment; b) female employment; c) male employment.



Source: Author’s model in Python.

In figure 6 the evolutions of male and female employment are similar with their evolutions influenced by the GRD and GDP. The differences are the male employment increase accordingly with the growth of Production, but the value decreases at the top of production values. Also, the number of female employees is more constant than the male employees (between 7000 – 8000 Production value)

## 5. Conclusions

The first conclusion that can be drawn is the direction of proportionality. As the GERD, GDP and Production values are direct proportional with the evolution of employment (total, female, and male), the investment has an invers proportionality.

Considering all the indices, the number of female employees is always not only smaller than the males, but, also, with much smaller trend of growth than the males employment. Also, there is a constant in the value of the female employment evolution even in the case of increasing values of all other indices. Thus, the male employment looks to be more influenced by the evolution of other indices. This can conclude that even with the activities, actions, and policies to increase female employability, their numbers do not increase with same trend and values as the other macroeconomics indices.

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## Concerns Regarding the Orientation of Higher Education in Romania. Flexibility - A Current Requirement

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### Abstract

*The March 2020 - March 2022 period represented a stage of important changes in terms of the development of higher education in Romania. The sudden transition (due to the new Coronavirus pandemic) from the classical, "face-to-face" education/learning and teaching to the online format was regarded as the only way to ensure the continuity of the teaching-learning-assessment activities. The implementation of online education was accompanied by multiple aspects, some of them being similar for all the university centers in the country and for all the fields of study.*

*In this context, this article presents the results of our research on the perception of students from the Faculty of Economic Sciences within "Ovidius" University of Constanța regarding the experiment on changing the way of carrying out education activities, during the pandemic, but also on how they consider that the activity must be organized in the new economic, social and political context.*

**Key words:** higher education, student approach, flexibility, alternative teaching methods

**J.E.L. classification:** I21, I23, I26

### 1. Introduction

Education and learning/teaching are a widely debated topic. We currently find it within certain governmental institutions, at national and international level (with responsibilities in establishing educational policies and their implementation), administrative and non-governmental organizations (NGOs, professional associations, students'/pupils'/parents' associations, etc.).

Ever since the beginning of the 21st century, it has been stated that we are living in the "age of knowledge", in a world characterized by permanent change, which entails changes in each individual, but also changes of the economic, social, cultural, political systems.

The text of the Memorandum on Lifelong Learning, of October 2000, stated that "Today's Europe is experiencing change on a scale comparable with that of the Industrial Revolution. Digital technology is transforming every aspect of people's lives, whilst biotechnology may one day change life itself." (Commission of the European Communities, 2000, p. 7)

The emergence and spread of the Covid-19 virus infection in early 2020, and the recognition of the pandemic by the World Health Organization on March 11, 2020 confirm this scenario, which was described or anticipated in the year 2000. In the context of the pandemic, one of the decisions taken by many countries was the transition to online education/learning and teaching (UNICEF Romania, 2020)).

The first part of this paper presents a theoretical approach to the importance of education/learning and teaching, in the context of the changes that humanity is undergoing, whereas the second part brings to attention a direct type of research on/into the way economics students from Constanța perceived this online school experiment, during the pandemic, for two years (four semesters). The conclusions of this article are based on the results obtained from this research and their correlation with the current concerns over/about the reorientation of the higher education in Romania.

## 2. Theoretical background

The importance of education and learning for each individual, but also for society is analyzed in specialized papers, mentioned in official documents and debated within several world, European and national organizations.

In many cases, education and learning/teaching are expressed and / or understood as synonyms. However, in order to survive, develop and evolve a society needs education, in order to ensure the training of the individuals, so that they are able to fulfill their roles, the responsibilities they are to take on. From this perspective, we note that the education system of a society is more comprehensive compared to the learning and teaching system. At the same time, the education system includes "along with all the levels and types of learning and teaching, all types of non-school education" (Radulian, 2022, p. 6).

The learning/teaching system, through the school / university institution, is considered the main institutional factor with a role in ensuring education (Radulian, 2022, pp. 1, 5-7). It is obvious that, over time, the institution of education has experienced a continuous evolution process, on the one hand in terms of its main functions, and on the other hand in terms of the institutions involved. In this context, Émile Durkheim (1858-1917), the remarkable educational sociology specialist, recalls the "generic types of education" (respectively, the education systems corresponding to the different "types of society" (Radulian, 2022, p. 1).

The European approach, formulated by the European Council during its meeting in Lisbon in March 2000, is that the education and training systems in Europe are changing, but also that they need to be correlated with the knowledge-based economy and information society (Commission of the European Communities. 2000)

Based on the recognition, formulated in the Conclusions of the Presidency of the European Council, Lisbon, 23-24 March 2000, that "People themselves are the leading actors of knowledge societies", the Memorandum on Lifelong Learning emphasized that "education and training systems must adapt to the new realities of the 21st century" (European Commission, 2000, p. 5.)

In Romania, the Ministry of Education ensures the orientation and implementation of the national education policy. The vision regarding the future of education in our country, Horizon 2030, is based on recognizing its multiple role both for each individual and for society, as a whole (Ministry of National Education. 2019, p. 2). In addition to all these aspects, it is important to remember the point of view expressed by the specialist Iustin Popoiu, i.e., "Education does not only mean preparing for something that is going to happen, it must help people integrate into the present" (Popoiu, 2014, p. 1).

On the topic of higher education, the vision of the Ministry of Education is to "develop a sense of academic and professional community". The partnership that must be created between the teaching staff and the students aims to develop a "common research and learning environment. The spaces are developed so that the students and the staff can interact outside the teaching situations" (Ministry of National Education. 2019, p. 10)

Order No. 3343/707/2022 (issued on March 8, 2022) provided the legal framework requiring accredited higher education institutions to return to undergoing teaching activities with physical presence, starting from March 9, 2022 (Ministry of Education; Ministry of Health, 2022)

The decisions to change the way of carrying out the teaching activity in Romanian higher education (issued: March 2020 and March 2022) were sudden, creating multiple problems not only for the institutions, but also for the students and teaching staff. While the transition to the online format was accepted as the only way to ensure the continuity of the educational activity, the decision to stop it (starting from March 9, 2022) generated reactions of protest and dissatisfaction from the managerial staff of higher education institutions, and also from the students.

Through the measures provided in the Emergency Ordinance no. 69 of May 26, 2022 for the amendment and completion of the National Education Law no. 1/2011 it can be said that a new, more flexible framework for providing higher education was created, especially for full-time learning. In the new legal text, synchronous online courses are defined as "courses in which students and teaching staff participate at the same time, but from separate locations, generally other than the university campus" (Government of Romania, 2022; Romanian Agency for Quality Assurance in Higher Education)

### 3. Research methodology

Throughout this article we have used a combination of research methods. Thus, the first part focused on desk research, based on gathering secondary, quantitative information, using traditional and electronic data sources. In the second part of the article, i.e., for the case study, we have used field research, with a sample survey, while the tool for gathering direct information has been the questionnaire (Jupp, 2010; Silverman, 2004).

For processing direct information, gathered with the help of the questionnaire, we have used classical statistical-mathematical methods (Semantic Differential Scale and Likert Scale), and also the Google Forms app. Moreover, in interpreting the results obtained via the sample survey we have also used information collected via the method of observation regarding the real undeclared behavior, manifested by students during the pandemic and, especially, during the second semester of the academic year 2021- 2022, when the first weeks of teaching activity took place in online format, and the following ones in physical format.

### 4. Findings

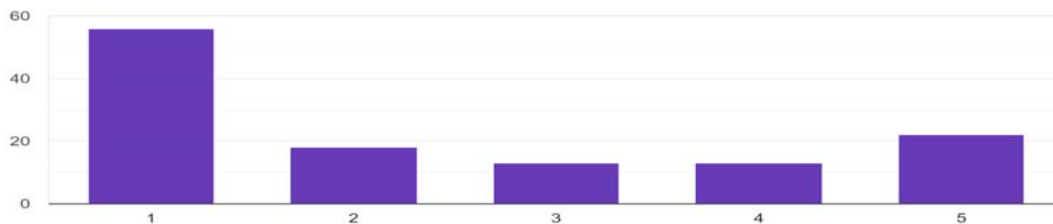
The case study is represented by a direct sample survey research based on a questionnaire. The research was carried out between May 31 and June 12, 2022, on a sample of 122 students of the Faculty of Economic Sciences, from the full-time learning and distance learning programs for the bachelor's degree level, as well as from the full-time learning programs for the master's degree level.

The questionnaire was distributed via the WhatsApp social network and the electronic mail / e-mail. An electronic device connected to the Internet was used to fill it out. The gathered information was then processed using the Semantic Differential Scale and Likert Scale methods, and graphical representations were automatically generated by the "Google Forms" survey management software.

#### *Presentation of the types of questions in the structure of the questionnaire and of the way the answers were processed*

1. The question - *"How do you assess the decision to suspend online teaching activity (technology-assisted learning) in the conditions of the pandemic caused by the new Coronavirus and its replacement with the "face-to-face" teaching activity?"* had the following answer options: *Very inappropriate (1) Not suitable (2) Slightly suitable (3) Suitable (4) Very suitable (5)*. Processing the answers with the help of "Semantic differential" method (with five levels) showed that the mean value of the assessment, expressed by the sample, is **2.40**, which shows that this decision was perceived by the students as being **Inappropriate**.

Figure no. 1 Distribution of the answers obtained for question no. 1



Source: Google Forms processing

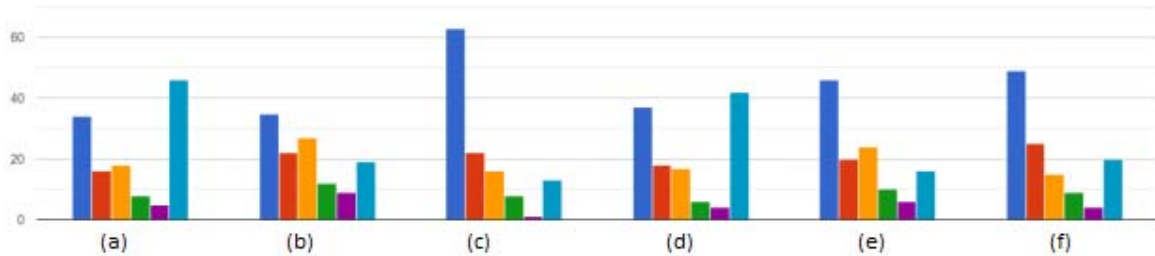
2. As far as the question - *What difficulties did you face, immediately, upon the return to the "face to face" type of teaching activity and to what extent?* is concerned, several characteristics / aspects were taken into account, and the levels of assessment / measurement were: *To a very large extent (6) To a large extent (5) Moderate (4) To a small extent (3) To a very small extent (2) Not at all (1)*



After processing the answers, using the "Semantic differential" method (with six levels), the following levels and assessment values resulted:

- (a) Lack of accommodation space impacted *'To a very small extent'*, amounting to a value of **1.98**;
- (b) Lack of financial resources - *"Moderate"*, **3.80**;
- (c) Impossibility to attend courses / seminars- *"To a large extent"*, **4.80**;
- (d) Leaving a job – from *"To a small extent"* to *"Moderate"*, **3.61**;
- (e) Increase in study expenses - from *"Moderate"* to *"To a large extent"*, **4.34**;
- (f) Increase in expenses related to personal needs (food, clothing, housing) - *"Moderate"* to *"To a large extent"*, **4.38**.

Figure no. 2 Distribution of the answers obtained for question no. 2



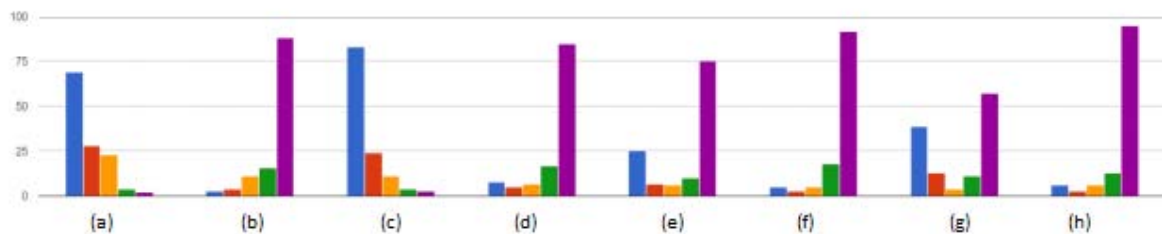
Source: Google Forms processing

3. When asked - *What equipment did you use in order to carry out online teaching activities, and to what extent?* - several characteristics / aspects were taken into account, and the levels of assessment / measurement were: *Most of the time (5) Often (4) In certain situations (3) Rarely (2) Very rarely (1)*

After processing the answers, using the "Semantic differential" method (with five levels), the following levels and assessment values resulted:

- (a) Personal mobile phone was used *"Many times"*, the value obtained being **4.25**;
- (b) Another person's mobile phone / mobile phone in the working place - *"Rarely"*, **1.51**;
- (c) Personal Laptop - *"Often" to "Most of the Time"*, **4.44**;
- (d) Another person's laptop / laptop in the working place - *"Rarely"*, **1.64**;
- (e) Personal tablet - *"Rarely"*, **2.16**;
- (f) Tablet in the working place - *"Very rarely"*, **1.46**;
- (g) Personal PC *"In certain situations"*, **2.72**;
- (h) The PC of another person / PC in the working place *"Rarely"*, **1.51**.

Figure no. 3 Distribution of the answers obtained for question no. 3



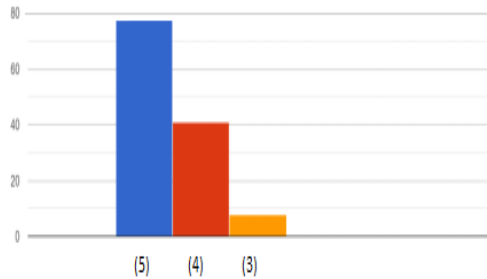
Source: Google Forms processing

4. The question - *How do you assess your personal equipment, which you used in carrying out the online teaching activity?* - had as answer options:

*Totally sufficient (5) Sufficient (4) Sufficient to a small extent (3) Insufficient (2) Totally insufficient (1)*

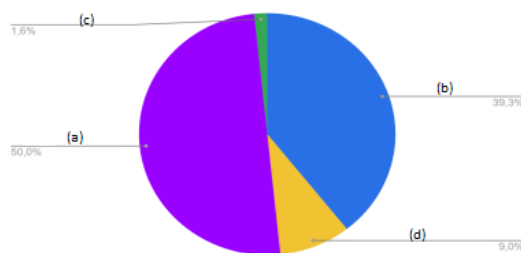
After processing the answers, using the "Semantic differential" method (with five levels), a value of **4.55** resulted, which represents an assessment between *"Sufficient"* and *"Totally sufficient"*.

Figure no. 4 Distribution of the answers obtained for question no. 4



Source: Google Forms processing

Figure no. 5 Distribution of the answers obtained for question no. 5



Source: Google Forms processing

5. To the question - *What device, do you consider, has been of greatest use to you in the online teaching activity?* the following answers were obtained: the most used devices were the **laptop**, with a share of **50%** and the **phone (39.34%)**, whereas the **tablet (1.64%)** and the **PC (9.01%)** were of little use.

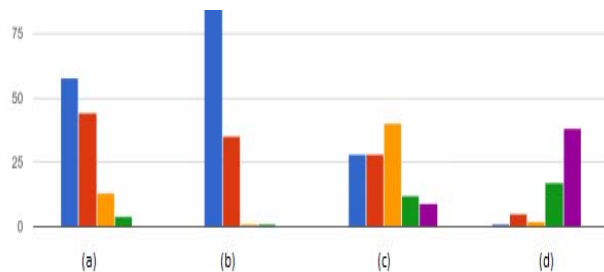
6. As to the question - *What platforms did you use to carry out online teaching activities and to what extent?* - several characteristics / aspects were taken into consideration, and the levels of assessment / measurement were:

*Most often (5) Often (4) In certain situations (3) Rarely (2) Very rarely (1)*

After processing the answers, using the "Semantic differential" method (with five levels), the following levels and assessment values resulted:

- (a) Zoom Meetings was considered to have been used from "**Often**" to "**Most often**" - with a value of **4.31**;
- (b) Webex Meetings - "**Most often**", **4.67**;
- (c) Microsoft Teams - "**In Certain Situations**" to "**Often**", **3.46**;
- (d) Other platforms - "**Very rarely**", **1.33**.

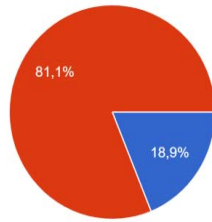
Figure no. 6 Distribution of the answers obtained for question no. 6



Source: Google Forms processing



Figure no. 7 Distribution of the answers for question no. 7



Source: Google Forms processing

7. To the question - *Did you encounter difficulties in carrying out the online teaching / school activity?* - **81.15%** answered "**Yes**", and **18.85%** answered "**No**".

8. Those who answered positively to question no. 7 detailed by answering the question - *What were the difficulties you faced in terms of carrying out the online teaching / school activity and to what extent?*

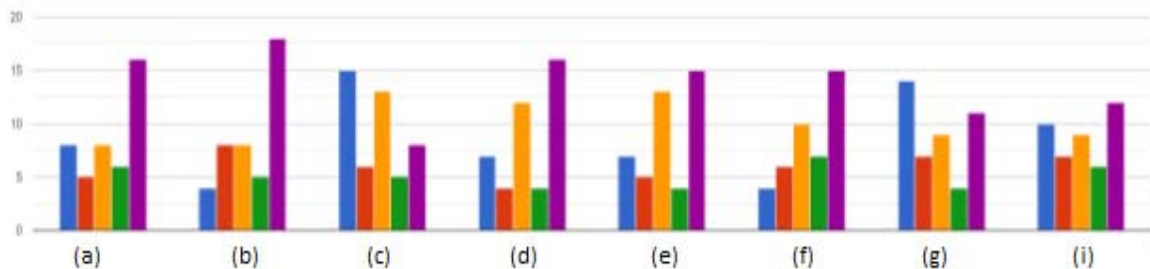
Several characteristics / aspects were taken into account, and the levels of assessment / measurement were:

*Most often (5) Often (4) In certain situations (3) Rarely (2) Very rarely (1)*

After processing the answers, using the "Semantic differential" method (with five levels), the following levels and assessment values resulted:

- (a) The lack of teaching materials adapted to online learning/teaching was a difficulty that students considered to have faced "**In certain situations**", reaching a value of **2.93**;
- (b) Inadequate teaching methods used by teachers - "**Rarely**", **2.42**;
- (c) Internet connection - "**In certain situations**" to "**Often**", **3.32**;
- (d) Difficulties in using personal equipment - "**Rarely**" **1.88**;
- (e) Personal equipment failure - "**Rarely**", to "**In certain situations**", **2.65**;
- (f) Lack / insufficiency of living space - "**Rarely**" to "**In certain situations**", **2.42**;
- (g) Overlapping with other professional activities - "**In certain situations**", **3.12**;
- (h) Overlapping with different activities of other family members - "**In certain situations**", **2.93**.

Figure no. 8 Distribution of the answers obtained for question no. 8



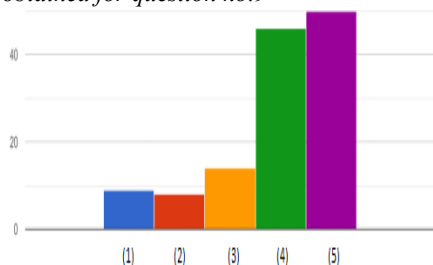
Source: Google Forms processing

9. For the question - *Did the teaching staff offer you support for the proper conduct of the online teaching activities?* - the answers were:

*To a very large extent (5) To a large extent (4) Neither (3) To a small extent (2) To a very small extent (1)*

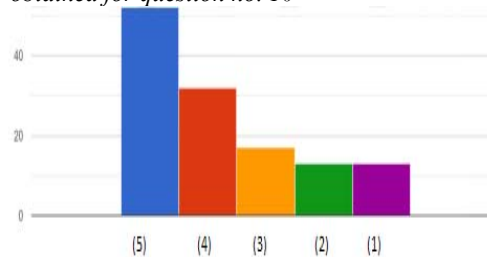
Following the processing of the answers, using the "Semantic differential" method (with five levels), the result was **3.95**, which shows that the students considered that "**To a large extent**" they were supported by the teaching staff in their faculty.

Figure no. 9 Distribution of the answers obtained for question no.9



Source: Google Forms processing

Figure no. 10 Distribution of the answers obtained for question no. 10



Source: Google Forms processing

**10.** For the question - *Do you consider that there are differences between the teaching activity when the activities were carried out online, compared to the current period, of "face to face" teaching activity?* - the answer options were:

*Very significant (5) Significant (4) Neither (3) Not significant (2) Very insignificant (1)*

Following the processing of the answers, using the "Semantic differential" method (with five levels), the value of **3.76** resulted, corresponding to the "**Significant**" assessment level.

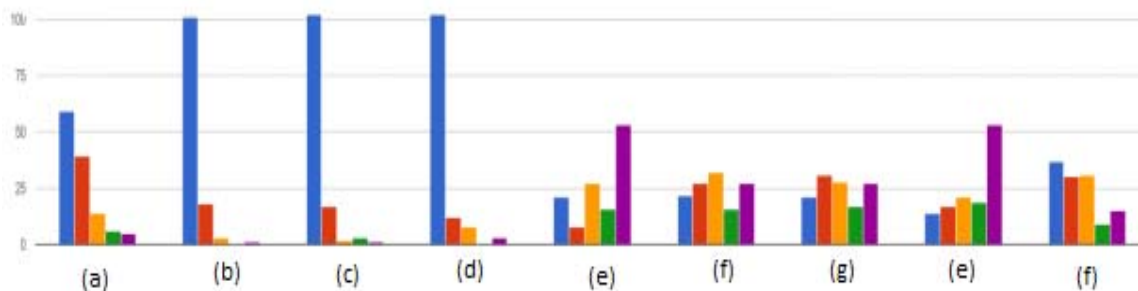
**11.** For the question - *How do you assess the period of online teaching activity?* - several characteristics / aspects were taken into consideration, and the levels of assessment / measurement were:

*Strongly Agree (+2) Agree (+1) Neither (0) Disagree (-1) Strongly Disagree (-2)*

Following the processing of the answers, using the "Likert Scale" method, the following values and assessments resulted:

- (a) *It was more interesting, compared to the "face to face" period - the value being 1.14, which is the "Agree" assessment;*
- (b) *It gave me more freedom in organizing time: 1.77, respectively "Strongly Agree";*
- (c) *I had more free time, (by eliminating the time spent travelling to the university, the preparation for the commute, etc.): 1.73, respectively "Strongly Agree";*
- (d) *I have cut certain expenses (transport, clothing / footwear, food, etc.): 1.68, respectively "Strongly Agree";*
- (e) *It created a feeling of isolation from society: 0.41, respectively "Disagree";*
- (f) *I missed the interaction with my colleagues: 0.008, respectively "Neither";*
- (g) *I missed the interaction with the teachers: 0.016, respectively "Neither";*
- (h) *I consider that I have received less information compared to the "face-to-face" format: 0.65, respectively "Agree";*
- (i) *I consider that I have received more information compared to the "face-to-face" format: 0.53, respectively between "Neither" and "Agree".*

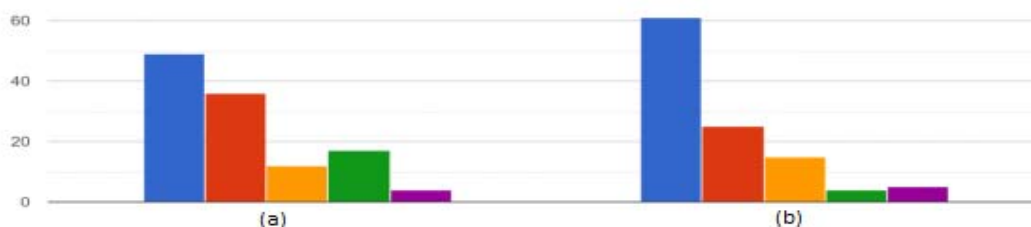
Figure no. 11 Distribution of the answers obtained for question no. 11



Source: Google Forms processing

12. To the question - *For the next years, for economic learning/teaching, how do you assess the online format compared with the "face to face" format?* - the answer options were: *Very suitable (5) Suitable (4) Indifferent (3) Not suitable (2) Very unsuitable (1)*  
Processing the answers, with the "Semantic differential" method (with five levels), showed that the students consider the online format as "**Suitable**" for the bachelor's degree level (*the value being 3.92*), but especially for the master's degree level (**4.21**).

Figure no. 12 Distribution of the answers obtained for question no. 12



Source: Google Forms processing

The questionnaire continued by posing several questions that contributed to shaping the profile of the researched sample.

13. The answers to the following question show that - In March 2020, **19.83%** were *pupils*, **42.98%** were *undergraduate students*, **27.28%** were *employed undergraduate students*, and **9.91%** were in a *different situation*, respectively employees and some of them were higher education graduates.

14. During the pandemic period (March 2020 - March 2022) we note that: **82.42%** of the respondents mentioned that *they continued their activity both as students and as employees*, and **24.32%** of them *switched to another job*.

15. After the pandemic period (March 2022), **56.21%** of the respondents stated that *they continued their activity as a student, but also as an employee, on the same job*; **25.81%** continued their activity as a student, but gave up working, and **17.98%** continued their activity as a student, but moved to another job.

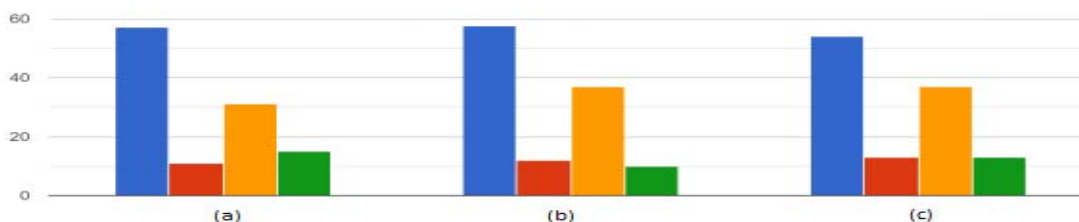
16. To the question - *Where did you carry out / are carrying out your professional activity?* - the following answers were obtained, expressed in percentages:

Table no.1 Centralization of the answers obtained from question no. 16

	In the private sector	In the budgetary sector	Full-time	Part-time
Before the pandemic	50%	9.64%	27.19%	13.16%
During the pandemic	49.57%	10.26%	32.46%	8.54%
After the pandemic	46.15%	11.40%	32.46%	11.11%

Source: Author's own processing

Figure no. 13 Distribution of the answers obtained for question no.16



Source: Google Forms processing

17. To the question – *In terms of the next semester / academic year, do you want the teaching activity to take place:* out of the sample of 122 students, **104** chose the answer *Face to face*, which represents a share of **85.2%**, and **18** students (**14.8%**) opted for the *Online* answer.

18. Some characteristics related to the structure of the sample used in the research:

Table no. 2 Centralization of the answers regarding the distribution by gender / sex:

M	F	Total
23	99	122

Source: Author's own processing

Table no. 3 Centralization of the answers regarding the distribution by main domicile:

In urban areas	In rural areas	In Constanta county	In another county Specify	TOTAL
57	36	25	4	122

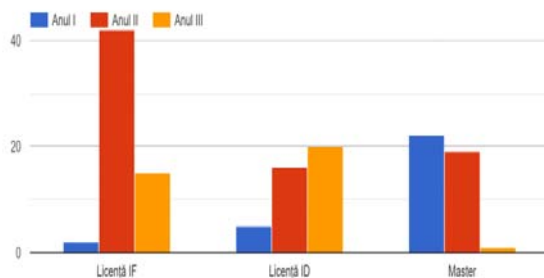
Source: Author's own processing

Table no. 4 Distribution according to the study program (within the Faculty of Economic Sciences) in which the respondent student is enrolled:

	Year I	Year II	Year III
Bachelor's Degree full-time learning	0	41	14
Bachelor's Degree distance learning	1	12	20
Master's Degree	17	17	

Source: Author's own processing

Figure no.14 Distribution of respondents according to the study program



Source: Google Forms processing

## 5. Conclusions

The results of the undertaken research bring to attention aspects related to the students' perception regarding the carrying out of the teaching activity, in the last two years, in which the two formats, namely the traditional, face-to-face, and the online format alternated.

The pandemic period offered students the opportunity to experience a new way of conducting teaching, learning, practical applications, and assessment activities, based on the use of resources and information technologies specific to online learning/teaching.

The transition from face-to-face to online learning/teaching (from March 2020) and then the return from the online system to the traditional format have generated reactions of dissatisfaction from the students.

The March 2020 change was received with concern, distrust of the use of information technology. There followed a period of adaptation to a new style of school, but also of life, which after a while became the "normal" format, and these new aspects started to become advantages for students (more free time, higher flexibility in terms of the organization of the teaching activity, increasing the share of students with jobs).

The return to the traditional learning/teaching (in March 2022) was marked by the expression of dissatisfaction both from students and from higher education institutions. These reactions led the representatives of the leadership of the Ministry of Education to consider that the National Education Law no. 1/2011 defines in a limiting way the full-time learning form by associating it with the direct presence of teachers and students in the university space.

The aspects stipulated in the Emergency Ordinance no. 69/26 May 2022 for the amendment and completion of the National Education Law no. 1/2011 create the framework for a new, more flexible way of carrying out the activities in higher education, especially for the full-time learning form.

The need for flexibility and modernization of higher education is found in the results of this research, even if it focused on only a sample of students from the Faculty of Economic Sciences within "Ovidius" University of Constanța.

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# The Importance of Marketing Research in Shaping the Entrepreneurial Culture

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## Abstract

*In the Romanian economics higher education, considering the way the degree programmes offered are structured and carried out, the aim is for the students to acquire the appropriate professional and transversal competences, thus enabling their employment on the labour market or the development of their own business. Marketing and entrepreneurial culture can contribute to increasing the students' motivation to be constantly creative, bold, able to launch and manage successful businesses.*

*The objective of this paper is to present the collaboration between a professor and a student in terms of conducting marketing research in the context of an evolving entrepreneurial culture. The results of the research show that the idea of setting up a "low-cost" travel agency, in the context of an increasing demand for minimalist travel, represents an opportunity that can be turned into a successful business.*

**Key words:** marketing research, tourist behaviour, minimalist travel

**J.E.L. classification:** M 21, M 31, Z 31

## 1. Introduction

The Marketing Research discipline is present in the curriculum of several bachelor's and master's degrees in economic higher education. The experience accumulated in over 32 years of teaching activity within the Faculty of Economic Sciences - "Ovidius" University of Constanta has shown that students are tackling with growing interest the participation in the activities carried out within the courses and seminars related to this discipline, precisely because they are becoming aware of its role in their training as entrepreneurs. Students' participation in projects aimed at supporting entrepreneurship, as well as their openness to accessing international study mobility and internships contribute to the development of their entrepreneurial culture, alongside the activities/disciplines in the curriculum.

In this paper we have presented a case study in which marketing research was used to test whether an idea can represent a market opportunity and can be harnessed into a successful business.

## 2. Theoretical background

In the specialized literature, in almost all the publications, the specialists (theoreticians and practitioners) focus on the marketing mix and marketing research. For the companies, regardless of their size and object of activity, marketing research is a complex tool, useful in a multitude of situations encountered in their activity: from creating and testing a product/service, identifying the target market segment, assessing the capacity and segmentation of the market, to researching needs/wants, buying and consumption behaviour, as well as making forecasts (Armstrong and Kotler, 2015, pp.101-127, Cătoiu and Teodorescu, 2004, pp.13-17; Boier, 2003).

Marketing research is used in any situation in a company's activity, with the aim of providing scientific support for decision-making (Cătoiu, 2002, pp.31-35).

Entrepreneurship is tackled as a way of working and living. In any country, entrepreneurship (represented by the small businesses) is considered the engine of the national economy, due to its ability to create new jobs, its contribution to generating income (reflected in the gross domestic product, national income) and its contribution to raising living standards. The concept of entrepreneur is thought to have originated in 17th century France and it referred to a person who was starting a new business or a new way of doing business (Mariotti and Glackin, 2012, pp.4-6). An entrepreneur is the person able to identify an opportunity and start a business. Moreover, it is believed that "a skilled entrepreneur can shape and create an opportunity where others see little or nothing at all or see either too early or too late" (Mariotti and Glackin, 2012, p.4). Management specialist Peter Drucker states that a business, in order to be considered entrepreneurial, must "exploit the changes in the world" (Mariotti and Glackin, 2012, p.13). From the aspects presented we can notice that there is a close interdependence between marketing/marketing research and entrepreneurship.

### 3. Research methodology

The case study is represented by direct research, namely a selective survey, conducted from April 1 to April 9, 2022 on a sample of 64 people (Jupp, 2010, pp. 117-119; Plăiaș, 2008, pp. 130-148). The primary data collection was carried out with the help of a questionnaire with 22 questions, disseminated through Facebook, Instagram and WhatsApp social networks. Classical statistical-mathematical methods were used to process the information, and the graphical representations were automatically generated by the "Google Forms" survey management software.

### 4. Findings

For the descriptive part of the research, we have chosen to present the types of questions in the structure of the questionnaire, the methods used in processing the answers and the interpretation of the obtained results.

- At the beginning of the questionnaire, identification questions were formulated.

The following data resulted after processing the answers:

*Table no. 1 Distribution of respondents by age group:*

<b>18-25 years</b>	<b>26-29 years</b>	<b>30-40 years</b>	<b>40+ years</b>
78.1%	4.7%	3.1%	14.1%

*Source:* Authors' own research

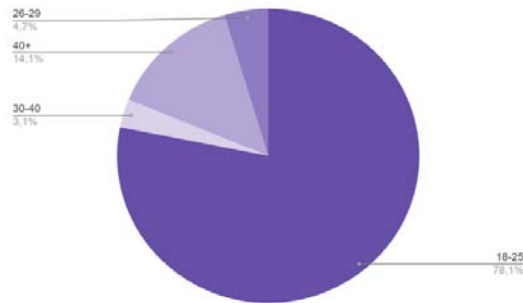
*Table no. 2 Distribution of respondents by activity:*

<b>Student</b>	<b>Employee</b>	<b>Freelancer/ self-employed</b>	<b>Others</b>
48.4%	46.8%	1.5%	3.1%

*Source:* Authors' own research

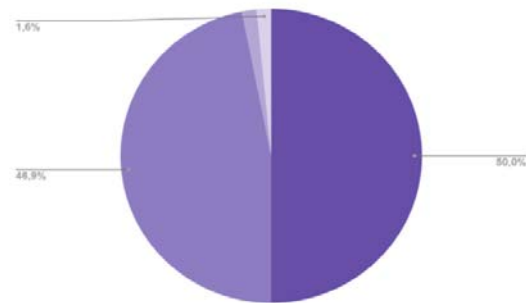


Figure no.1 Graphical representation of the structure of the sample by age group



Source: Authors' own research

Figure no.2 Graphical distribution of the structure of the sample by activity



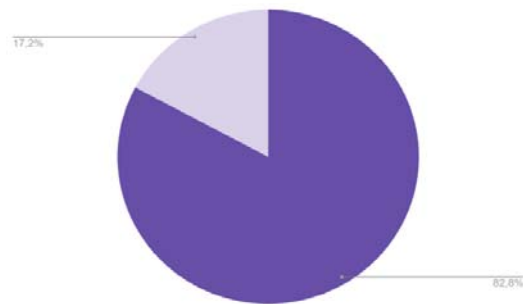
Source: Authors' own research

Table no. 3 Distribution of respondents by primary residence

Urban environment	Rural environment
82.8%	17.2%

Source: Authors' own research

Figure no.3 Graphical representation of the sample's structure by primary residence



Source: Authors' own research

One can notice that, in the structure of the sample, people in the 18-25 age group predominate (with a presence of 78.1%), they are students (48.4%) or employees (46.8%) and they live in urban areas (82.8%).

➤ The next set of questions was aimed at collecting information on travel habits.

Table no. 4 Distribution of respondents by frequency of trips abroad

Monthly	Every 3 months	Every 6 months	Annually
1.6%	18.8%	26.6%	53.1%

Source: Authors' own research

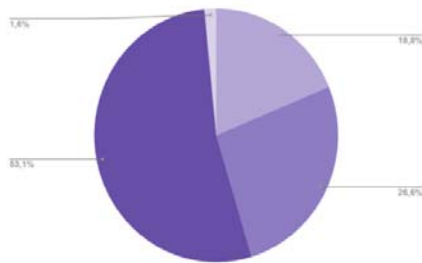
Table no. 5 Distribution of respondents by purpose of travel abroad

On holiday	Visiting relatives and friends	Leisure travel	Business travel and for other professional reasons
45.3%	6.3%	39.1%	9.4%

Source: Authors' own research

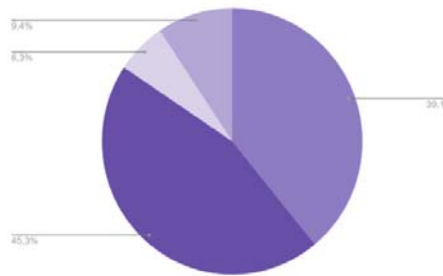


Figure no.4 Graphical representation of the structure of the sample by frequency of trips



Source: Authors' own research

Figure no.5 Graphical representation of the structure of the sample by purpose of travel



Source: Authors' own research

Table no.6 Distribution of respondents according to how they make/carry out trips abroad

Travelling alone	With a partner	With the family	With friends
23.8%	19%	23.8%	33.3%

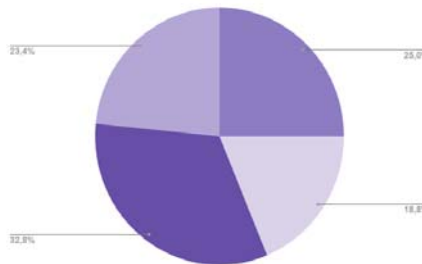
Source: Authors' own research

Table no.7 Distribution of respondents by duration of the trips abroad

3 days, 2 nights ("City Break")	<1 week	>1 week
28.5%	61.9%	9.5%

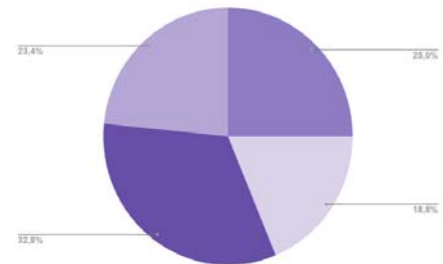
Source: Authors' own research

Figure no.6 Graphical representation of the sample by how they make/carry out trips abroad



Source: Authors' own research

Figure no.7 Graphical representation of the sample's structure by duration of the trip



Source: Authors' own research

After centralizing and processing the answers, we notice that the sample is dominated (53.1%) by people who travel abroad annually, 26.6% take two trips per year, 18.8% travel once every 3 months and only 1.6% mentioned that they take monthly trips abroad.

In terms of motivations, holiday (45.3%) and leisure travel (39.1%) predominate, while business travel and for other professional reasons (9.4%) and visiting relatives/friends (6.3%) are present in smaller proportions.

Travelling is mainly done with friends (33.3%). To the same extent (23.8%), some people in the sample prefer to travel alone, whereas others travel with their family. There are also people (19%) who prefer to travel with their partner.

In terms of duration, trips of up to one week are preferred (61.9%), followed by "City Breaks" (28.5%), while trips longer than a week make up 9.5%.

➤ Another set of questions was aimed at gathering information on how the respondents perceive the planning of a trip abroad and the difficulties encountered on this occasion.

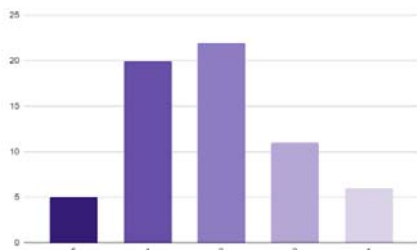
Table no. 8 Distribution of the respondents' assessment of the degree of difficulty in terms of planning a trip abroad

Not at all difficult	Slightly difficult	Neither	Difficult	Very difficult
5	20	22	11	6

Source: Authors' own research

After processing the answers, using the "Semantic Differential" method (with five levels), the value **3.11** resulted, which corresponds to a **modest** level of difficulty.

Figure no.8 Graphical representation of the assessment of the degree of difficulty in terms of planning a trip



Source: Authors' own research

Table no.9 Distribution of the respondents' assessments according to the level of stress generated by planning a trip abroad

Very low	Low	Neither	High	Very high
12	12	20	12	8

Source: Authors' own research

The responses were processed using the "Semantic Differential" method and the resulting value was **3.12**, indicating a **modest** level of stress.

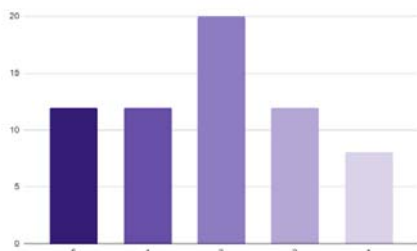
Table no. 10: Distribution of respondents' assessments of the costs involved in planning a trip abroad (purchase of plane tickets, booking accommodation and transport to and from the airport).

Less/Not expensive	Somewhat expensive	Neither	Expensive	Very expensive
1	8	18	24	13

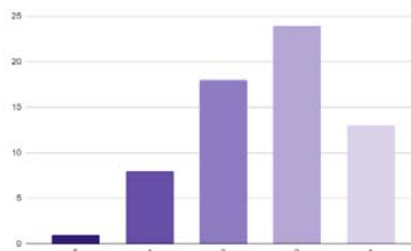
Source: Authors' own research

After processing the responses, using the "Semantic Differential" method, a value of **2.53** resulted, meaning that the costs of planning a trip are considered **expensive**.

Figure no.9 Graphical representation of the assessments of the level of stress generated by planning a trip abroad



Source: Authors' own research



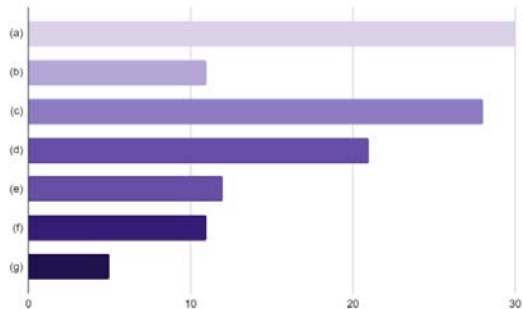
Source: Authors' own research

Table no.11 Distribution of the share of the difficulties faced by the respondents in relation to travelling abroad

<b>Avoiding tourist traps (taxis' overcharge, high food prices for tourists, etc.)</b>	46.9%
<b>Finding affordable restaurants/cafes</b>	17.2%
<b>Deciding the size of the budget</b>	43.8%
<b>Planning the itinerary</b>	32.9%
<b>Buying plane tickets</b>	18.8%
<b>Language barrier</b>	17.2%
<b>Using smartphone maps</b>	7.8%

Source: Authors' own research

Figure no. 11 Graphical representation of the share of the difficulties related to travelling abroad



Source: Authors' own research

The respondents consider that there is a **modest** level of difficulty related to planning a trip (the calculated value being **3.11**) and the stress (**3.12**) generated by planning a trip abroad. Buying plane tickets, booking accommodation and transport to and from the airport are considered **costly (2.53)**.

The issues that respondents feel they face the most when travelling abroad are the high prices/fares for certain tourist services (**46.9%**); deciding the size of the budget (**43.8%**); planning the itinerary (**32.9%**); buying plane tickets (**18.8%**); finding affordable restaurants/cafes, but also the language barrier (**17.2%**), and to a lesser extent (**7.8%**) the use of smartphone maps.

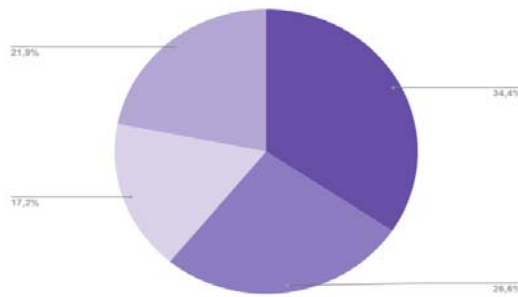
➤ The next set of questions in the questionnaire was aimed at providing information regarding the structure of the expenses in the budget allocated for a trip and aspects related to respondents' buying behaviour.

Table no. 12 The share in terms of the size of different types of expenses in the structure of the budget allocated for trips abroad

<b>Buying plane tickets</b>	21.9%
<b>Accommodation</b>	34.4%
<b>Meals (breakfast, lunch, and dinner)</b>	17.2%
<b>Souvenirs</b>	0%
<b>Local trips and tourist attractions</b>	26.6%

Source: Authors' own research

Figure no. 12 Graphical representation of the size of the different types of expenses in the structure of the budget allocated for trips abroad



Source: Authors' own research

Table no.13 Distribution of the responses regarding the time of the purchase of the plane tickets.

1 month before the trip	3 months	6 months
45.3%	40.6%	14.1%

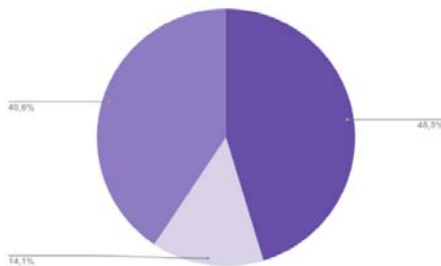
Source: Authors' own research

Table no. 14 Distribution of respondents in terms of the habit of taking out an insurance policy for travelling abroad

<b>YES</b>	28.1%
<b>NO</b>	71.9%

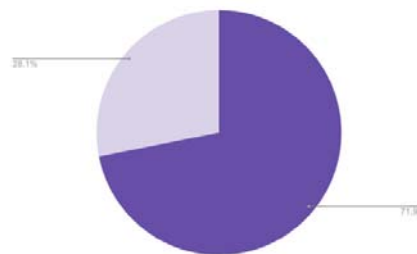
Source: Authors' own research

Figure no.13 Graphical representation of the answers regarding the time of the purchase of the plane tickets.



Source: Authors' own research

Figure no.14 Graphical representation of the sample in terms of the habit of taking out an insurance policy



Source: Authors' own research

One can see that the respondents allocate the largest share of their budget for travelling abroad to accommodation expenses (34.4%), then for local trips and tourist attractions expenses (26.6%), followed by expenses for plane tickets(21.9%) and expenses for meals make up a share of 17.2%.

Most of the respondents (45.3%) purchase airline tickets one month before the trip, 40.6%- 3 months before and only 14.1%- 6 months before.

Moreover,71.9% of the respondents do not have the habit of taking out an insurance policy for travelling abroad.

➤ The last set of questions in the questionnaire was aimed at gathering information on the respondents' perceptions regarding the involvement of a travel agency in organizing a minimalist trip abroad.

Table no.15 Distribution of respondents in terms of the habit of using the services of a travel agency when planning a trip abroad

Never	Rarely	Sometimes	Often	For every trip
36	17	7	2	2

Source: Authors' own research

The responses were processed using the "Semantic Differential" method and the resulting value was **1.7**, which shows that the services of a travel agency are **rarely** used.

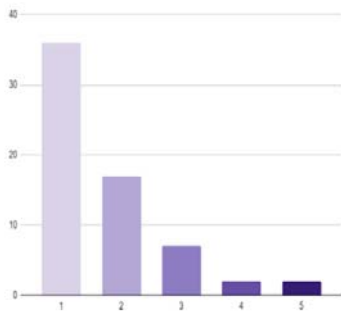
Table no. 16: Distribution of the respondents' assessments regarding the level of the costs of using the services of a travel agency, in relation to the budget allocated for a trip

Not at all expensive	Less expensive	Neither	Expensive	Very expensive
2	6	18	27	10

Source: Authors' own research

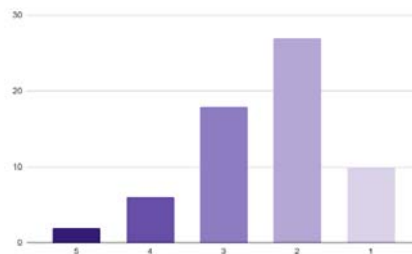
After processing the responses, using the "Semantic Differential" method, a value of **2.37** was obtained, which shows that the services of a travel agency are perceived as **expensive**.

Figure no.15 Graphical representation of the structure of the sample according to the habit of using the services of a travel agency



Source: Authors' own research

Figure no.16 Graphical representation of the assessments of the respondents regarding the level of the costs of using the services of a travel agency



Source: Authors' own research

Table no.17 Distribution of the respondents' assessments regarding the level of efficiency of the services of a travel agency

Ineffective	Somewhat effective	Neither	Effective	Very effective
7	8	30	14	3

Source: Authors' own research

The responses were processed using the "Semantic Differential" method and the resulting value was **2.96**, which shows that the level of efficiency of a travel agency's services is rated as "**Neither**", i.e., less significant.

Table no. 18 Distribution of the respondents by intention to travel abroad more often

Yes	Yes, but can't afford it	No
50%	48.4%	1.6%

Source: Authors' own research

After processing the answers, one can notice that **50%** of the respondents intend to travel abroad more often, but also that a similar proportion (**48.4%**) is represented by respondents who intend to travel more often but cannot afford to do so. Only **1.6%** of the respondents do not want to travel more often.

Figure no. 17 Graphical representation of the respondents' assessments regarding the efficiency of the services of a travel agency

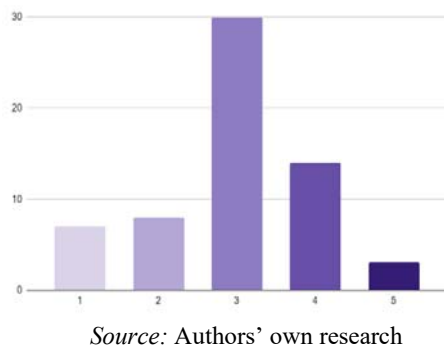


Figure no.18 Graphical representation of the respondents' intention to travel abroad more often

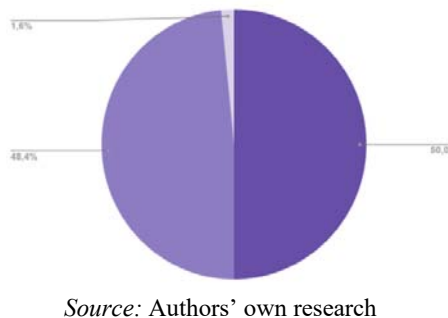


Table no.19 Distribution of respondents according to their opinion on the concept of minimalist travel (travelling using only the items that fit inside a backpack)

<b>Very good, I use the method</b>	46.9%
<b>I've never heard of it before</b>	6.3%
<b>I am willing to try the method, if arguments are presented to me</b>	39.1%
<b>Do not use it, it is not effective</b>	7.8%

Source: Authors' own research

One can see that currently **46.9%** of the respondents have a good opinion regarding the concept of minimalist travel and use this form of travel. At the same time, a significant share (**39.1%**) of respondents said they would be willing to try this form of travel if presented with the arguments. There are other categories of respondents who do not use minimalist travel: some because they do not consider it efficient (**7.8%**) and others because they have not yet heard about it (**6.3%**).

Table no.20 Distribution of respondents according to their intention to stay in a hostel in order to save money while travelling

<b>Yes</b>	35.9%
<b>No</b>	14.1%
<b>Maybe, it depends on the state of the hostel (cleanliness, location, etc.)</b>	50%

Source: Authors' own research

Currently, **35.9%** of the respondents are willing to stay in a hostel, and **50%** would stay if the hostel provided them with a level of comfort according to their wishes. There is also a **14.1%** share of respondents who are not interested in saving money during their trip and do not agree to stay in a hostel.

Figure no. 19 Graphical representation of the opinion of the respondents about the concept of minimalist travel

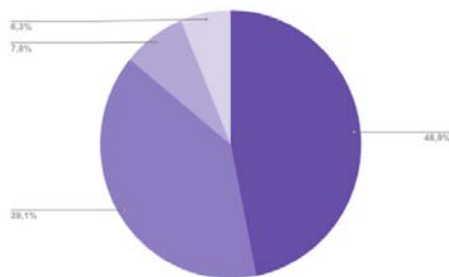


Figure no. 20 Graphical representation of the respondents according to their intention to stay in a hostel

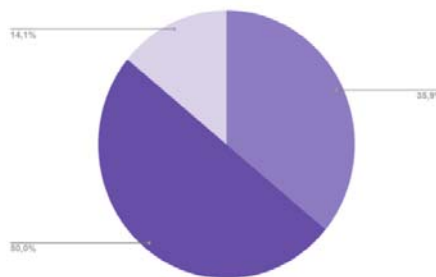


Table no. 21 Distribution of the respondents according to their willingness to try the services offered by a new "low-cost" travel agency for taking a minimalist trip

<b>Yes</b>	60.9%
<b>No</b>	9.4%
<b>Maybe</b>	29.7%

Source: Authors' own research

One can note the high share (**60.9%**) of respondents who said they were interested in using the new "low-cost" travel agency, but also the temptation from a significant share of respondents (**29.7%**) to try working together with such an agency. Only **9.4%** of the respondents rejected the idea of trying the services offered by a "low-cost" type of agency.

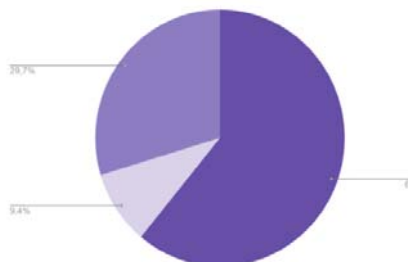
Table no. 22 Distribution of respondents according to their willingness to pay a fee to a "low-cost" travel agency for planning a minimalist trip (suggestions on restaurants/cafes, information on public transport, tourist attractions and ticket prices, etc.).

<b>Yes</b>	48.4%
<b>No</b>	10.9%
<b>Maybe</b>	40.6%

Source: Authors' own research

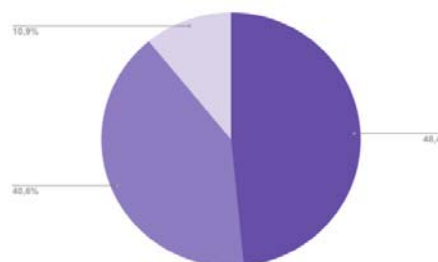
The answers to this question confirm the information obtained from the previous question. One can notice that approximately **89%** of them are willing to do so, some definitely (**48.4%**) and others possibly, in the future (**40.6%**). There is also a share of **10.9%** of respondents who refuse to pay such a fee.

Figure no. 21 Graphical representation of respondents according to their willingness to try the services of a "low-cost" travel agency



Source: Authors' own research

Figure no. 22 Graphical representation of respondents according to their willingness to pay a fee to a "low-cost" agency for planning a minimalist trip



Source: Authors' own research

## 5. Conclusions

The results of this research show that travel agency services are currently perceived as being costly and not very efficient, which is why the respondents rarely use such services when planning their trips.

The tourism market, as a whole, but also in terms of its two dimensions, actual and potential, is on a rising trend.

The demand for minimalist travel, expressed by a niche market, made up predominantly of young people, eager to go abroad on holiday more often, is also growing.

One can notice a growing interest in using the services of a "low-cost" travel agency, as well as an increasing willingness to pay a fee to a "low-cost" travel agency for planning/preparing and carrying out a minimalist trip, so that the potential/future tourist can reduce wasted time and stress, but also gain greater satisfaction through more efficient advice and organization of the holiday, whether they choose to spend it with friends, family or alone, over a period of 3 or more days.

These aspects, resulting from marketing research, represent an opportunity for developing a successful business within a "low-cost" travel agency.

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## The Consumer of Social Media. An Intergenerational Approach

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### Abstract

*Based on generations' cohort theory, the purpose of this study is to study the social media consumer persona from an intergenerational perspective: by comparing the last three adult generations: X, Y and Z. In order to create the consumer persona of each generation we decided to use the Cattell 16 personality's model to measure first of their own personality traits perception, and, also, the perceived personality of their favorite social media platform. By comparing those two, we want to see if there is a correlation between them. The results show that the difference between the behaviors of social media consumer may be explained by the personality traits theory. So, there is a relationship between the human being personality traits as perceived by themselves and the preferred brand personality traits – in this case the social media brand personality traits.*

**Key words:** Generations' Cohort Theory, social media consumer persona, intergenerational perspective, Cattell personality traits model

**J.E.L. classification:** D11, D12, D31, E21

### 1. Introduction

In today's world, there has been a significant rise in the consumption of digital media, which has led to an overall increase in that consumption of it (Ouiridi et al., 2014, p. 107). Virtually everyone is familiar with and makes use of social media (Duffett, 2015, p. 243). However, each generation uses social media for a unique set of reasons (Ellison et al., 2007, p. 1143). In addition, everyone has a unique concept or picture of each social media platform, and each person has a preferred type of social media. Several research had been carried out in order to investigate and gain an understanding of the patterns of behavior exhibited by various generations in relation to social media (Sessa et al., 2007, p. 47).

There has been a decrease in the use of traditional communication channels as a result of people being continually informed with the news of their friends, as indicated by studies (Shao and Ross, 2015, p. 239). This also highlights how rapidly a single update posted by a single person may spread over their whole social network. For some, it has created a sense in them that they need to be informed with what is going on in the lives of their friends (Lewallen and Behm-Morawitz, 2016, p. 1). This is one of the reasons why there are so many people who have smart phones; you can quickly log on to a social media account with internet access and application access from a smart phone.

It was stated that there is a predisposition for each generation to use a specific social media platform (Kabadayi and Price, 2014, p. 203), but we want to find out if there is a relationship between the perceived personality traits of the favorite social media platform and own personality traits, both of them measured using the Cattell model. We also aimed to describe the social media consumption made by generation X, Y and Z, in order to create a social media consumer persona for each of these three generations.

## 2. Theoretical background. Social media consumer persona: an intergenerational perspective

Every generation shares a similar worldview, and as people become older, they develop features that differentiate them from those of earlier generations. These attributes include behavioral characteristics, work ethics, attitudes, learning capacities, and motivational skills. In this study, we will explore the particularities of each generation.

According to Howe and Strauss (2000, p. 29), there are three characteristics that can more accurately identify generations than age, despite the fact that these qualities are also associated to age; as a result, they are linked to the experiences of cohorts:

- perceived membership: the members' self-perception, which begins in youth and culminates in adulthood;
- shared beliefs and behavior: attitudes toward family, work, private life, politics, religion, and other topics, as well as behavior (job, marriage, children, health, crime, sex, drugs, and other topics) that characterize the generation;
- shared historical place/situation: the turning points of historical trends and significant events that affect the generation throughout critical years

When conducting research on generations, the first thing that needs to be examined is how generations are to be identified, as well as what kind of age constraints and cohort boundaries should be established, and how many generations should be taken into consideration. It was widely believed for a considerable amount of time that the study of three generations should be conducted, and that the young (Z Generation), middle-aged (Y Generation), and elderly generations (X Generation) should be differentiated from one another.

### Generation Z

When we take a closer look at Generation Z, we can see that there are already several different ways to refer to them. Some of these names include "Post millenars", "Facebook generation", "Digital Natives", "Switchers" (Cervi, 2021, p. 198) "Dotcom children", "Netgeneration" "iGeneration" (Singh and Dangmei, 2016, p. 1), "C - Connection – generation", "D - Digital – generation" and "R - Responsibility – generation" (Chillakuri and Mahanandia, 2018, p. 34).

As the first generation to be born into a world where everything physical, from people to locations, has a digital equivalent, members of Generation Z will most certainly "see" a digital layer in everything they come into contact with (Seemiller and Grace, 2016, p. 3). They probably won't be able to tell the difference between the real world and the digital world, but instead will consider them to be the same thing. (Sladek and Grabinger, 2018, p. 2)

The "online" generation that is currently leading is Generation Z. They go about their day using various forms of social media. They are happy and feel it is vital to provide active feedbacks and comments about the brands/services/issues they use or are involved in one way or another, and in addition to this, they value the opinion given by others too. These Z'ers have more tendencies than other generations to prefer online social sites for communicating and interacting with people they know.

### Generation Y

Other names for this generational cohort include "Millennials" (born during the last two decades of the 20th century and, as a result, began their adult lives in the new millennium), "Generation Net," "Generation Me" and "Generation Y." (Howe and Strauss, 2000, p. 29). The Millennial identity places a premium on connectedness in all aspects of life. They were the first generation to be born during the era of the internet, and as a result, they have had access to almost an infinite amount of information, digital resources, and cutting-edge technologies. Millennials' perspectives have been shaped as a result of the emergence of a formal digital presence, which has also fostered a demand for constant learning from unique and unorthodox sources (MacKenzie and Scherer, 2019, p. 119). They are the first generation to have spent their entire lives in the digital environment (Cheung et al, 2017, 507); information technology profoundly affects how they live and work. Gen Y was given tools to succeed, while Gen Z was taught skills to succeed (Sladek and Grabinger, 2018, p. 11).

On social media platforms, members of Generation Y not only work and play, but also actively generate content, share content, search for content, and consume content. The use of social media by members of Generation Y is of interest to service managers as well as academics since it may serve as a prediction of future behavior.

Millennials have a pattern of default behavior when it comes to social media due to the fact that current communication technology is an ever-present aspect of their lives and a main instrument through which they evaluate reality and everything they do.

### **Generation X**

The members of Generation X (currently between the ages of 41 and 56), often known as Gen Xers, are resourceful, independent, and concerned with maintaining a healthy work-life balance. As they became older, members of Generation X who were raised in Eastern Europe saw the fall of communism, which encouraged them to adopt a more open-minded worldview. They had minimal exposure to the culture and ideas of the West, as well as developments in technology, which they grew to appreciate and grasp more fully as adults with the introduction of contemporary communication technologies. They also had little exposure to Western technological advances. Members of Generation X have a high level of education and, as a consequence, are much more realistic and skeptical than previous generations.

Gen Xers tend to be more responsible in their use of social media communication, mostly because they became acquainted with mobile devices, modern communication technology and social media during adulthood (Dabija et al., 2018, p. 191).

They have more life experience and family obligations, and they choose high-quality goods and services.

Gen Xers are more responsible in their usage of social media communication, owing to their maturity exposure to mobile devices, current communication technologies, and social media (Micu et al, 2022, p. 121). Members of Generation X are largely self-sufficient individuals who grew up in a peaceful environment, in contrast to their parents, the Baby Boomers, who saw the ravages of war and economic reconstruction. Their major values are family, friends, or school, which causes them to be more pragmatic and flexible in their behavior, as well as more cautious and skeptical of anything new. They choose spiritual values and opportunity for intellectual development over material wealth.

### **3. Research methodology**

Nowadays everyone uses social media platform, but there are no studies showing that and if there is a relationship between the personality of the members of Generation Z, X and Y and the perceived personality of their favorite social media platform. We've decided to study the behavior of all 3 Generations in order to understand their choices and responses.

The purpose of the study is to compare the behavior on social media of the following Generations: X, Y&Z and to see, using the Cattell Model, if there is a correlation between the perception of their own personality and how they perceive their favorite social media platform as if it would have human personality traits.

This purpose is followed by several objectives:

O1: To identify the most used social media platform by each Generation (X, Y & Z)

O2: To identify how much time each Generation (X, Y&Z) spends daily on social media

O3: To identify which are the hobbies of each Generation (X, Y&Z)

O4: To identify how frequently each Generation (X, Y&Z) access social media

O5: To examine the Cattell dimensions for each Generation (X, Y&Z) and for the most used social media of each Generation (X,Y&Z)

Hypothesis

H1: There is a relationship between the human personality traits and the preferred social media brand personal traits as perceived by social media users (Mulyanegara et al., 2009).

The motivation of this research comes from the article (Mulyanegara et al., 2009, p. 234) about the brand personality which had the aim to explore the relationship between consumer personality and brand personality using the Big Five Model. After further research I decided to use the concept

of brand personality also for my research, but using the Cattell personality’s traits model

The method used is the online survey. It is fundamentally deductive: measurements are taken, analysis is performed, and conclusions are reached. An online questionnaire was distributed on several online channels. The target of the research was 75 members for each Generation. The goal of the survey was to understand how each Generation actually is and how is this related to their behavior on Social Media.

The language of the questionnaire is in Romanian, as the target will be Romanian people. In the survey we used the Cattell-Horn-Carroll (CHC) model, which is considered the state-of-the-art of the psychometric tradition about intelligence. It was created by Raymond Cattell, he developed a taxonomy of 16 separate personality qualities that might be utilized to define and explain individual personality variances.

The Sixteen Personality Factor Questionnaire (16PF), based on Cattell's personality characteristics, is frequently used in school today for career advice. It is used in business for human selection, particularly for selecting managers. It is also used to examine anxiety, adjustment, and behavioral problems in clinical diagnosis and therapy planning.

In the survey are included the popular social network services Facebook, Instagram, TikTok , as well as the business social network services LinkedIn, we believe that most interviewers will use it at some point in their lives. We included also the communication service WhatsApp.

The population is composed by member of Generation Z, Y & X who live in Iasi, Romania.

The sample includes 75 members of each Generation (Z, Y & X)

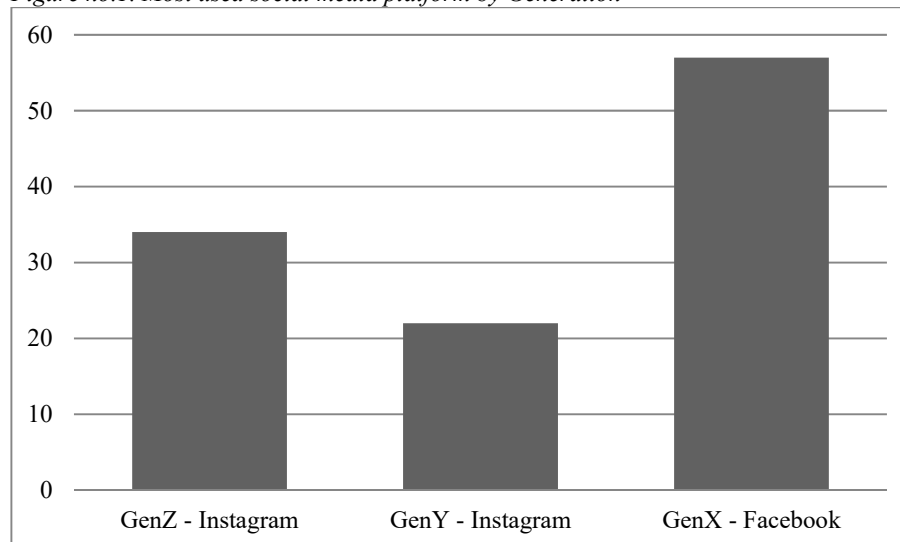
In order to analyze the personal traits of the respondents of each Generation and the personal traits of each social media perceived by the users, we used the Cattell 16 personality’s traits model. Furthermore we used the Pearson Correlation to see if there is a correlation between the personality traits of each respondent and the perceived personality traits of their favorite social media.

#### 4. Findings

##### **O1: Identify the type of social media most used by each Generation (X, Y & Z)**

The findings presented in the graph n1 indicate that members of Generation Z are more likely to use Instagram, while members of Generation Y are also more likely to use Instagram, and members of Generation X are more likely to use Facebook.

Figure no.1. Most used social media platform by Generation



Source: Own computing data

If we have a look at the answers, we can see that there is a small difference in the preferences of Generation Z connected to Instagram and TikTok. In fact, 18 of the respondents pick TikTok while 33 of the respondents chose Instagram (Facebook = 2, Whatsapp = 5, Snapchat = 1). This

generation did not take into consideration platforms such as LinkedIn and YouTube. TikTok is a relatively new social media network, and although members of this Generation may spend a significant amount of time and hours using it, it's possible that they still prefer Instagram for a variety of reasons. On Instagram, users are able to engage in a variety of activities, however on TikTok, there are not nearly as many options. TikTok, on the other hand, is well-known for its short videos, in contrast to Instagram, where users often post photographs on their feeds.

Another fascinating discovery was that Generation Y has a preference for Facebook (22) over Instagram, despite the fact that there is a smaller gap between these two options in terms of the responses they gave (18). Based on the responses, we can see that persons between the ages of 26 and 34 prefer Instagram, while those between the ages of 35 and 41 prefer Facebook. Those who are closer in age to Generation Z are more likely to use Instagram, just like that generation, but those who are closer in age to Generation X are more likely to use Facebook, just like that generation.

### **O2: Identify how much time each Generation (Z, Y&X) spends daily on social media**

According to the findings of this investigation, members of Generation Z spend anywhere from two to six hours per day on various social media platforms, while members of Generation Y spend anywhere from two to four hours per day, and Generation X members spend anywhere from one to two hours. From the results of the survey, the younger generation spends a greater amount of time on various social media platforms. Z generation is more dependent on their use of social media. It's possible that they spend more time on the platforms not just for amusement or other activities, but also for work-related reasons. It is important for members of this Generation to show almost everything they do, and Instagram, which the study found to be the most widely used social media platform, provides a good opportunity for them to do so by allowing them to post not only on their stories but also on their feeds about what they are doing.

### **O3: Which are the hobbies of each Generation (X, Y&Z)**

According to the conclusions of the survey that was conducted regarding the most popular hobbies of each generation, we can observe that the most popular hobby among members of Generation Z is entertaining others (Netflix, TV).

The results of the survey indicate that members of Generation Z would rather engage in play games on their smartphones, computers, and other electronic devices rather than in less conventional forms of social interaction, such as going out with friends. They would rather participate in online societal games. This may be demonstrated by the amount of time that individuals spend on a daily basis utilizing various social media platforms (4-6 hours). Shopping ranks as the third most common pastime activity. These days, the media has a significant impact on the behavior of this Generation, and because of this, they are very attuned to the latest developments in the fashion industry. As a result, one of their primary hobbies is going shopping. It is important to note that social activities, such as going out with friends, are only the fifth most popular activity among people of this Generation, with technology being the fourth most popular passion.

The individuals who are a part of Generation Y are more interested in taking part in activities that are conducted in a group setting. Some examples of these activities include going out with friends, going to the movies, or going to the theater. They spend less time on social media platforms and place a larger focus on face-to-face contacts rather than their online counterparts. Face-to-face connections are more important to them. Activities around the house come in second place because as people get older they have more obligations, and one of those responsibilities is taking care of the house.

As part of the category of Household activities, intellectual pastimes (such as reading, writing, or learning a new language) were selected by 30 of the respondents. This demonstrates that even while members of this generation spend more time at home than members of Generation Z do, they fill that time with activities that do not include the use of social media. The fourth and fifth most common hobbies are going on trips and meditating respectively. To reiterate, they have no connection to the social networking platform.

When we consider the primary interests of members of Generation X, we find that Household activities take the top spot, followed by intellectual activities such as reading, writing, and other similar activities. This shows that individuals, when they begin the process of forming a family,

devote a greater amount of their time to the activities of the home, in this instance not only for themselves but also for the other members of the family. This generation's third preferred pastime is engaging in social activities such as going out or seeing a movie. Because Generation Y makes up the majority of the population, we may assume that the majority of their interests are unrelated to technology and that they prefer face-to-face interaction to online interaction.

**O4: To identify how frequently each Generation (X, Y&Z) access social media**

Members of Generation Z use social media more frequently on a daily basis. A little under a third of the people who named Instagram as their preferred social media network also access Instagram more frequently than once a day. All of the previous observations are supported by this finding. It is clear that platforms for social media have a significant influence on the day-to-day activities of Z Generation; in fact, members of this generation access these platforms a great deal throughout the day. It is also important to mention that some of the respondents who actually choose Instagram as their favorite social media platform, the one that they access the most, still only access it once a day or more times per week. This demonstrates that a minority of this generation still has other priorities or hobbies, and social media is not a part of it.

Generation Y uses Instagram more times daily. The number that access it more times weekly is still high in this Generation. No one from this generation choose a few times/week, and is interesting to see that in Generation Z, which is the most technological Generation, a few respondents choose also this option.

Generation X log more times each day on Facebook. If we look at the people who responded to the questionnaire, we can see that over 80 percent of them use Facebook more often, and virtually solely Facebook; as a result, they also have more time to spend on Facebook. Nearly one-sixteenth of the respondents say they only do it once every day, and none of them do it more than a few times per week.

**O5: To identify the Cattell dimensions for each Generation (X, Y&Z) and for for the most used social media of each Generation (X,Y&Z)**

In order to understand the behavior of each Generation and how they would perceive their favorite social media if would be a person (H1: There is a relationship between the human personality traits and the preferred social media brand personal traits as perceived by social media users) we used the Cattell 16 personality's traits dimension. The respondents had first of all to describe their selves using a scale from 1 to 8, where 1 for example was "Reserved" and 8 "Outgoing", furthermore had to describe as mentioned before their favorite social media platform.

Furthermore in order to see if there is a correlation between the results, we have decided to use the Pearson Correlation.

As we can see in Table no. 1, all the correlations for Gen Z are significant (p-value is below 0,05). The values for r (Pearson correlation) are between 0,35 (Reserved/Outgoing) and 0,8 (Tough-minded/Sensitive). Strong correlations show that Gen Z persons consider themselves and the preferred social media platform as being more Happy-to-luck, Sensitive, Apprehensive or Controlled. By the other hand, based on the highest level of the mean for their own personality, they consider themselves as being rather Experimenting (5,33), and also the preferred social media platform (5,44).

*Table no. 1 The significance of the correlation for Gen Z*

Cattell personality traits	Mean for Z Gen	Mean for preferred platform	Pearson correlation (r)	T-statistic	p-value
Reserved/Outgoing	4,34	4,12	0,35	2,965	0,000
Less intelligent/More intelligent	4,5	4,21	0,57	5,506	0,000
Affected by feelings/Emotionally stable	4,14	3,95	0,57	5,506	0,000
Submissive/Dominant	4,38	4,09	0,46	4,112	0,000
Serious/Happy-to-luck	4,67	4,36	0,74	8,732	0,000
Expedient/Conscientious	4,61	4,18	0,64	6,611	0,000
Timid/Venturesome	4,7	4,8	0,49	4,461	0,000
Tough-minded/Sensitive	4,69	4,84	0,8	10,583	0,000

Trusting/Suspicious	4	3,95	0,55	5,227	0,000
Practical/Imaginative	4,47	4,41	0,65	6,789	0,000
Forthright/Shrewd	4,38	4,4	0,58	5,651	0,000
Self-assured/Apprehensive	4,01	3,84	0,72	8,234	0,000
Conservative/Experimenting	5,33	5,44	0,62	6,272	0,000
Group dependent/Self-sufficient	4,64	5,01	0,4	3,464	0,000
Uncontrolled/Controlled	4,8	4,81	0,74	8,732	0,000
Relaxed/Tense	3,89	3,95	0,55	5,227	0,000

Source: Own computing data

Table no. 2 shows the correlations for Gen Y. All the correlations are significant (p-value is below 0,05). The values for r (Pearson correlation) are between 0,35 (Timid/Venturesome) and 0,74 (Expedient/Conscientious). Strong correlations show that Gen Y persons consider themselves and the preferred social media platform as being more Conscientious, Experimenting, Suspicious or Controlled. By the other hand, based on the highest level of the mean for their own personality, they consider themselves as being rather Controlled (5,45), and the preferred social media platform as being rather Conscientious (4,78).

Table no. 2. The significance of the correlation for Gen Y

Cattell personality traits	Mean for Y Gen	Mean for preferred platform	Pearson coefficient (r)	T-statistic	p-value
Reserved/Outgoing	4,36	4,01	0,56	5,147	0,000
Less intelligent/More intelligent	5,2	4,73	0,63	6,178	0,000
Affected by feelings/Emotionally stable	4,63	4,45	0,59	5,565	0,000
Submissive/Dominant	4,81	4,26	0,54	4,886	0,000
Serious/Happy-to-luck	4,38	4,15	0,46	3,945	0,000
Expedient/Conscientious	5,26	4,78	0,74	8,378	0,000
Timid/Venturesome	4,61	4,53	0,35	2,845	0,000
Tough-minded/Sensitive	4,15	3,66	0,61	5,862	0,000
Trusting/Suspicious	4,86	4,48	0,64	6,343	0,000
Practical/Imaginative	4,73	4,16	0,48	4,166	0,000
Forthright/Shrewd	4,3	3,88	0,54	4,886	0,000
Self-assured/Apprehensive	3,6	3,2	0,62	6,018	0,000
Conservative/Experimenting	4,93	4,55	0,66	6,690	0,000
Group dependent/Self-sufficient	5,35	4,55	0,38	3,128	0,000
Uncontrolled/Controlled	5,45	4,56	0,65	6,514	0,000
Relaxed/Tense	5,15	4,33	0,51	4,515	0,000

Source: Own computing data

Table no. 3 shows the correlations for Gen X. Not all the correlations are significant (p-value below 0,05). We confirm that H1 is statistically significant only for the following variables: Reserved/Outgoing, Affected by feelings/Emotionally stable, Submissive/Dominant, Serious/Happy-to-luck, Timid/Venturesome, Forthright/Shrewd, Conservative/Experimenting, Uncontrolled/ Controlled, Relaxed/Tense, Expedient/Conscientious and Self-assured/Apprehensive. Furthermore we reject the null hypothesis, and accept the alternative hypothesis for these variables. The p-value for Less intelligent/More intelligent, Tough-minded/Sensitive, Trusting/Suspicious, Practical/Imaginative and Group dependent/Self-sufficient is higher than 0.05 (> 0.05), so is not statistically significant and indicates strong evidence for the null hypothesis. This means we retain the null hypothesis and reject the alternative hypothesis.

The values for r (Pearson correlation) are between 0,37 (Self-assured/Apprehensive) and 0,84 (Reserved/Outgoing). Strong correlations show that Gen X persons consider themselves and the preferred social media platform as being more Outgoing, Emotionally stable, but also Venturesome or Experimenting and Tense. By the other hand, based on the highest level of the mean for their

own personality, they consider themselves as being rather Controlled (5,02), and also for the preferred social media platform (4,17). We can see that there is a lower correlation between several variables. In this case, there is almost no correlation between the variables Group dependent/Self-sufficient. There is also almost no correlation for Practical/Imaginative, as it was for Generation Y. Furthermore there is a low correlation between Self-assured/Apprehensive, Trusting/Suspicious, Tough-minded/Sensitive, Expedient/Conscientious and Less intelligent/More intelligent.

Table no. 3. The significance of the correlation for Gen X

Cattell personality traits	Mean for X Gen	Mean for preferred platform	Pearson correlation (r)	T-statistic	p-value
Reserved/Outgoing	3,87	3,78	0,84	11,790	0,000
Less intelligent/More intelligent	3,88	3,49	0,07	0,534	0,595
Affected by feelings/Emotionally stable	4,4	3,91	0,68	7,063	0,000
Submissive/Dominant	4,32	3,93	0,62	6,018	0,000
Serious/Happy-to-luck	3,88	3,77	0,5	4,396	0,000
Expedient/Conscientious	4,86	3,88	0,43	3,627	0,000
Timid/Venturesome	4,86	3,88	0,72	7,901	0,000
Tough-minded/Sensitive	4,82	4,01	0,15	1,155	0,252
Trusting/Suspicious	3,52	3,21	0,21	1,635	0,107
Practical/Imaginative	4,27	3,81	0,01	0,076	0,939
Forthright/Shrewd	4,5	4,4	0,54	4,886	0,000
Self-assured/Apprehensive	3,18	3,99	0,37	3,033	0,000
Conservative/Experimenting	4,06	4,39	0,67	6,873	0,000
Group dependent/Self-sufficient	4,45	3,4	0,08	0,611	0,543
Uncontrolled/Controlled	4,72	3,92	0,6	5,711	0,000
Relaxed/Tense	4,3	3,79	0,67	6,873	0,000

Source: Own computing data

We can observe that there are fewer correlations or no correlations at all when we pass from the youngest Generation (Z) which uses more frequently social media to the Generation (X) which uses fewer social media platform. This may show that Z Generation who used more frequently social media and has the same personality traits as their favorite social media platform

From the mean we can describe this Generation as being reserved, contrary to Generation Z and Y. They are emotionally stable, dominant and serious, contrary to the previous two Generations. This Generation is also conscientious, venturesome, tough-minded and practical. Interesting is the fact that they are trusting. They are also self-assured, controlled and relaxed.

## 5. Conclusions and limitations

In the modern world, there has been a significant rise in the consumption of digital media, which has led to an overall increase in that consumption of it. The vast majority of people nowadays are conversant in and make use of various forms of social media. Nevertheless, members of each successive generation use social media for a diverse range of reasons. In addition, everyone has a different idea or image of how each social media site works, and everyone also has a social media platform that they prefer to use. Several studies have been conducted in order to explore and get an understanding of the patterns of behavior exhibited by different generations in relation to social media. Several studies were carried out in order to investigate and understand the patterns of behavior. The goal of this study is to understand the behavior of Generation Z, Y and X on social media and to see if there is a relationship between the human personality traits and the preferred social media personal traits as perceived by social media users using the Pearson correlation model.

Our finding show that Generation Z uses more frequently the social media platform Instagram, Generation Y uses also more frequently Instagram while Generation X uses more frequently Facebook.



Generation Z spends daily between 4-6 hours on social media platforms, Generation Y spends between 2-4 hours on social media platforms while Generation X between 1-2 hours. This is related mainly to the free time each individual has daily, and as we can see Generation Z has more time to spend on social media platforms.

Generation Z has many hobbies related to the technological field, they would rather engage in play games on their smartphones, computers, and other electronic devices rather than in less conventional forms of social interaction, such as going out with friends. They would rather participate in online societal games. On the other hand Generation Y is more interested in taking part in activities that are conducted in a group setting. Some examples of these activities include going out with friends, going to the movies, or going to the theater. Spending time playing videogames is part only of the hobbies of a minority of this generation. When we consider the primary interests of members of Generation X, we find that Household activities take the top spot, followed by intellectual activities such as reading, writing, and other similar activities.

All Generation uses more times/day their favorite social media platform, but in Generation Z and X there were respondents who choose few times/day and few times/week as how frequently they access their favorite social media, while for Generation Y there weren't.

The p-value for the variables for Generation Z and Y is  $\leq 0.05$ , so is statistically significant. It indicates strong evidence against the null hypothesis, as there is less than a 5% probability the null is correct. Therefore, we reject the null hypothesis, and accept the alternative hypothesis. On the other hand, for Generation X, the p-value is not statistically significant for all variables (p-value  $> 0.05$ ). It indicates strong evidence for the null hypothesis. This means we retain the null hypothesis and reject the alternative hypothesis. We can see from O5 that there are fewer correlations or no correlations at all when we pass from the youngest Generation (Z) which uses more frequently social media to the Generation (X) which uses fewer social media platform. This may mean that the youngest Generation (Z) is more willing to experience new social media brands, while Generation X, the oldest of the study, is not interested in discovering new social media platforms. In conclusion Generation X has the lowest OSL (Optimum Stimulation Level), while Generation Z has the highest OSL.

The main limitation of this study is the volume of the sample. But, being an exploratory research, this findings do not describe the phenomenon, but is mostly a glimpse into it.

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## Using Virtual Assistants as Relationship Marketing Instruments

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### Abstract

*For some years have appeared countless applications and web pages that seek to create a conversation with an end user through an artificial intelligence that reacts by answering questions either by text or by voice, as an average person does. We are talking about the so-called Chatbots, which have been acquiring great importance due to their different and practical applications in the real world as is the case of the interaction between large companies and their customers. This article aims to present an overview of what Chatbots are with their applications and background.*

*Chatbots are tools that allow us to simulate a person talking to real people in real time, although it is not only characterized by responding with texts, it also does so with voice, and even with emojis, this facilitates that conversations remain as natural and organic as possible to offer a better experience to the user.*

**Key words:** chatbots, artificial intelligence, technology, satisfaction, loyalty

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

### 1. Introduction

The rise of the Internet has led to the birth of ecommerce, which now enables customers to buy almost everything online. Thanks to its numerous advantages for the consumer (time-saving, quick, easy etc.), e-business is exploding around the world.

Social media are also omnipresent in our daily life and the majority of brands quickly figured out that it was in their best interest to be active on these platforms. Social networks have become a channel where brands are able to build relationships with their consumers and get to know their target audience. This is why most of them increasingly seek to develop their digital marketing strategies (Gallaughar & Ransbotham, 2010).

Artificial Intelligence (AI) is to an increasing extent used by companies in the customer service department. It has become an actual tool in order to increase and enhance communication with their customers, especially since Mark Zuckerberg launched the Messenger Platform in April 2016. This platform, driven by AI, aims to create “chatbots” for companies, that is, robots that are able to communicate with clients in natural language. This means that customers are now able to reach businesses via messaging apps. During the conference announcing the start of the Messenger Platform, Marc Zuckerberg declared “We think that you should just be able to message a business in the same way you would message a friend”.

Artificial intelligence (AI) studies the way to give a machine the ability to simulate intelligence, to learn without being reprogrammed, to know the things that people like, or even to recognize and decompose texts. Thanks to all this and the studies carried out on the brain by psychology, many advances have been made in the technological field. An example of this is the ability to communicate with machines previously programmed and designed with these techniques, so that the host does not know that the one who is answering him on the other side of the communication is a computer program. (Cortez 2009).

Chatbots are not a recent technology, but their implications for companies are being increasingly investigated and discussed, especially since more and more companies have decided to implement a chatbot for their various theoretical advantages such as better customer experience, constant availability, cost savings etc.

## 2. Theoretical background

A chatbot can be defined as "a computer program aimed at simulating the conversation of a human being" (Atwell & Shawar, 2002). The term is a contraction of the words "chat" and "robot" and other names used to refer to such a device include bot, chatterbot, conversational agent, dialogue system, virtual agent, etc. Its purpose is to mimic a discussion between two interlocutors when, in fact, one of them is a human being and the other one is a machine. Chatbots are an instance of HCI (Human Computer Interaction), which is also used to refer to an interdisciplinary field that studies how human beings communicate with machines and how these machines need to be designed in order to provide the best possible user experience (Kim, 2015). Well-known examples of HCI are voice-based conversational agents such as Siri, Alexa and Google Home. In their book on Speech and Language Processing (2018), Jurafsky and Martin call them "task-oriented dialog agents" which means that they are dialog systems designed to accomplish specific tasks (like setting an alarm clock, findings hotels, leading the way etc.).

Since the beginning of computing in the 60s, we have wanted to improve the user experience in front of machines, to be able to have a human computer interaction as natural as possible. We have seen how the aesthetic part of the devices has evolved and visionaries of the industry like Steve Jobs changed the way in which we feel and see technology making many skeptics interested in discovering the potential and support of it to their way of living and working.

In business environments also the concern of how to improve contact with customers, how to achieve a fast, timely and quality service made the service channels expand, that the concept of "callcenter" or experience centers was formalized so that the client felt at all times that he is heard and that his positive or negative comments are taken into account to improve.

The first chatbot ever created was designed in 1966 with the aim of simulating an interview with a psychiatrist. It was given the name ELIZA and its creator, Joseph Weizenbaum, was a psychiatrist himself. He developed this dialog system to fool his patients into believing they were talking to a real person. Regarding the evolution of chatbot systems, Atwell and Shawar (2007) argue that enhancements in technology with regard to machine learning methods, language processing and corpora accessibility enabled chatbots to become more operational over time. Chatbots have evolved so much since ELIZA that they can now have "increasingly engaging and human conversations" (Business Insider. 2020). with users.

A.L.I.C.E for example, won the *Loebnerprize* 3 times; in 2000, 2001 and 2004. Every year, this prize rewards the most realistic chatbot and the contest is based on the *Turing test*, also called "The Imitation Game", an evaluation introduced by Alan Turing, a computer scientist (Cheramy, 2019). This test requires a jury, a chatbot and an interlocutor. The jury simply need to ask questions on a computer and lead a conversation while not knowing who or what is answering them (the interlocutor or the chatbot). If they cannot guess that the machine is answering them instead of the interlocutor, it means the chatbot passed the Turing test. Likewise, the best chatbot is elected if the jury are fooled into thinking that they are talking to a human being or if it is seen as the closest to human behaviour. From 2016 onwards, one chatbot has taken the lead and wins the award every year: Mitsuku. It is now reckoned as one of the best, most humanlike chatbot online (Park et al., 2018). This competition nevertheless turned out to be controversial and has been widely criticised because many AI researchers believe that AI does not need to pass the Turing test to prove that it is efficient (Hayes & Ford, 1995). Some of these researchers, among whom Marvin Minsky, often nicknamed as "the father of artificial intelligence", think of the Turing test as a joke and a publicity ploy.

With respect to their practical purpose, chatbots have been used to various ends since their invention. Some of them have simply been designed for pure entertainment like A.L.I.C.E, a chatbot created by Robert Wallace in 1995. Such chatbots have been created to amuse users (Atwell & Shawar, 2007).

### How does it work?

In general, chatbots have comparable features and infrastructures (Hundertmark & Zumstein, 2017). First, every chatbot needs a platform on which it can operate. There are a number of different platforms where users can converse with a chatbot; a website, an app, Skype, WhatsApp, Messenger. Because mobile messaging apps are constantly gaining popularity, most companies choose to offer

their services through this channel (Van Eeuwen, 2017).

Renier (2017) asserts that the popularity of apps is determined by the country users live in. Thus, naming Europe as an example, users from Germany, the UK, the Netherlands and Italy are more likely to use WhatsApp, whereas in other West-European countries like Belgium, France and Luxembourg, Messenger appears to be the most widely used messaging app.

Once the user has chosen the interface, he/she can make a request to the software. The software then receives an input in natural language and processes the request using NLP (Natural Language Processing). After that, the bot initiates an action and has to search through its database, a kind of memory where all the information is stored, in order to generate the output. The chatbot can also suggest a follow-up with a human representative when necessary .

It is important to know that there are different kinds of chatbots and that they can run differently depending on the extent to which they are powered by artificial intelligence.

First, rule-based chatbots (also called scripted chatbots) are dictated by pre-defined rules, which means that specific keywords are associated with rules and when the user's request contains particular keywords, it will activate a given rule that generates the output. This is the most basic form a chatbot can take and it is very limited because it does not really understand the request; it simply consists of “keyword matching” (Atwell & Shawar, 2007), and is therefore deprived of any form of AI. Scripted chatbots are inflexible since they are unable to answer a question with a keyword that has not been included into the script. In order to clearly understand what the user wants, the system classifies information; it selects a few keywords from the request and sorts them into distinct categories.

In order to have a more dynamic response, another type of chatbot is singled out: the similarity-based chatbot, which selects in its semantic database all the potential responses to the user's request and chooses the best one as the output. When the answer to the request is found, the software translates it back into natural language and conveys it to the user via the interface chosen beforehand.

AI chatbots represent a further category of chatbots that are powered by Artificial Intelligence. Such bots are able to process natural language and extract a formal representation of the input or start from such a representation to generate natural language, with the aim of communicating efficiently and holding an entire and consistent conversation, just like human beings would do. Some of them are even capable of learning from previous interactions to improve their performance using *machine learning*. Machine learning is a technology that makes it possible for the machine to learn rules from data and to generate outputs based on previously encountered similar data.

### **Chatbots as a business tool**

Chatbots in the business context can be used for internal (intended for employees) or external purposes (intended for customers). Since the focus of this dissertation is on the use of chatbots as a way of communication with customers, attention will be drawn to this type of chatbots only.

Thanks to the rise of social media and messaging apps, companies have become conscious that developing automated dialog systems on these platforms in order to directly communicate with their customers could be a great asset to them. The potential benefits (yet to be demonstrated) seem very interesting at first sight: constant availability, reduction of staff costs, a better and personalised customer experience etc.

Most business chatbots do not rely on artificial intelligence and simply offer multiple options from which the customer has to choose. The purpose is to avoid any misunderstanding and fulfil the expectations of the customer as fast as possible (Renier, 2017). Companies often try to narrow down the request into specific categories of questions in order to lead the conversation, making the chatbot not really “intelligent” as such.

Forecasts regarding business chatbots in other countries are very optimistic; according to a survey by Oracle (2016), 80% of decision-makers in France, the Netherlands, South Africa and the UK intend to build or have already built chatbots for their business by 2020. The participants in the study were equally working in three different industries: manufacturing and high-technology, online retail and telecommunications. These industries are part of what Cui et al. (2017) call “consumer-driven industries” and are considered as the most promising sectors for chatbots in customer service. The industry of banking and insurance is equally believed to be a booming sector regarding chatbot adoption. A research conducted by Juniper (2019) portends operational cost savings in the banking industry to get to \$7.3 billion by 2023.

### **Chatbot user experience**

Chatbot user experience refers to users’ general experience when using automated dialog systems. Users might feel reluctant to use chatbots or they could, on the other hand, be open-minded and even become emotionally involved with them. This issue of emotional bonds between human beings and machines is a recurrent theme in robot ethics and evidence has been given that users are able to build a relationship with a robot and consider it as a friend (Rosenthal-von der Putten et al., 2011). Rosenthal-von der Putten et al. (2013) also demonstrated that human beings can generate emotional reactions and feelings such as empathy and friendliness towards robots.

Brandtzaeg and Folstad (2017) explored the motivational factors that drive people to make use of chatbots. They can be divided into four categories: productivity, entertainment, social purposes and novelty. The majority of participants (68%) in their survey note that productivity is the main reason why they use chatbots: fast answers, availability and ease of the task are essential. *Entertainment value* was ranked second (20%) because chatbots are considered to be “fun” and amusing. The third reason, *social purposes*, was given by 12% of the participants, who use chatbots in order to talk to “someone” when they feel lonely. The last factor is *novelty*: chatbots are relatively new to people, which is why some of the users (10%) try them out of curiosity.

A study led in 2019 (Nomura et al.) suggests that people struggling with social anxiety feel less anxious in interaction with robots than with humans. Telephobia, the fear of making or taking phone calls is also a common source of anxiety for some people. In her article on telephobia, Renuka Rayasam (2016) explains how new technologies that do not involve oral communication have helped people who are anxious on the phone to conceal their fear and to find an alternative way of communication.

Since it is believed that chatbots have witnessed a kind of “renaissance” in the past few years, one could wonder how well-known chatbots are nowadays and if they are used regularly. Many studies have been carried out in different countries about the quantity of users and frequency of use, and the results vary depending on the countries they live in.

### **Factors influencing user experience and attitude**

Companies sometimes decide to create a whole *personality* for their chatbot in order to improve customer experience. De Meyer (2019) argues that companies are increasingly conscious of the added value of a chatbot personality as it makes the conversation much more personal and pleasant for the customer. She identifies different aspects that are part of the chatbot personality such as the *name, avatar, gender, sense of humour and tone of voice*.

First, the *name* of a chatbot is the showcase of the company; this is why it should be carefully chosen. Companies may decide to adopt a very simple and basic name that goes straight to the point or a name that is a bit more playful and catchy. It makes even more sense when the chatbot name directly reflects its purpose. “Woebot”, for instance, is a therapy robot designed to help users deal with depression and anxiety.

Regarding the use of an *avatar*, Takeuchi and Nagao (1993) demonstrated that people are more open to a conversation with a computing machine if it has a facial display. But what should this facial display look like? Dowling (2000) claims that avatars have an influence on consumers’ behaviour and attitude towards the chatbot. Their expectations vary according to the degree of visual reality of the avatar: people are more likely to have high expectations if the avatar is humanlike rather than if it is cartoon-like.

Personality involves character traits too, among which sense of humour. Companies can opt for a funny chatbot if they want to add an entertaining dimension to user experience. Humour is for Pilato et al. (2008) one of the most complex aspects of human personality.

### **Satisfaction**

Giese and Cote (2000) point out that, according to the analysis of the literature and empirical validations, there are three essential components of consumer satisfaction: a rapid emotional response, which varies in intensity, focused on product choice, purchase and consumption. In this context, satisfaction is limited to an affective response that reflects it as a holistic evaluative result, this being the meaning in which it is perceived in this paper. This difference does not exclude the importance of knowledge in determining satisfaction. However, knowledge is the basis for the

formation of satisfaction, inducing it, without overlapping it. According to the results of the field data and supported by the existing literature in the field, these components are applied in various situations and on various users.

Phillip Kotler and Gary Armstrong (2008) consider that there is a link between the value perceived by the consumer and his satisfaction, “customers seek maximum value. They form certain expectations about value and act on them. They will buy from the company they think offers the most value to the customer, defined as the difference between the total value for the customer and the total cost for the customer”. At the same time, customers have significant power over the company by showing loyalty, "perceive more real differences between products and show less brand loyalty."

Both customer satisfaction and loyalty are related to consumer behavior, an important area of analysis of Marketing. Consumer behavior is the study of ways in which people, groups, or organizations buy or use goods, services, ideas, or experiences to meet their needs and desires. Consumer research helps to continuously improve products and services, as well as to establish pricing policy and develop marketing campaigns (Kotler, 2006).

**H1. User satisfaction with virtual assistants has a positive impact on overall customer satisfaction with the organization.**

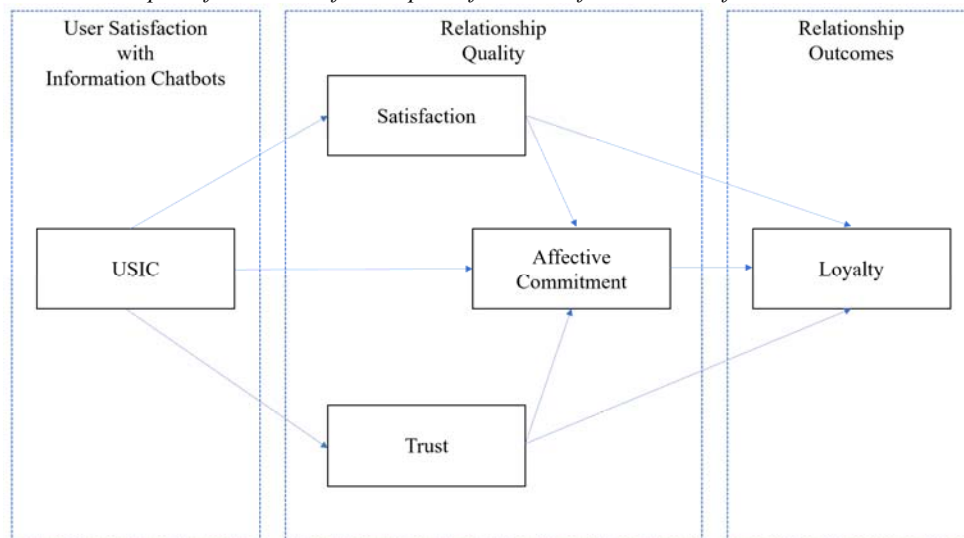
**Customer loyalty**

**H2. User satisfaction with virtual assistants has a positive impact on the general trust of customers in the organization.**

**H3. User satisfaction with virtual assistants has a positive impact on the affective commitment to the organization.**

Figure 1 depicts our conceptual model, including the links between user satisfaction with information chatbots and focal relationship quality components (customer satisfaction, trust and affective commitment) and outcomes (customer loyalty).

Figure no. 1 Conceptual framework of the impact of user satisfaction with information chatbots



Source: Author’s contribution

### 3. Research methodology

Considering our conceptualization of user satisfaction with information chatbots (USIC) as a perceptual construct, the most appropriate research method is a survey. The research is based on theoretical benchmarks to ensure the conceptual clarification of the terms satisfaction, loyalty, trust, attachment and to analyze the research conducted so far in this direction. This is an epistemological approach for a deep understanding of the topic.

The questionnaire, as the main working tool, was adapted to the investigated population and uses simple and unambiguous terms, terms that are easy to understand and do not require further explanation. Questions are short, generally no more than 20 words. The structure is formalized and includes a first introductory sentence regarding the purpose of the research. This allows the subjects to start expressing themselves easily, without difficulty. For all items in our questionnaire, we used seven-point Likert-type scales ranging from 1 ('completely disagree') to 7 ('completely agree').

#### 4. Findings

We relied on covariance-based structural equation modelling, which can provide unbiased estimates of direct and indirect effects between latent variables.

*Table no. 1 Structural equation modelling results*

Hypothesis	Paths	$\beta$	<i>t</i> value
1	User satisfaction with information chatbots → satisfaction	0.589	38.706
2	User satisfaction with information chatbots → trust	0.413	17.059
3	User satisfaction with information chatbots → affective commitment	0.062	1.861

*Source:* Author's contribution

We tested all hypotheses by examining the significance of the respective path coefficients. Direct positive effects of user satisfaction with information chatbots on customer satisfaction, trust and affective commitment emerge.

User satisfaction with information chatbots has the greatest impact on customer satisfaction ( $\beta = 0.589$ ) and trust ( $\beta = 0.413$ ). The impact of user satisfaction with information chatbots on affective commitment, though significant at the 0.1 level, is very low ( $\beta = 0.062$ ). User satisfaction with information chatbots strengthens the level of customer satisfaction throughout the organization and has a positive impact on trust.

#### 5. Conclusions

Our empirical study confirms our hypothesized relationships. We thus add to the understanding of user satisfaction with information chatbots and its impact on customer loyalty, which is fully mediated by relationship quality.

User satisfaction with information chatbots may not guarantee loyal customers, but they help improve relationship quality, which then increases customer loyalty.

It should be noted that the area of customer service within an organization is essential to generate trust to customers since good service can be an important factor such as keeping a customer or losing it. However, several companies are still unaware that there are computer tools that can help them optimize these services more easily than you think. The digital world is increasingly a means of customer service, thanks to the ease of access to electronic devices, so companies need to adapt to make efficient use of electronic channels to ensure empathetic, effective, efficient experiences that adapt to each client.

Seeking to have a better user experience, companies invest in developments aimed at ensuring that each Chatbot has the capacity for understanding and intelligence; for this, it is necessary to have professionals who are able to incorporate elements of Artificial Intelligence as support.

Chatbots turn out to be very useful when it comes to business as for any need where it is reflected in the customer service part. They mark a beginning to be able to reach a natural language between a machine and the human being with the help of all the algorithms that were used in their development and that today the most advanced robots have it. Chatbots are more complex than they seem because of their ability to store new questions and associate answers.

These conversation agents act as customer service representatives, giving answers in natural language and offering more focused information for conversation with a user. The Chatbot is required to have the same tone, sensitivity, and behavior as a human service agent, but it is also required to process information faster than a human.



One question arises: can chatbots be the future of communication? In 2013, Salomonson et al. believed they should only be considered as alternative tools and were not ready to replace human workers yet due to their numerous limitations. Nevertheless, they claimed that with the continuous improvements of communication technology, the advantages of chatbots were likely to surpass the disadvantages and would lead to a gradual replacement of human workers. For other experts, chatbots should be considered as complementary tools to human customer service (Zumstein & Hundertmark, 2017) and should not aim to perfectly mimic the language of a human being but to make life easier for the users (Abu Shawar & Atwell, 2007).

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## Tourist Services Consumer Behavior. Specific and Perspective Elements in the Context of the Coronavirus Pandemic

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### Abstract

*The present paper aims at a brief review of the main elements of specificity of the behavior of the Romanian consumer of tourist services in the context of the Covid-19 crisis, as well as the x-ray of the effects felt after the relaxation of measures at national level. In this context, the identification of the elements that will be perpetuated at the level of the behavior of the consumer of tourist services after the passage of this turning point is an extremely important element in aligning the business in this field to the market requirements. The study was based on quantitative methods of marketing research and aimed to identify the main elements of influence on the decision to travel for tourism in a pandemic, as well as the decision to choose a tourist destination consumer of tourist services from Constanta country after the lift of the restrictions, so far.*

**Key words:** consumer behavior, tourist consumption, tourist destination, preference, tourist services.  
**J.E.L. classification:** M31, M30.

### 1. Introduction

The change of preferences and behavior of consumers was a very important factor in the overall evolution of the Romanian tourism sector in the period from 2020 to 2021. Statistics published by National Institute of Statistics for 2020 showed decreases of 44.4% in July 2020 compared to July 2019 in tourist arrivals and 44.7% in departures. The same is true for foreign tourists.

The main purpose of this paper is to investigate the elements that materialize in changes on the behavior of consumers of tourism services in Constanța, Romania, in the digital age, since the Covid-19 pandemic burst.

The events associated with the pandemic, which led to an increase in social distance and the complete closure of national borders, had effects not only on the territorial level, but also on the economic situation of the regions. However, all the events of macroeconomic level had reverberations at individual level, imprinting the behavior of each person, as a result of the transformations crossed at bio-psycho-social level, because under the light of negative feelings and contradictory experiences these events forced individuals to change, mentally and implicitly when it comes to approaching purchasing decisions. These changes have had unmistakable behavioral effects. From buying caused by panic for strictly necessary products to postponing vacations indefinitely - we find a wide range of seemingly irrational behaviors. But all have in the substratum, beyond economic and health reasons, human and experiential psychological peculiarities.

Behavioral changes in terms of tourist consumption were also identified in Romania and their effects were highlighted, as expected, in the indicators of tourist consumption (Statista, 2021), the number of tourist arrivals in our country decreasing in 2020 below number of arrivals since 2006.

The flexible measurement of the variables that influence the consumer of tourist services, leads to the concretization of the marketing decisions of the bidders, these being focused on the stimulation of the consumption following the study of the consumer behavior (Morariu & Pizmaş, 2001).

The importance of approaching this topic is given by the practical applications of knowing the particularities of consumption in Romanian tourism, so that companies in the field to align with the advanced requirements of tourists (Guleria, 2016).

I consider that the novelty of the topic consists in its approach not only from an economic perspective, but also from a psycho-social perspective, both in relation to demographic elements with economic impact and in relation to the defining personality traits of consumers of tourist services questioned, following the influences exerted throughout the life cycle of the tourist product and service.

## **2. Literature review**

As Cohen et al. (2013) showed, consumer behavior in tourism remains one of the most researched segments of tourism marketing, this area of research being often described by the use of the terms "travel behavior" or "tourism behavior" (Cohen et al., 2013).

From the point of view of the approach from a psychological perspective Vascos L. et al. (2021) conducts a comprehensive content analysis of two major constructs directly related to tourism behaviors - involvement and emotions, as an important issue for integrated tourism experiences, drawing on the idea that consumer behavior in tourism should focus more on tourism behavior, treating the relationship between involvement and emotions from a longitudinal perspective.

The study conducted by Nawijn and Biran (2018) highlighted the aspect that negative emotionality contributes to eudemonic experiences through effects on different types of meanings in life. As part of their consumer experience, tourists are often confronted with negative emotions (Knobloch et al., 2017).

On the other hand, in terms of the division of tourists into explorers versus planners, as the study by Alvarez and Asugman (2006) showed, individuals can be differentiated according to vacation planning and their perception of information sources.

According to Buhalis (2020), technology-enhanced tourism experiences are increasingly facilitating tourists in co-creating value at all stages of the journey (Neuhofer et al., 2014; Fotis et al., 2011). In this context, through the action of smart media, there is inevitably a transformation of industry structures, processes and practices, with a disruptive impact on service innovation, strategy, management, marketing and competitiveness of all involved (Buhalis, 2020).

According to Batista et al. (2021), the Internet influences the behavior of tourism consumers throughout the travel cycle as follows: in the pre-consumption stage, motivations and decision-making are strongly influenced by online sources, the behavior of co-creation of value is influenced by the Internet during the last two stages of the travel cycle, with evidence suggesting that loyalty is influenced during the consumption and post-consumption phases.

The European Commission has argued for the need to impose travel restrictions to slow the spread of Coronavirus and protect the health and well-being of all Europeans (European Commission, 2020-2021). These travel restrictions and the pandemic context have led to a decline in global tourism with an impact on all sub-branches.

Johan de Vos 's (2020) assumptions that due to social distancing, the demand for travel could decrease due to working from home, the implementation of e-learning and the low number of public activities and events, came true during the two years of pandemic. The inclination of people towards the predominant development of activities at home with family members or close friends and lock - downs have materialized in the obvious trend of decreasing tourist traffic (Johan de Vos, 2020).

Signs of easy recovery were detected only in the second half of 2021 (Knezevic et al. 2021).

## **3. Research methodology**

### **Sampling techniques**

Determining the sample size in order to ensure representativeness was done using the formula of the authors Daniel & Cross (2013), starting from the Statistics of the County Directorate of Statistics Constanța, taking into account the number of adults over 263,001 people (in 2019), score  $z_{\alpha} = 1.96$ , which corresponds to a 95% confidence level,  $e = 0.05$  margin error and  $p = .5$  probability of obtaining an affirmative answer to the question. A sample of 384 people was thus obtained. The application of the questionnaire took place between March and May 2022. A number of 384 respondents out of the 408 who responded to the invitation and met the selection criteria

(legal age stated in the questionnaire, Romanian citizenship and domicile in Constanța County), were selected according to the "first come, first served" method (Moraru A.D. 2021).

The aim was to ensure representativeness by respecting the structure of the sample according to the age criterion - established according to statistics published by the National Institute of Statistics (18-25 years - 8%; 26-35 years - 17%; 36-45 years - 20%; 46- 65 years - 34%; over 66 years - 21%).

### Research tools

The study was based on quantitative methods of marketing research, the tool used in this study being the questionnaire. A number of two tools, one of which has already been tested but applied to another population (Chebli & Ben Said, 2020) and one pilot, were pooled in an electronic questionnaire using Google Forms and distributed to respondents via electronic media - email, WhatsApp and social networks (Facebook). The answers were rated on the Likert scale with points from 1-5, obtaining individualized values for each statement in the questionnaire applied.

The characteristics of the sample are presented in table 1:

Table 1. Characteristics of the sample

Age							
	18 -25 years	26 -35 years	36-45 years	46 - 64 years	over 65 years		
%	8	17	20	34	21		
Gender		Residence environment		Parent status acquired in the pandemic			
	Male	Female	Rural	Urban	Yes	Not	
%	37.5	62.5	16.1	83.9	3.6	96.4	
Average monthly net income per family member							
	under 1500 lei	1501-2500 lei	2501-3500 lei	3501-4500 lei	4501-5500 lei	5501-6500 lei	higher than 6501 lei
%	8.3	18.5	26.6	21.1	9.9	3.1	12.5
Marital status							
	Single	Married	Widower	Divorced			
%	19.3	63.3	9.6	7.8			
Educational status							
	Elementary education	Secondary education	Higher education	Postgraduate studies			
%	1.6	21.9	39.3	37.2			

Source: own processing according to the results of the questionnaire

**Four hypotheses** have been advanced:

H<sub>1</sub>: It is assumed that there is a significant difference in preferences according to gender, at the level of tourist services consumers from Constanța country, in terms of nearby and remote tourist destinations or abroad, during the pandemic and after the lifting of restrictions related to it.

H<sub>2</sub>: It is assumed that there is a significant difference in preferences among consumers of tourism services from Constanța, depending on parental status, as they preferred family travel or small groups travel during the pandemic and subsequent lifting of restrictions related to it.

H<sub>3</sub>: It is assumed an increase in the preference of Constanța consumers of tourist services to destinations that allow ensuring the conditions of social distancing and hygiene in the locations visited during the pandemic and subsequent lifting of restrictions related to it, depending on the average monthly net income per family member.

H<sub>4</sub>: It is assumed that there is a correlation between the average monthly net income level and consumer preferences for the use of modern means of booking tourist travel.

#### 4. Findings

SPSS Statistics version 26 was used in the hypothesis testing, the initial data processing, filtering and coding of values being performed in Microsoft Excel 2019.

The testing of the statistical hypotheses revealed findings as follows.

In testing **hypothesis 1**, since the distribution obtained is non-normal, the non-parametric U Mann-Whitney test was used, obtaining the coefficients Sig. 0.015 and respectively, 0.00, which shows that the null hypothesis, that there are no significant differences in gender preferences during the pandemic and at the time of the application of the questionnaire (after lifting all restrictions related to it) in the choice of destinations tourist attractions, is rejected (table no. 2).

*Table no. 2. Summary of hypothesis 1 testing*

	The null hypothesis	Test	Sig.	Decision
1	The distribution of answers for the statement "Covid-19 Pandemic led me to choose destinations close to home" is the same within the "Gender" category.	Independent-Samples U Mann-Whitney And Test	.015	The null hypothesis is rejected.
2	The distribution of answers to the statement "I currently prefer to choose tourist destinations close to home" is the same within the "Gender" category	Independent-Samples U Mann-Whitney And Test	.000	The null hypothesis is rejected.

Asymptotic meanings are displayed. The significance level is .050.

Source: own processing according to the results of the questionnaire

According to the tests performed, these differences exist and are also supported by the specialized literature, as we will show in the discussion part.

For the test of **hypothesis 2**, since the obtained distribution is a non-normal one, the non-parametric Kruskal -Wallis test was used, obtaining the coefficients Sig. between 0.000 and 0.026 in all four assertions tested, therefore with a value lower than the significance threshold. This highlights the fact that the null hypothesis - that there are no significant differences in parental status in terms of preferences for family or small group travel, during the pandemic and after lifting any restrictions related to it, is rejected (Table no. 3).

*Table no. 3. Summary of hypothesis 2 testing*

	The null hypothesis	Test	Sig.	Decision
1	The distribution of answers to the statement "Generally choose child-friendly locations" is the same as in the "Parent status" category.	Independent-Samples Kruskal - Wallis Test	.026	The null hypothesis is rejected.
2	The distribution of answers to the statement "Covid-19 pandemic caused me to travel with my family" is the same as in the "Parent status" category.	Independent-Samples Kruskal - Wallis Test	.000	The null hypothesis is rejected.
3	The distribution of answers for the Covid-19 pandemic caused me to travel in small groups is the same in the "Parent Status" category.	Independent-Samples Kruskal - Wallis Test	.000	The null hypothesis is rejected.
4	The distribution of answers for the statement "Covid-19 pandemic led me to choose child-friendly locations" is the same in the "Parent status" category.	Independent-Samples Kruskal - Wallis Test	.021	The null hypothesis is rejected.

Asymptotic meanings are displayed. The significance level is .050.

Source: own processing according to the results of the questionnaire

Practically, the statistical differences between the two situations - the general situation and the crisis manifested during the pandemic are confirmed on the studied group: both the choice of child-friendly locations as a general situation, and family trips, respectively in small groups in pandemic, as a special situation, with significant differences in mean and standard deviation of responses

from respondents, regardless of respondents' parental status, these choices being influenced by parental status.

In testing **hypothesis 3**, since the distribution obtained is non-normal, the non-parametric Kruskal -Wallis test was used, obtaining the coefficient Sig. 0.01 for only one of the three statements tested (a value below the significance threshold). The value obtained highlights the fact that the null hypothesis that there are no significant differences depending on the average monthly net income per family member in terms of preferences to pay more for a safer destination in terms of hygiene, is rejected. For the general situation and that related to the post-pandemic period, in which restrictions of any kind have been lifted, the null hypothesis is retained, in the sense that it is no longer given as much importance to hygiene, safety and public health as in the pandemic context, and the statistical differences obtained are not significant between the respondents in the tested sample in terms of attitude towards hygiene depending of net income (Table no. 4).

Table no. 4. Summary of hypothesis 3 testing

	The null hypothesis	Test	Sig.	Decision
1	Distribution of answers to the statement "In general I prefer to pay more for a safer destination in terms of hygiene (accommodation, meals, leisure)" is the same in the category "Average monthly net income per family member"	Independent-Samples Kruskal -Wallis Test	.093	The null hypothesis is retained.
2	Distribution of answers to the statement "Covid-19 pandemic made me prefer to pay more for a safer destination in terms of hygiene (accommodation, meals, leisure)" is the same in the category "Average monthly net income per family member"	Independent-Samples Kruskal -Wallis Test	.001	The null hypothesis is rejected.
3	The distribution of answers to the statement "I currently choose hotels and restaurants that focus on hygiene and public health" is the same in the "Average monthly net income per family member" category.	Independent-Samples Kruskal -Wallis Test	.097	The null hypothesis is retained.

Asymptotic meanings are displayed. The significance level is .050.

Source: own processing according to the results of the questionnaire

In testing **hypothesis 4** we started from the distribution test for the five selected statements and we found that like the other variables tested and its distribution is non-normal. As the 4-th is a correlation hypothesis, the Spearman correlation coefficient was calculated, the test results included in table no. 5, highlighting correlations at the significance threshold of 0.01 between the level of net revenues realized and consumers' preference over online travel reservations and payments for tourism purposes, but not compared to the virtual tours prior to the planned trip.

Table no. 5. Summary of hypothesis 4 testing

Correlated variable		VMLMF *	PGRPO **	PGDCFV ***	PADCFV ****	PAROS *****	PAPOS *****
Spearman's rho	VMLMF *	1,000	.274 **	.041	.028	.070	.167 **
	Correlation Coefficient						
	Sig. (2-tailed)	.	.000	.423	.586	.172	.001
	N	384	384	384	384	384	384
	PGRPO **	.274 **	1,000	.246 **	.294 **	.648 **	.616 **
	Correlation Coefficient						
	Sig. (2-tailed)	.000	.	.000	.000	.000	.000
	N	384	384	384	384	384	384
	PGDCFV ***	.041	.246 **	1,000	.722 **	.247 **	.218 **
	Correlation Coefficient						
	Sig. (2-tailed)	.423	.000	.	.000	.000	.000
	N	384	384	384	384	384	384
PADCFV ****	.028	.294 **	.722 **	1,000	.427 **	.386 **	
Correlation Coefficient							

	Sig. (2-tailed)	.586	.000	.000	.	.000	.000
	N	384	384	384	384	384	384
PAROS *****	Correlation	.070	.648 **	.247 **	.427 **	1,000	.712 **
	Coefficient						
	Sig. (2-tailed)	.172	.000	.000	.000	.	.000
	N	384	384	384	384	384	384
PAPOS *****	Correlation	.167 **	.616 **	.218 **	.386 **	.712 **	1,000
	Coefficient						
	Sig. (2-tailed)	.001	.000	.000	.000	.000	.
	N	384	384	384	384	384	384

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: own processing according to the results of the questionnaire.

Where, the meaning of the acronyms used to encode the abbreviated variables is as follows:  
 VMLMF \* represents "Average monthly net income per family member"  
 PGRPO \*\* represents "General Preference for Online Booking and Payment of Stays"  
 PGDCFV \*\*\* represents "General preference for destinations / places with which the consumer has become familiar with virtual tours".  
 PADCFV \*\*\*\* represents "Current preference for destinations / places with which the consumer has become familiar with virtual tours".  
 PAROS \*\*\*\*\* stands for "Current Preference for Online Booking of Stays".  
 PAPOS \*\*\*\*\* stands for "Current Preference for Online Payments for Stays".

In conclusion, the fourth hypothesis was partially confirmed by highlighting the correlation between the average monthly net income per family member (VMLMF) and the general preference for online booking and payment of stays (PGRPO), as well as between VMLMF and current preference for online payments for stays (PAPOS).

## 5. Discussions

In support of the first hypotheses regarding gender differences in terms of tourism consumption, we can consider the fact that they are discussed at length in the literature. According to Henderson (1994), accepting the importance of gender as a factor in influencing social life has the potential to contribute to a "better understanding of tourism and leisure behavior" (Henderson, 1994).

According to Rosenbloom (1987), the characteristics of travel patterns are related to economic variables; women who have low-skilled jobs and low wages, to maintain economically rational behavior, will travel less. However, in the case of salary increases, their behavior will be closer to that of males, resulting in only a series of short-term differences, which fade with the disappearance of economic and professional disadvantages (Rosenbloom, 1987).

There are opinions that show that women's travel characteristics are closely linked to the roles and responsibilities that they accept in the home and in the society. There is a growing body of empirical work that suggests that women in all socioeconomic groups have different travel patterns because they have accepted a variety of household and childcare responsibilities that men with comparable backgrounds do not take (Rosenbloom, 1987).

A study conducted by the authors Henley and Soutar highlighted, in tourism marketing, the need to consider the different targeting of males and females in the presentation of information on tourist destinations promoted (Henley and Soutar, 1998).

In the context of the Covid-19 pandemic, a study conducted by Carballo et. al. (2022), highlighted the moderating effect of gender on the theoretical relationships between risk perception and on the one hand the image of the destination, and on the other hand behavioral intentions, proving in the studied context a higher risk perception in females than in male, depending on the type of risk and the elements characterizing the destination (Carballo et al., 2022).

In support of the second hypothesis, with regard to family travel in the context of the pandemic, the WHO warned in August 2021 that they "continue to be risky and complicated in many parts of the world" (WHO, 2021), highlighting in a pandemic context the avoidance of crowded places, tight and enclosed spaces with poor ventilation, keeping distance and wearing protective masks



(WHO, 2021), measures equally addressed to members of the whole family. The travel recommendation for families with children includes a number of additional measures aimed primarily at minors, which adults need to consider, without somehow banning such travel, where there are no restrictions in this regard due to pandemic outbreaks.

On the other hand, according to the United Nations Convention on the Rights of the Child, their involvement in leisure activities is essential to their harmonious development (Yoo *et al.*, 2022). The study undertaken by Yoo *et al.* emphasized that providing pandemic leisure opportunities through online applications has the potential to facilitate the involvement of children with disabilities and their families during the pandemic period, which is fundamental as benefits in maintaining their physical and mental well-being (Yoo *et al.*, 2022).

In support of the results obtained in hypothesis number three we mention the studies of the authors Weill *et al.* (2020), which showed that there was a significant decrease in the human circulation in the pandemic in the richer areas, manifesting an reverse situation in this context, resulting in the increase of the social distance according to income: the rich areas becoming smaller mobility, while poorer areas had become more mobile, a context in which social distance has been reduced in lower-income communities (Weill *et al.*, 2020).

Another study conducted by Konak (2022) highlighted the fact that tourists' perception of the hygiene and safety of the tourist location predicted travel anxiety related to the pandemic, which in turn had negative effects on travel intention (Konak, 2021).

Study undertaken by Rahman *et al.* (2021) confirms the effects of the Covid-19 pandemic on travel risk and on the perceptions of its management by tourism services consumers, significantly associating distribution channels, transport models, service delivery, avoidance of overcrowded destinations, hygiene and safety of tourist destinations with risk management (Rahman *et al.*, 2021).

With regard to the fourth hypothesis with its sub-hypotheses, specialized literary studies reveal a general link between the level of consumer income and the amounts allocated by them to tourist trips. A large number of empirical studies conducted in recent decades have developed the role of revenues and prices on fluctuations in international tourism demand (Nguyen, 2021).

Otherwise, Zhang (2020) drew attention to the possibility of "stimulating the tourist consumption of residents by increasing the level of income of residents and establishing holiday welfare policies " offering, at the beginning of the pandemic, to the tourism industry the possibility of development in the context of economic growth (Zhang, 2020).

In their study, Djeri *et al.* (2014) highlighted the lack of impact on the first phase of the decision-making process regarding the selection of the tourist destination (awareness of the need) by the level of income, in contrast to the strong impact on the other phases of the decision-making process (Djeri *et al.*, 2014).

On the other hand, a study conducted by Almeida *et al.* (2019) identified the elements related to the consumer's appetite for the use of online payments to tourism service providers and highlighted the fact that the main conditions for the perception of tourists are the age and the number of trips made before enrollment in the study (Almeida *et al.*, 2019).

## 6. Conclusions

According to Kinczel and Müller, in 2022, the Covid-19 pandemic proved to have a major impact on the selection process by the tourism consumer of its destination. This has led, in the context of the pandemic, to a decrease in the number of trips, with their number decreasing in frequency and in addition decreasing in duration (Kinczel & Müller, 2022).

Intentions to buy tourism products and services have been significantly influenced by the global panic caused by the Covid-19 pandemic. There have certainly been changes in travel habits, starting with the preference for group travel, which has been lower, with the level of uncertainty tending to be reduced by taking out travel insurance. Also, attention to hygiene and health conditions at the level of the chosen destination have become decisive factors in choosing the tourist destination.

Finally, we consider that through this paper we aimed to lay the foundation stone in creating the portrait of tourism consumer of the Romanian citizen residing in Constanța County, with the

aim of creating in the future a model for promoting local tourist destinations among Romanian consumers.

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## Strategic Corporate Social Responsibility and Employees: An Analysis of Romanian Post-millennials' Perceptions

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### Abstract

*Strategic corporate social responsibility has been used to attract and retain valuable stakeholders. Therefore, it is important to acknowledge how the youngest workforce, respectively the Z individual, perceives the ongoing responsible initiatives. The purpose of the current paper was to comprehend how a responsible employer among other factors may influence the perception of Romanian post-millennials from an employee perspective. Hence, this study has been conducted through the use of a qualitative research method, respectively the group-focused discussion technique. The collected data has been examined following a content analysis approach. Even though it is assumed that generation Z may be sensitive to responsible practices and more willing to prioritize the common good, the results of the study sustain the contrary. Romanian post-millennials seem to evaluate the responsibility of an organization mostly based on the benefits a company may provide to them as workers, and rather less through social and sustainable practices.*

**Key words:** corporate social responsibility, strategic corporate social responsibility, generation Z, employees, Romania

**J.E.L. classification:** M14, L19, L29

### 1. Introduction

The comprehension and fulfillment of organizational stakeholders' expectations have become priorities for nowadays business. This is why more and more organizations, irrespective of their sector and size, have understood the need to implement the concept of social responsibility in their processes (Toma and Naruo, 2009; Imbrișcă and Toma, 2020). Due to the fact that it is impossible to meet all of the demands of the interested parties, organizations have focused on developing general pillars for establishing a common wellbeing. One of which is referred to as responsible behavior. The corporate social responsibility (CSR) concept aims to reshape the way of doing business and, moreover, to encourage the general enhancing of a responsible behavior. As a stand-alone term, CSR may be explained as "the company's extended engagement to proceed ethically and contribute to economic growth while increasing the life standards of workers and their families, along with the local community and society in general" (Watts & Holme, 2000, p. 5). Moreover, a responsible organization image represents a mean through which firms may attract employees.

Given that generation Z is the newest type of worker, businesses, particularly multinational corporations, have begun to develop and implement strategic corporate social responsibility (CSR) strategies in order to recruit post-millennials. Generation Z comprises individuals which have been born starting with the year of 1996 or even 1997 according to some practitioners (Seemiller & Grace, 2018). From an employee's perspective, younger representatives are attracted by companies which have a responsible business reputation, have people-driven perspectives included in their strategy, offer personal development opportunities, and are social actively, supporting the environment and those in need (McKee-Ryan, 2021). Therefore, another important characteristic of generation's Z individuals relays on its openness towards environmentally, socially and politically concerns

(Chillakuri & Mahanandia, 2018). Hence, Generation Z appears to be more interested in avoiding and solving certain problems in order to achieve a general wellbeing, having been exposed to a broader set of various issues, and benefiting from awareness in terms of how human actions may have negative consequences or impact among others (Chillakuri & Mahanandia, 2018).

The aims of the current paper are to establish the main factors that may motivate Romanian post-millennials to work for a specific organization and to understand in this regard to which extent a responsible company reputation may influence generation Z. Therefore, this study has been conducted through the use of a qualitative research method, respectively the group-focused discussion technique. The collected data has been examined following a content analysis approach. The paper's structure includes the other succeeding sections: literature review, findings, methodology, and conclusions.

## 2. Literature review

Generation Z comprises individuals which have been born starting with the year of 1996 or even 1997 according to some practitioners (Seemiller & Grace, 2018). Additionally, while several researchers have stated that the last representatives of this generation have been conceived in 2012, others sustained that it is currently difficult to establish a certain age group for the Z population (Kardaras, 2016). Even though there may be some confusion regarding the possibility of including this generation within a certain period, the general characteristics of Z individuals are quite comprehensible and genuine. Foremost, generation Z is referenced frequently as the digital one (Singh & Dangmei, 2016). Moreover, Z individuals are acknowledged as post-millennials (Berkup, 2014).

Comparing with other generations, technology represents the first nature of these Z individuals (Dolot, 2018). Since they were newborns, the majority of them have been using smart gadgets (such as phones or tablets). Therefore, their ability to operate with these modern devices is outstanding comparing with other generations (Kim, et al., 2022). On the other hand, this orientation towards technological development has its drawbacks. Generation Z is acknowledged as being less patience as well as focused and apprehensive, although they have higher expectations from others (for instance, employers) (McKee-Ryan, 2021). They are not willing to listen carefully, and therefore receive feedback (Chillakuri, 2020). Most of generation's Z members are independent, transparent, speed driven and multi-tasking (McKee-Ryan, 2021). Thus, they have demonstrated a higher capacity of adaptation to changes that may occur (Mahmoud, et al., 2021). At first side, it can be stated that generation Z are more willing to enhance an entrepreneurial venture (Frunzaru & Cismaru, 2021).

In an uncessant changing global business environment (Săseanu et al., 2014; Grădinaru et al., 2017; Catană et al., 2021) business organizations have become aware of the necessity to think not only creatively (Tohănean et al., 2018; Toma et al., 2018) but also strategically (Toma, 2008; Toma, 2013; Toma and Grădinaru, 2015; Toma et al., 2016). From a business perspective, as a stand-alone notion, CSR has been perceived mostly as the overall actions that might benefit those vulnerable categories of individuals and their well-being-e.g., charity, voluntary work or other forms of philanthropy (Catană and Toma, 2022). Along with strategy, CSR reveals the ability of a business organization to develop and sustain value for various parties of interests and the company itself (Maas & Boons, 2010; Toma, et al., 2011). As a consequence, strategic CSR represents the manner in which enterprises capture the value and benefits of CSR through the use of strategy. For instance, this strategic CSR orientation, may assist a company in engaging with future employees. From an employee's perspective, beside the prestige of working for a responsible firm, a company's attractiveness increases along with the additional benefits provided for employees (Shahzadi, et al., 2019). Therefore, corporations design and implement through the Human Resource (HR) departments, programs such as trainings and workshops for personal or professional development (Cohen, 2017). Thus, these strategic CSR practices may help the organization to attract and retain valuable employees (Lee & Chen, 2018).

Therefore, within the scope of understanding the demands of post-millennials as employees, studies revealed that this generation is willing to collaborate with others, regardless of their nationality or beliefs (Jayathilake, et al., 2021). Therefore, they enhance diversity and as possible

organizational stakeholders, generation Z is inclined to respond in a positive manner towards companies which promote inclusive business. Additionally, a pleasant work environment may be perceived as mandatory for future employed representatives, such as students (Toma, 2012). As a consequence, studies imply that generation Z may seek and appreciate organizations which are concerned with the well-being of their employees and have a strong work culture (Jayathilake, et al., 2021). Thus, they respond positively towards initiatives such as workshops, trainings or events organized by the company, due to the fact that they perceive these as opportunities that may consolidate the relationships formed within the firm (for instance, with their co-workers or line managers) (Tarigan, et al., 2022). As new entries, Z individuals aim to grow and evolve quickly, and therefore they may require attention and patience. Furthermore, customized onboarding programs are critical in keeping or establishing a positive attitude among them (Chillakuri, 2020). Additionally, flexible working program may be perceived as appealing to generation Z. Moreover, studies sustain that post-millennials, comparing with others, are more interested in companies which have included in their business strategy the sustainability pillar (for example, waste reduction initiatives) or a triple bottom line perspective- planet, people, and profit (Dabija, et al., 2019). On the other hand, generation Z may not be receptive towards earning less and working for an acknowledged CSR profiled firm (Tarigan, et al., 2022).

### **3. Research methodology**

This study has been conducted through the use of a qualitative research method, namely the group-focused discussion technique. Within this scope, 12 undergraduate Romanian students born between 1997 and 2000, from both the rural and urban environment, have been selected for participating in the research. Participants have been chosen based on a recruitment questionnaire that confirmed they had not taken part in a similar study in the previous six months. In addition, the group-focused discussion has been conducted online, using the Zoom platform on the 2<sup>nd</sup> of March 2022, during 1 p.m. and 3 p.m.

The objective of the present study was to reveal and understand the CSR expectations of Romanian post-millennials from an employee's perspective. Moreover, the aim of this research was to comprehend to which extent Z individuals may be influenced and attracted by responsible companies. Therefore, in order to provide a response to the main research question (respectively, is generation Z aiming for responsible employers?), participants have been initially exposed to several images related frequently with the concept of CSR (the association technique). Afterwards, the following topics have been approached: how can a company demonstrate a responsible behavior?; which are the main reasons for which individuals, in general, do not take the initiatives of responsible organization?; which are the main benefits that generation Z strive for when deciding to work for a specific firm?; how many of the respondents have taken into consideration the responsible reputation of a company when applying for a certain position?; how may a responsible company reputation influence their decisions as employees? Additionally, the group-focused discussion has been recorded and the findings have been evaluated following a content analysis approach.

### **4. Findings**

When respondents have been requested to state what decisions companies ought to undertake in order to demonstrate a responsible behavior, participants have concertedly agreed that organizations should place a greater emphasis on their employees (Fig. no.1):

Figure no. 1: Voices of Romanian post-millennials students- CSR and employees

*Before focusing on the environment or the society in general, companies should understand and fulfill the needs of their employees. I, for one, would consider and appreciate firms which offer a flexible working program, opportunities to develop on personal and professional levels (for example, trainings and workshops).*

Source: Group-focused discussion conducted by the author

Furthermore, despite the potential benefits, the majority of Romanian post-millennials sustained that they would not be willing to participate in these developmental programs if they were held outside of work hours:

*I would not be thrilled to attend trainings or workshops outside of the working program. I have worked for a multinational company and I had to stay there for 9 hours every day (respectively from 9:00 to 18:00). In addition, I had to drive to the office, which added another 3 to 4 hours to my day. I usually left my home at 7 a.m. and returned around 8 p.m. I did not have any time for myself left at all. On weekends I had to do other activities that I was not able to do during working days.*

In addition, some Romanian individuals have been working into multinational companies and their perception regarding this form of business organization is not a favorable one. For instance, experienced working post-millennials have complained about the inflexible, incomprehensible and demanding line managers; the dwindled willingness of others to assist newcomers; the regularly and unpaid overtimes; the challenges encountered when attempting to integrate into a work collective; the burdened responsibilities and the overall pressure; the lack of information exchange among coworkers; the lack of appreciation; the implied and accepted work behavior; the inability of others to listen and sustain ideas of new joiners; the fewer available opportunities to develop on professional level; the lack of transparency regarding final evaluations. Even though they have described their experience as employees of a multinational company mostly in a negative manner, Romanian post-millennials declared that they are inclined to continue their carrier in the corporate domain if the raised problems would be resolved (Fig. no.2):

Figure no. 2: Voices of Romanian post-millennials students- Identified problems

*I have been working in the corporate domain for three years. It is a very hard. People are not nice; there is a lot of pressure; lack of appreciation and competition among coworkers. I am considering to opening my own business, if things do not change. [...] I would not try another corporation. The situation is the same, regardless of the company. Here, at least, I have earned my place and I know how things work.*

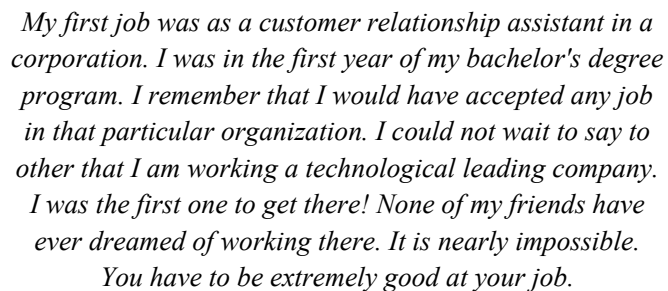
Source: Group-focused discussion conducted by the author

Moreover, the main reason for which Romanian members of generation Z chooses a corporate employer is represented by the organization’s reputation. Contrary to expectations, this reputation is not focused on the responsibility of the company in general (considering various stakeholders). However, it mostly concerns only one aspect, respectively the benefits they can receive as employees of a particular firm, starting with the proposed remuneration:

*I applied for a job at a well-known multinational company and I did not look online or asked anybody about the responsible practices of the organization. I would have asked someone who is working there or has been working there about the benefits of an employee, respectively salary, growth opportunities, health insurances, working hours [...]. At this moment, I do not care about their environmental or social initiative. For sure, I would not accept to be paid less just because the company is acknowledged as being socially responsible.*

Additionally, to some extent, Romanian representatives of generation Z may consider working in a corporation for prestige. Encore, from a Z individual perspective, this organization’s reputation is unrelated to responsible business behavior. Thus, a company’s prestige is associated with limited accessibility to others and with the enterprise’s leading position in a specific market (Fig. no.3):

Figure no. 3: Voices of Romanian post-millennials students- A company’s prestige



*My first job was as a customer relationship assistant in a corporation. I was in the first year of my bachelor's degree program. I remember that I would have accepted any job in that particular organization. I could not wait to say to other that I am working a technological leading company. I was the first one to get there! None of my friends have ever dreamed of working there. It is nearly impossible. You have to be extremely good at your job.*

Source: Group-focused discussion conducted by the author

All respondents sustained that CSR practices should be developed as much as feasible and tailored to the needs of workers. From a Romanian post-millennial standpoint, employee-oriented responsible companies, have the ability to create positive feedback among workers and therefore attract newcomers. Z individuals stated that a company should concentrate more on conceiving constructive word-of-mouth due to the fact that initially the only search in terms of how responsible a company is relies in finding and discussing with current or former employees of that particular organization:

*A company’s CSR effort should be oriented firstly towards the employee. Afterwards, the consumers, environment, society and other stakeholders should be considered. Employees help companies to sustain their business. Since, we do not actively search for what a company has done for the environment or the society when considering applying for a job, pragmatically would be for organizations to simulate in a positive manner workers to provide a good feedback regarding the firm.*

Moreover, Z individuals acknowledge that comparing with other generations, they are less skeptical when enterprises communicate broadly, using multiple channels, their philanthropic initiatives or sustainable practices. Although, post-millennials may not doubt the veracity of the practices designed to establish common good, they may not be also influenced by these when considering working in a certain organization:



*I am not that suspicious, comparing with elder people. I think that companies truly donate to those in need. Also, I believe that some organizations make efforts in becoming more sustainable, but I am not influence at all by all of these practices when I chose a job or a specific firm. It might be a plus, but not a determinant factor in my decision.*

Romanian post-millennials may have a different perspective on corporate responsibility than their employers. Generation Z seems to evaluate the responsibility of an organization more from an internal point of view, respectively through the benefits a firm may provide to its workers. Therefore, the social and sustainable pillar may not influence Romanian Z individuals when choosing to work for a specific organization. Based on the collected responses, a possible answer to the main research question may be considered the following: Romanian post-millennials strive to collaborate with responsible employers as long as these CSR practices provide tangible and intangible benefits mostly for its organizational stakeholders. Moreover, when targeting generation Z, companies should focus more on creating positive WOM among existing employees due to the fact that Romanian post-millennials are willing to ask them for feedback. Other types of company or brand communications (for instance, television commercials and even social media content) seem to be ignored by Romanian representatives of generation Z.

## 5. Conclusions

In the current business environment, firms strive for consumer's and employee's loyalty. Therefore, companies have been making efforts in understanding how these may be achieved to some extent. As a consequence, the comprehension and fulfillment of organizational stakeholder's expectations have become priorities for nowadays business. Due to the fact that it is impossible to meet all of the demands of the parties of interest, companies have focused on developing general pillars for establishing a common wellbeing. One of which is referred to as responsible behavior. The corporate social responsibility concept aims to reshape the way of doing business and, moreover, to encourage the general enhancing of a responsible behavior. The reality is that not only companies should act considering their impact among others. Humans are required also to change and be aware of the consequences of individual actions. Major positive change may occur if all involved parties of interest sustain the CSR practices. Individuals based on their generations have different responses towards the concept. Some individuals may hesitate supporting the CSR initiatives of a company, due to the fact that they may doubt the veracity of the organization's responsible actions. Others may not be interested at all in embracing a responsible behavior. However, latest generations such as post-millennials are perceived as possible main advocates of the CSR concept.

Considering the fact that companies currently use CSR in a strategic manner in order to attract and retain valuable stakeholders, it is important to acknowledge how the youngest workforce, respectively the Z individual, perceives the ongoing responsible initiatives. Even though it is assumed that generation Z may be sensitive to responsible practices and more willing to priorities the common good, the results of the study sustain the contrary. Romanian post-millennials seem to evaluate the responsibility of an organization based on the benefits a company may provide to them as workers. Social and environmental objectives achieved by an organization may not motivate Romanian representatives of generation Z to engage with the firm. Furthermore, the findings suggest that Romanian Z individuals may be more influenced by the opinions of current or former employees of a specific company when searching for a working position, rather than the responsible image or reputation that the firm has maintained through the use of various channels of communication.

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## Analyzing Consumer Behavior towards Purchasing Pharmaceutical Products Online

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### Abstract

*Globalization, technical progress, the trend towards digitization are phenomena with a strong impact on markets all over the world. To a large extent, the trends of digitization and online purchases were accelerated during the COVID-19 pandemic, causing major changes in consumption habits. The objective of this paper is to study the new trends in consumer behavior regarding the purchase of pharmaceutical and cosmetic products, as well as the influence of factors from the online environment on the purchase decision and on the perceptions and attitudes of the respective consumers.*

**Key words:** consumer behavior, online pharmacies, e-commerce

**J.E.L. classification:** M30

### 1. Introduction

The Internet has revolutionized and changed the way we communicate, interact with individuals and companies and our purchasing habits. The ever-increasing number of Internet users, wider Internet access across the globe, technological progress and the aftermath of the Covid-19 pandemic are factors which contributed to changes in consumer behavior, our concern towards health and generated undisputed trends related to acquisition of products and services.

The online pharmaceutical and cosmetics supply has developed in many ways and in depending on different models from every part of the world. This is due to the various regulatory, economic, social and cultural environments. In the US, the pharmacy market (online and offline) is based mainly on prescription, while throughout Europe, this segment takes various forms according to a model based on non-prescription. The global accessibility of online pharmacies offers new perspectives, legislative and economic-wise, that need to be taken into consideration according to circumstances in every country, around the world, hence we are all talking about health products that are crossing jurisdictional boundaries- therefore, operating companies should be evaluated. While there is an ascending trend of online purchase for healthcare and cosmetic products, safety concerns among the population is a primary aspect to focus upon. In this study, we aim to identify the factors that may influence the purchasing behavior of consumers of pharmaceutical products and cosmetics in the online and offline environment. The research was carried out by launching a questionnaire created in the Google Forms platform, being distributed through social media networks, whatsapp and e-mail.

The variables taken into consideration were the frequency with which consumers purchase pharmaceutical and cosmetic products from different locations, sources of information (offline and online) about the respective products, elements from the online environment that can determine purchase decision, the way of purchasing different categories of pharmaceutical products and

cosmetics and the advantages and disadvantages perceived by consumers in relation to online and offline purchases of these products.

## 2. Literature review

Online pharmacy customers are growing rapidly due to the convenience and lower cost of electronically purchasing prescription drugs, especially in initial setups. However, there are questions about the quality of prescription drugs sold online and the legality of online pharmacies. The use of prescription drugs without the supervision of a licensed physician may harm consumers.

The number of online pharmacies has been increasing over the years. The Internet has enabled patients and consumers to purchase a range of medicines from online pharmacies at a lower cost than retail pharmacies. However, some illegal websites in many countries impersonate legitimate pharmacies and use the Internet (Fittler, 2013) to sell adulterated and substandard medicines (Alwon et al., 2015). In addition, some drugs are sold illegally without a prescription (Alwon et al., 2015). This phenomenon should be a cause for concern, as low-quality medicines may not be safe. In addition, unattended and self-administration exposes consumers to harmful side effects and increases the risk of morbidity and mortality (Lee et al., 2017).

The availability and accessibility of substandard and counterfeit medicines may vary by country. Countries with good drug regulatory and quality assurance systems generally have lower prevalence of counterfeit and substandard products than countries with poor regulatory systems. For example, the availability of counterfeit medicines is low in Japan and South Korea, but high in countries such as China and India (Attaran et al., 2011; Al-Worafi et al., 2021). A large number of counterfeit and substandard medicines are reported on the market (Kumaran et al., 2020). India has the highest reported prevalence of counterfeit medicines at 35%, followed by Nigeria (23.1%) and Pakistan (13.3%) [Attaran et al., 2011]. Nonetheless, counterfeit medicines are still available on the black market in countries with advanced drug regulatory regimes (Sharma et al., 2017).

The World Health Organization (WHO) has established several factors that affect the availability of counterfeit medicines on the black market. These factors include insufficient national regulation of drug distribution and manufacturing, limited enforcement of drug laws, insufficient criminal penalties for drug law violations, and poor export country regulation. Other important factors are complex transactions involving many intermediaries, high demand and high cost of therapeutic and preventive medicines, and inefficient collaboration among stakeholders (Attaran et al., 2011).

Online pharmacy patronage is increasing due to the easy availability of medicines through these online platforms and their relatively lower cost than brick-and-mortar pharmacy products (Fittler et al., 2018). Nonetheless, issues related to the quality of online prescription drugs remain a major public health concern. Furthermore, the legality of selling medicines in online pharmacies may be questionable (Orizio et al., 2011). Of paramount importance is consumer safety, as the inappropriate use of prescription drugs can cause potential harm (Baig et al., 2020; Elkalmi et al., 2021). Therefore, it is important to assess consumer attitudes towards these aspects, which are included in this study.

With the spread of the COVID-19 pandemic and the growing importance of e-commerce, research on online consumer behavior is particularly important. The aim of this study was to develop a methodological approach to assess the relationship and impact of factors that activate online consumer buying behavior in the context of the COVID-19 pandemic (Gu, 2021).

The global economy in general, and international trade in particular, has suffered and will continue to suffer enormously from the coronavirus pandemic. The uncertainty that companies and end users find themselves in is compounded by a number of factors. These include declining incomes, cross-border travel restrictions, changes in consumer demand, and changes in the behavior of market participants (Leach et al., 2021). Global lockdowns, social distancing, and other measures to limit the spread of the COVID-19 pandemic have prompted consumers to shop more in online marketplaces (Alessa et al., 2021). As such, the business environment faces rapid changes during the quarantine period. Ultimately, the Covid-19 crisis has accelerated the growth of digital commerce. A new kind of immersive digital consumer has emerged globally, a more selective one.

Lost revenue, restricted transportation and reduced supplier activity due to COVID-19 containment measures are forcing B2B manufacturers and sellers to cut production and marketing costs, find new suppliers at home and abroad, and speed up decision-making. National firms have

the opportunity to diversify their product portfolios for import substitution purposes and provide necessary resources to other firms and affiliates of foreign firms (Wanasida et al., 2021; Borodin et al., 2021). On the other hand, the purchasing power and cross-border liquidity of the B2C market have declined. Additionally, consumers are turning to health and safety while maintaining their preference for cheap goods and services (Guthrie et al., 2021). Products that bring comfort and comfort into living spaces are receiving more attention than usual. Lost revenue, restricted transportation and reduced supplier activity due to COVID-19 containment measures are forcing B2B manufacturers and sellers to cut production and marketing costs, find new suppliers at home and abroad, and speed up decision-making. National firms have the opportunity to diversify their product portfolios for import substitution purposes and provide necessary resources to other firms and affiliates of foreign firms (Wanasida et al., 2021; Borodin et al., 2021). On the other hand, the purchasing power and cross-border liquidity of the B2C market have declined. Additionally, consumers are turning to health and safety while maintaining their preference for cheap goods and services (Guthrie et al., 2021). Products that bring comfort and comfort into living spaces are receiving more attention than usual.

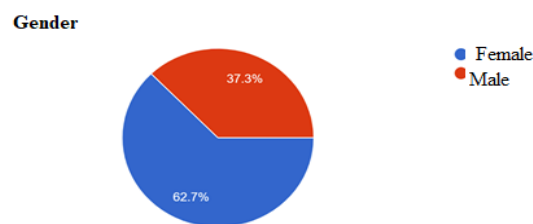
### 3. Research methodology

The study was conducted in July 2022 through an online questionnaire designed on the Google Forms platform and distributed through two major social networks, Facebook and WhatsApp, targeting people over the age of 18. The sample size consisted of 60 respondents with the following demographic characteristics: The majority of respondents (62.7%) were female, while male respondents comprised 37.3% of the sample size.

### 4. Findings

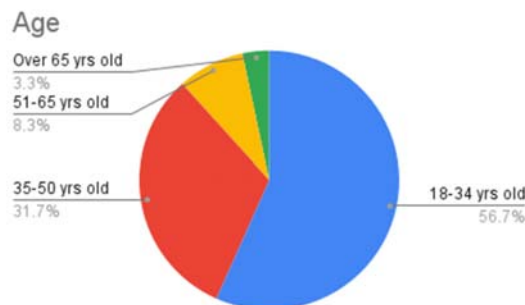
Regarding age category, the young segment category(18-34 years) was the most prominent (56.7%), followed by the age category 35-50 years (31.7%).Few respondents were received from elder audiences-8.3% completed the questionnaire belonging in the 50-65 years old category and 3.3% of the respondents were those that are over 65 years old.

Figure no.1 Gender of the respondents



Source:processed by authors

Figure no.2 Age of the respondents



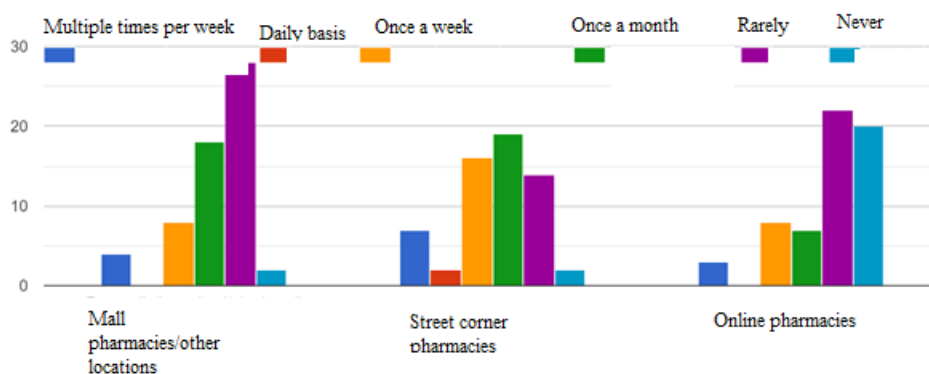
Source:processed by authors

An important aspect to which we directed our attention, namely the frequency of purchases of pharmaceutical products from different locations, is highlighted in figure no. 3. Thus, the data presented indicate that only 5% of respondents purchase pharmaceutical products from the environment several times a week online, 8.3% once a week, and 11.7% once a month. The majority of respondents stated that they rarely buy pharmaceutical products online (36.6%), while 33.3% answered that they never buy these products via the Internet.

In the case of physical purchases, two types of locations were taken into account, namely pharmacies in malls and other such points of sale and street pharmacies. A relatively high purchase frequency is observed in the case of street pharmacies (approximately 32% of respondents purchase medicines once a month from these locations and 26.7% once a week).

A similar trend was also registered in the case of mall-type locations, 30% of the respondents answered that they purchase the products mentioned above once a week. However, the highest percentage registered belongs to people who rarely buy pharmaceutical products from malls and other locations, representing 46.7% of the sample.

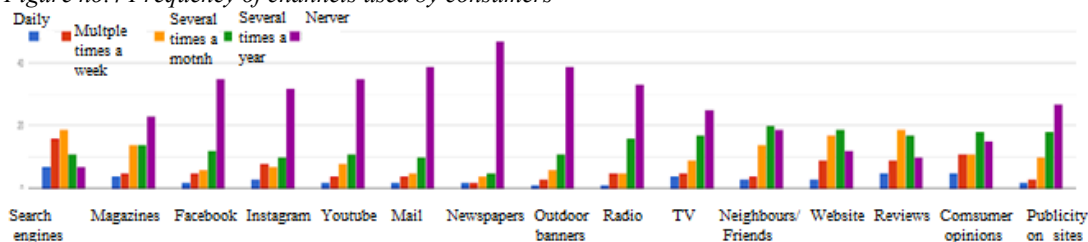
Figure no.3 The frequency of purchases of pharmaceutical products from different locations



Source:processed by authors

The next aspect to which we directed our attention was the frequency with which consumers access certain channels in order to inform themselves about the pharmaceutical products they intend to buy. Search engines are often used, according to respondents, 26.7% accessing them multiple times a week and 31.7% several times a month, a percentage which was also recorded in case of reviews. Similar, manufacturer’s website was identified as a means of information by 28.3%, who access them several times a month. The results indicate a rare utilisation of social media platforms (58.3% of respondents never use Facebook and Youtube as a means of information, 53.3% never use Instagram, 65% never use their e-mail. A negative trend was registered also in the case of newspapers (78% of respondents stated that they never take into consideration newspapers ads as a means of information), outdoor banners (also 65%), radio (55%) and TV (41.6%). The results might be an indicator of the fact that consumers would rather trust a professional (doctor or pharmacist) when it comes to getting information about the medication they intend to buy.

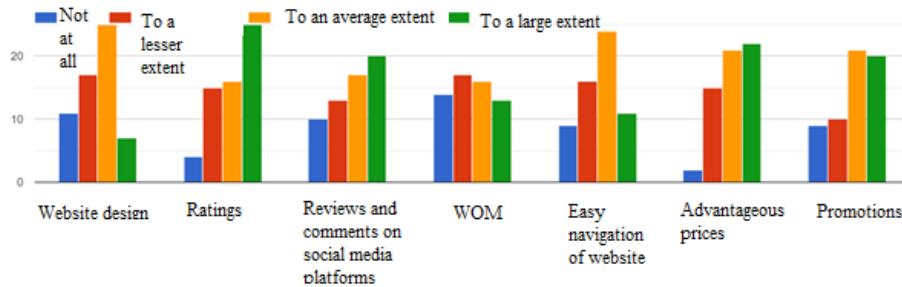
Figure no.4 Frequency of channels used by consumers



Source:processed by authors

In order to identify the factors that might influence consumers' buying decision of pharmaceutical or cosmetic products online, we took into consideration the following variables: website design, ratings, reviews and comments on social media, WOM, easy navigation of the producers' websites, advantageous prices and promotions. The survey participants were required to state the degree of importance of the above-mentioned variables in their buying process. Ratings were nominated by most respondents (41.7%) as the variable which influence their decision to buy online, followed by Advantageous prices (36.7%), along with reviews and promotions (33.3%). To an average extent, 41.7% of the respondents stated that factors such as website design influence their buying decision, as well as easy navigation (40%).

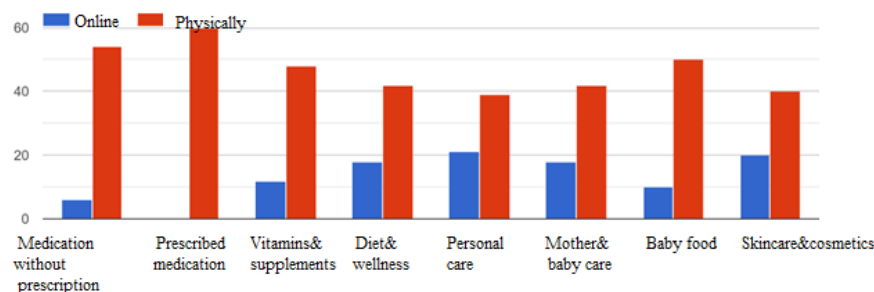
Figure no.5 Factors influencing consumers' buying decision



Source: processed by authors

Regarding the way of purchasing different categories of pharmaceutical and cosmetic products, we can see from the figure no. that most product categories (especially medicines, according to the answers of over 90% of the respondents) are bought by consumers from physical locations. Small percentages were recorded in the case of personal care products (35%), diet and wellness and mother and child care (30%) and in the case of dermatocosmetics and cosmetics (33.3%).

Figure no.6 Acquisition ways for different product categories



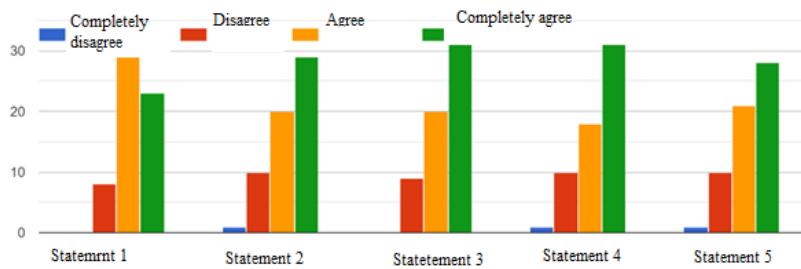
Source: processed by authors

In order to find out the attitudes and perceptions of consumers regarding the advantages and disadvantages of purchasing pharmaceutical products and cosmetics, the Likert scaling method was used. The results were the following: 48.3% of the respondents partially agreed, while 38.3% agreed with the statement according to which the purchase of pharmaceutical products and cosmetics online is very advantageous due to the lack of necessity to go to a physical location (Statement 1); 48.3% of the respondents totally agreed with the statement that online purchases of pharmaceuticals and cosmetics are very advantageous due to the lack of constraints related to the opening hours of physical pharmacies, while 33.3% partially agreed (Statement 2).

More than half of the respondents totally agreed with the fact that purchasing pharmaceuticals and cosmetics online is very advantageous due to the possibility to compare prices and the possibility to view reviews and opinions (Statement 3 and 4), and 46.7% totally agreed with the fact that purchasing pharmaceuticals and cosmetics online is very advantageous due to the promotions carried out on the website (Statement 5).



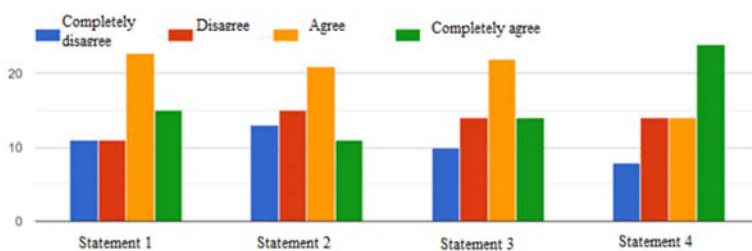
Figure no.7 Consumers’ perceptions regarding the advantages of online acquisition of pharmaceutical and cosmetics products



Source:processed by authors

As for the disadvantages of purchasing pharmaceutical and cosmetic products online, 38.3% of respondents partially agreed with the fact that purchasing pharmaceutical and cosmetic products online is very disadvantageous due to the lack of interaction with a specialized person who can advise you, in while 25% totally agreed (Statement 1); 18.3% specified that they do not agree at all with this statement.35% of respondents partially agree and 18.3% totally agree with the fact that purchasing pharmaceuticals and cosmetics online is very disadvantageous due to the fact that the products can be contaminated/expired/counterfeit, while 25% disagree with this statement and 21.7% expressed a strong degree of disagreement (Statement 2).23.3% of the respondents fully agree and 36.7% partially agree with the statement according to which purchasing pharmaceutical and cosmetic products online is very disadvantageous due to the fact that some online stores that sell them are not registered as pharmacies; and 23.3% do not they agreed with this statement (Statement 3).Regarding the risk of purchasing certain medicines and cosmetics online that may have contraindications or are not recommended by specialists and may harm health, 40% of respondents expressed a strong degree of agreement, and 23.3% partially agreed .The same percentage was recorded in the case of people who did not agree with this statement (Statement 4).

Figure no.8-Consumers’ perceptions regarding the disadvantages of online acquisition of pharmaceutical and cosmetics products



Source:processed by authors

## 5. Conclusions

The COVID-19 pandemic has led to a dramatic shift in consumer behavior, as traditional in-person healthcare has gone virtual and online prescription purchases have gone from a simple convenience to a lifesaver. Pharmaceutical e-commerce shows no signs of slowing down in a future post-pandemic world, as many consumers are now accustomed to the convenience of remote prescribing — and often at a lower cost.

E-commerce giants and telehealth startups are recognizing opportunities in the online pharmacy market, creating a competitive environment between established pharmacies and other healthcare providers.

Consolidation in the e-commerce industry, rising customer expectations across all industries, and competition are rapidly changing the pharmacy landscape. As the post-pandemic era approaches, e-commerce platforms are no longer a great convenience; they are an indispensable tool for doing business in today’s digital economy. As the role of pharmacists in more patient-centered care continues to grow, the need for better technology to support this care—including telehealth capabilities - is critical to the health of pharmacies and their patients.

To thrive in this growing market, pharmacy executives must understand the challenges and opportunities associated with transitioning to an e-commerce model, as well as the recommended best practices for pharmacies to launch a successful e-commerce platform.

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## European Projects and Programs in Romania and in the South-West Oltenia Region

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### Abstract

*A project involves complex elements, completed by efficient management of design, elaboration, implementation, and other activities related to project realization. The most used programs are the European funds, which include a wide range of projects after going through all the stages of implementation within these programs. Projects, through their role, actively contribute to the realization of strategic partnerships that can support the exchange of good practices, the acquisition and development of basic skills, the support of social inclusion and civic participation, and the increase and implementation of entrepreneurial skills. Thus, the purpose of the research is to show where is Romania situated in Europe when it comes to the European funds' programs, to see what impact had the European funds to the development of Romania and, especially, to the South-West Oltenia Region and what the funding they obtained.*

**Key words:** project, European program, European funds, investments, signed contracts.

**J.E.L. classification:** F02, F20, F36

### 1. Introduction

Projects are an increasingly used solution for implementing many ideas, in-depth study of various fields of research, and the mechanisms for their implementation are more and more programs.

Projects are present in various forms and different areas of implementation, considering the project innovation and its unique character.

The concept of the project itself can be seen as “a scientific operation that leads to achieving a material goal by changing reality with the help of human actions that have been selected and ordered in advance, according to certain criteria” (Ciocoiu, 2014, p. 75).

The project can also be seen from another perspective, namely, a specific action, characterized by its uniqueness and the logical sequence of activities of which it is composed, coordinated, and controlled actions, which have an innovative character, being organized, methodical and progressive, being limited by time, resources and cost, having as finality complex results, necessary for the satisfaction of clearly defined objectives (Opran, 2013, p. 66).

### 2. Theoretical background

The project is successful when it leads to a much better result than expected, considering the objectives set, good coordination of human resources involved in the project, ensuring their security, favorable management of quality, and costs generated by project activities. (Urbanski et al., 2019, p. 26)

No matter how large a project would be to solve a complex problem, this is difficult to accomplish, perhaps even impossible, so a sustainable solution has been reached by grouping several projects into programs, which defines the program as a series of specific interrelated tasks (projects and additional activities), managed in a coordinated way, which allow the achievement of objectives within a comprehensive strategy (Grossu, 2016, p. 100). Creating a program that includes several projects with similar characteristics has allowed solving the same type of problems in several ways, thus leading to even more complex and complete results (Burlea-Schiopoiu et al., 2017).

Development programs consist of mutually exclusive projects (substitutable projects), projects involving the choice of one and the choice of another (contingent or interdependent projects), or independent projects (Easter, 2010, pp. 11-12)

Thus, clarifying the main elements of the project and the program, we reach Romania, which is among the countries with a high absorption rate in European funds, having numerous active projects in as many areas as possible, all with the help of funding programs.

### 3. Research methodology

At the European level, Romania is positioning itself quite well in terms of using European funds, which means that we have good specialists in the field of project writing, but also their implementation, these being essential elements in submitting and approving funding for a project (Burlea-Schiopoiu, 2011). Therefore, if a project is not well written from all points of view so that all its parts (field, activities, human resources, financial part) are well highlighted, it is not well implemented, it has no way to obtain financing, or if it does obtain it, it may reach the point where it must return the amount received (Burlea-Schiopoiu and Remme, 2017).

Thus, the situation of the funds allocated to Romania, in the period 2014-2020, by the European Commission is the following:

- By the end of January 2020, Romania absorbed 11.6 billion euros out of the 31 billion euros, having a rate of absorption of European funds of 38%, below the European average of 41%;
- At the level of Europe, Romania and Bulgaria have the same absorption rate of 38%, while the Hungarian neighbors have 43%, and at the regional level, Poland, 43%, and the Czech Republic, 40%, are above Romania in terms of attracting European funds.
- Romania had the most significant funding from European funds in the National Rural Development Program, approximately 4.8 billion euros, followed by the Large Infrastructure Operational Program, 2.7 billion euros, and the lowest funding was in the Operational Project Fisheries and Maritime Affairs, 52 million lei (Financial newspaper, <https://www.zf.ro/>).

### 4. Findings

#### 4.1. European funds at a national level

Romania has received much funding from the European Union. Even at county level, a classification can be made, depending on the data published by the Ministry of European Funds, regarding the financial year 2014-2020.

*Table no 1. The counties with the highest values of EU contracts*

County	Signed contracts	Value of EU funding (billion lei)	Total value of contracts (billion lei)
Ilfov	60	7	10,4
Bucharest	312	5	8,3
Constanta	236	4,3	6,2
Cluj	411	3,4	5
Dolj	233	2,7	4

Source: [www.mfe.gov.ro](http://www.mfe.gov.ro) and authors contributions

As seen in table 1, the county with the highest funding in Ilfov County, with a total value of contracts of 10.4 billion lei, out of 7 billion lei, is funding from the European Union. However, in terms of the number of contracts, although they seem few, compared to Cluj County, which has 411, Ilfov has very high-value contracts, especially projects within the Large Infrastructure Operational Program, where sums of about 6 billion lei for only five contracts are financing.

Thus, the other counties, even if they have a large number of contracts, respectively Bucharest - 312, Constanta - 236, Cluj - 411, Dolj - 233, the value of funding received is relatively low compared to that received by Ilfov County, both the value of funding received from the European Union, as well as the total value of the contracts signed.

Bucharest and Constanta have similar values in terms of the number of contracts (Bucharest - 312, Constanta – 236). The value of European Union funding and the total value of signed contracts is close, which means that they have invested values not very large in quite a few projects, counting more the number of projects completed than their value.

In Cluj and Dolj counties, if we look at the number of signed contracts, the situation is the opposite; Cluj County has many signed contracts (411), while Dolj County has almost half less (211), which would lead to the conclusion that Cluj County has carried out several projects. A conclusion that is so pertinent, towards the value of financing, the situation is different because where Cluj County, with 411 signed contracts, had a value of European Union financing of 3.4 billion lei and a total value of 5 billion lei, Dolj County, for 211 signed contracts, had at its disposal a value of European Union financing of 2.7 billion lei and a total value of signed contracts of 4 billion lei. Thus, here is an approximately opposite conclusion, in the sense that, although Cluj County has signed more contracts than Dolj County, it has invested much less in them, in total, while Dolj County, although it had a smaller number of contracts signed, preferred to invest much more in them, compared to Cluj County.

Therefore, according to table 1, Ilfov county leads are detached as the value assigned to signed contracts but are coded to the number of signed contracts. We consider that Cluj County should be in the last place in this category because it allocated a much lower amount of investment for many contracts.

However, all these values are billions of lei, which makes all five counties in table 1 deserve their place among the counties with the highest values of contracts financed by the European Union in the financial year 2014-2020.

*Table no 2. Countries with the lowest values of EU contracts*

County	Signed contracts	Value of EU funding (billion lei)	Total value of contracts (billion lei)
Teleorman	53	264	356
Braila	47	278	368
Covasna	56	300	409
Ialomita	51	370	470
Giurgiu	78	339	472

Source: www.mfe.gov.ro and authors contributions

In table 1, the situation is excellent, with many contracts, respectively five counties, with a total of 1252 signed contracts, with a total value of European Union funding of 22.4 billion lei and a total value of signed contracts of 33.9 billion lei.

Values of billions of lei, which leads the discussion to the opposite pole, the counties with the lowest values of contracts financed by the European Union, where we are talking about values of millions of lei, which, although according to table 2, seem high values, are small compared to table 1, where we talk about values in billions of lei.

This does not mean that things are not good here at all because we are talking about funded contracts, respectively, projects that have been allowed to implement, with funding established according to specific criteria, depending on the areas and programs in which they were applied (Burlea-Schiopoiu et al., 2014).

In table 2, the situation is not significantly different between counties because, as several contracts, they have similar quantities, but also the value of European Union funding and the total value of contracts, of course, with minor discrepancies. Indeed, it is not at all gratifying that for 53 contracts, you have such little funding.

The current funding situation in Romania is relatively tiny compared to other European countries, and several reasons could contribute to this, such as:

- a) Poor structuring and organization of the project by the project manager
- b) Non-involvement of the project team in the process of defining and elaborating the project plan
- c) Making a faulty and inadequate calendar of activities
- d) Non-involvement of the project team in solving the problems appeared within the project
- e) Poor communication, even poor communication with the project team, partners, and/or beneficiaries;
- f) Inadequate or unrealistic administration and systemic logic of the whole project
- g) Formulating the project objectives in an ambiguous, vague, or even erroneous manner by the project manager
- h) The monitoring and control of the project are done at a very poor quality (Tudoroiu, 2019, p. 32).

#### 4.2. European funds in the South-West Oltenia region

As it was observed, Romania is relatively good at absorbing European funds, having a rate of 38% at the European level, although it is below the average of 41%. Still, this value is better than not at all.

At the national level, the share by counties is relatively similar, especially in the counties with the lowest absorption rate of European funds. However, we continue, in more detail, reaching the South-West Oltenia region, where, at the national level, Dolj County is among the counties with the most signed contracts, being the only representative of this region.

We will detail the situation of the contracts signed for each county, and then we will make a comparative analysis between counties.

Table no 3. Breakdown of contracts signed in Dolj County

Program	No. financing contracts	Value EU (LEI)	Total value (LEI)
Large Infrastructure Operational Program (LIOP)	19	1.853.895.691	2.673.567.536
Regional Operational Program (ROP)	262	1.462.489.745	2.009.864.480
Human Capital Operational Program (HCOP)	73	406.924.771	482.419.196
Competitiveness Operational Program (COP)	25	158.359.270	215.652.631
Administrative Capacity Operational Program (ACOP)	10	11.809.743	13.961.956
Technical Assistance Operational Program (OPTA)	1	1.170.060	1.381.498
<b>TOTAL</b>	<b>390</b>	<b>3.894.649.280</b>	<b>5.396.847.298</b>

Source: www.mfe.gov.ro and authors contributions

Dolj County is among the counties with the most signed contracts - 390 but also with a total value of signed contracts - 5,396,847,298 lei. As shown by the table, the highest funding was for the Large Infrastructure Operational Program, where for the 19 signed contracts, a total value of 2,673,567,536 lei was reached.

In total, Dolj County, until March 2021, has 390 signed contracts. Considering the number of signed contracts, they would be for the Regional Operational Program. However, the most significant investment was made in the Large Infrastructure Operational Program, over 2 billion lei, even if there are fewer signed contracts, respectively 19.

Let us look at the number of contracts signed. Most are within the Regional Operational Program - 262, followed by the Human Capital Operational Program - 73, the Competitiveness Operational Program - 25, the Large Infrastructure Operational Program - 19, the Administrative Capacity Operational Program - 10, and Technical Assistance Operational Program - 1.

But if we take into account the total value of investments in these signed contracts, the situation is completely different, respectively we find the largest investment in the Large Infrastructure Operational Program - 2,673,567,536 lei, followed by the Regional Operational Program - 2,009,864,480 lei, Human Capital Operational Program - 482,419,196 lei, Competitiveness Operational Program - 215,652,631 lei, Administrative Capacity Operational Program - 13,961,956 lei and Technical Assistance Operational Program - 1,381,498 lei.

*Table no 4. Breakdown of contracts signed in Olt County*

<b>Program</b>	<b>No. financing contracts</b>	<b>Value EU (LEI)</b>	<b>Total value (LEI)</b>
Large Infrastructure Operational Program (LIOP)	5	957.666.700	1.411.098.869
Regional Operational Program (ROP)	166	562.803.168	794.015.463
Human Capital Operational Program (HCOP)	8	52.071.979	60.071.893
Competitiveness Operational Program (COP)	2	38.068.493	126.636.460
Administrative Capacity Operational Program (ACOP)	5	9.274.728	10.943.510
Technical Assistance Operational Program (OPTA)	0	0	0
<b>TOTAL</b>	<b>186</b>	<b>1.619.885.069</b>	<b>2.402.766.194</b>

*Source:* www.mfe.gov.ro and authors contributions

In Olt County, the situation is entirely different; we have a much smaller number of contracts to be signed - 186, in fact, and a lower value of investments in these contracts - 2,402,766,194 lei. As in Dolj County, the most significant investment was made in the Large Infrastructure Operational Program - 1,411,098,869 lei, for only 5 signed contracts, and, in antithesis, the smallest investment - 794,015,463 lei, for the most significant number of signed contracts - 166, is within the Regional Operational Program.

Therefore, most of the signed contracts are within the Regional Operational Program - 166, followed by the Human Capital Operational Program - 8, the Large Infrastructure Operational Program and the Administrative Capacity Operational Program with five contracts signed each, the Competitiveness Operational Program - 2, and for the Program Operational Technical Assistance no contract has been signed.

Regarding investments, the highest value of contracts was within the Large Infrastructure Operational Program - 1,411,098,869 lei, followed by the Regional Operational Program - 794,015,463 lei, the Competitiveness Operational Program - 126,636,460 lei, the Human Capital Operational Program - 60,071 .893 lei and the Operational Program Administrative Capacity - 10,943,510 lei.



Table no 5. Breakdown of contracts signed in Mehedinți County

Program	No. financing contracts	Value EU (LEI)	Total value (LEI)
Large Infrastructure Operational Program (LIOP)	7	225.307.454	320.388.759
Regional Operational Program (ROP)	77	619.234.259	853.536.451
Human Capital Operational Program (HCOP)	11	68.349.187	79.012.863
Competitiveness Operational Program (COP)	1	18.418.179	29.513.507
Administrative Capacity Operational Program (ACOP)	5	9.380.197	11.065.659
Technical Assistance Operational Program (OPTA)	0	0	0
<b>TOTAL</b>	<b>101</b>	<b>940.689.276</b>	<b>1.293.517.239</b>

Source: www.mfe.gov.ro and authors contributions

On the other hand, Mehedinți County is not very good at the number of signed contracts, having only 101, with a total investment of 1,293,517,239 lei, where the most significant investments were made in the Large Infrastructure Operational Program, respectively 320,388 .759 lei for a small number of projects, namely 7 signed contracts.

Thus, of the 101 contracts signed at the county level, most are signed within the Regional Operational Program, respectively 77, followed by the Human Capital Operational Program - 11, the Large Infrastructure Operational Program - 7, the Administrative Capacity Operational Program - 5, and Competitiveness Operational Program - 1.

Nevertheless, the total value of the signed contracts changes the previous order, in the sense that the most significant investments were within the Regional Operational Program, respectively 853,536,451, followed by the Large Infrastructure Operational Program - 320,388,759 lei, the Human Capital Operational Program - 79,012,863 lei, Operational Program Competitiveness - 29,513,507 lei and Operational Program Administrative Capacity - 11,065,659 lei.

The Technical Assistance Operational Program did not benefit, even in Mehedinți County, from financing because no contracts were signed within this program.

Table no 6. Breakdown of contracts signed in Gorj County

Program	No. financing contracts	Value EU (LEI)	Total value (LEI)
Large Infrastructure Operational Program (LIOP)	12	993.159.176	1.432.590.663
Regional Operational Program (ROP)	107	638.612.765	849.213.098
Human Capital Operational Program (HCOP)	14	52.096.377	60.052.149
Competitiveness Operational Program (COP)	3	19.956.228	33.217.884
Administrative Capacity Operational Program (ACOP)	8	10.541.086	12.531.226
Technical Assistance Operational Program (OPTA)	0	0	0
<b>TOTAL</b>	<b>144</b>	<b>1.714.365.633</b>	<b>2.387.605.019</b>

Source: www.mfe.gov.ro and authors contributions

Gorj County, until March 31, 2021, for the financial year, had several 144 signed contracts, with a total value of 2,387,605,019 lei, where the most significant investments are also within the Large Infrastructure Operational Program, respectively 1,432,590,663 lei, compared to the small number of signed contracts - 12.

A large number of signed contracts were within the Regional Operational Program, respectively 107, followed by the Human Capital Operational Program - 14, the Large Infrastructure Operational Program - 12, the Administrative Capacity Operational Program - 8, and the Competitiveness Operational Program - 3.

The total value of their contracts differs, compared to the number of contracts signed for each program, in the sense that the most significant investments are in the Large Infrastructure Operational Program, respectively 1,432,590,663 lei, followed by the Regional Operational Program - 849,213,098 lei, The Human Capital Operational Program - 60,052,149 lei, the Competitiveness Operational Program - 33,217,884 lei and the Administrative Capacity Operational Program - 12,531,226 lei.

Like the previous counties, Gorj County had no contracts signed within the Technical Assistance Operational Program, so no funding was granted.

*Table no 7. Breakdown of contracts signed in Valcea County*

<b>Program</b>	<b>No financing contracts</b>	<b>Value EU (LEI)</b>	<b>Total value (LEI)</b>
Large Infrastructure Operational Program (LIOP)	10	267.410.292	390.176.866
Regional Operational Program (ROP)	195	899.408.889	1.275.141.280
Human Capital Operational Program (HCOP)	11	81.289.328	94.215.989
Competitiveness Operational Program (COP)	3	100.729.241	119.069.474
Administrative Capacity Operational Program (ACOP)	7	14.692.421	17.313.244
Technical Assistance Operational Program (OPTA)	0	0	0
<b>TOTAL</b>	<b>226</b>	<b>1.363.530.171</b>	<b>1.895.916.853</b>

*Source:* www.mfe.gov.ro and authors contributions

Valcea County signed several 226 contracts, with a total value of 1,895,916,853 lei.

Thus, the number of contracts signed differs from the value of investments.

Within the Regional Operational Program, most contracts were signed, respectively 195, followed by the Human Capital Operational Program - 11, the Large Infrastructure Operational Program - 10, the Administrative Capacity Operational Program - 7, the Competitiveness Operational Program - 3, and the Assistance Operational Program Technique - 0.

Regarding the total value of the signed contracts, the situation is slightly different respectively the most investments were made within the Regional Operational Program - 1,275,141,280 lei, followed by the Large Infrastructure Operational Program - 390,176,866 lei, the Competitiveness Operational Program - 119,069,474 lei, Operational Program Human Capital - 94,215,989 lei, Operational Program Administrative Capacity - 17,313,244 lei, and no investments were made within the Technical Assistance Operational Program.

Table no 8. The centralized situation of projects in South-West Oltenia Region

County	Total numbers of contracts	LIOP	ROP	HCOP	COP	ACOP	OPTA	Total value (lei)
Dolj	390	19	262	63	25	10	1	5.396.847.298
Olt	186	5	166	8	2	5	0	2.402.766.194
Mehedinți	101	7	77	11	1	5	0	1.293.517.239
Gorj	144	12	107	14	3	8	0	2.387.605.019
Valcea	226	10	195	11	3	7	0	1.895.916.853
<b>Total</b>	<b>1047</b>	<b>53</b>	<b>807</b>	<b>107</b>	<b>34</b>	<b>35</b>	<b>1</b>	<b>13.376.652.603</b>

Source: www.mfe.gov.ro and authors' contributions

Therefore, we highlighted the situation of the projects for each county. Now we will compare all the counties to see how the situation of these projects is, centrally, at the level of the Oltenia region.

Dolj County, we established from the beginning that it is, at the national level, among the counties with the most significant investments in projects, as it appears from our situation, but we will explain all aspects comparatively.

In total, the South-West Oltenia Region, during the financial year 2014-2020, signed 1047 contracts, where in Dolj County were the most, respectively 390, followed by Valcea County - 226, Olt County - 186, Gorj County - 144, and Mehedinți County - 101.

The financing programs did not have similar numbers of signed contracts at all, in the sense that most contracts were signed within the Regional Operational Program, respectively 807, followed by the Human Capital Operational Program - 107, Large Infrastructure Operational Program - 53, Operational Program Administrative Capacity - 35, Operational Program Competitiveness - 34 and Operational Program Technical Assistance - 1.

If we still get to the financing part, at the regional level, the most were invested in the Large Infrastructure Operational Program, respectively 6,227,822,693 lei, for a relatively small number of signed contracts - 53, and the least was invested in Technical Assistance Operational Program, respectively 1,381,498 lei, for only one signed contract.

The total value of the 1047 contracts signed at the regional level is 13,376,652,603 lei, of which half the value is given by the investments within the Large Infrastructure Operational Program. Thus, the largest investments in the signed contracts are in Dolj county, respectively 5,396,847,298 lei, followed by Olt county - 2,402,766,194 lei, Gorj county - 2,387,605,019 lei, Valcea county - 1,895,916,853 lei and Mehedinți county - 1,293,517,239 lei, which had the smallest investments, until March 31, 2021, for the financial year 2014-2020.

## 5. Conclusions

The idea of a project represents the most valuable and used solution for implementing and conducting research in a particular field, which can lead to funds from specific programs because programs provide the financial support and mechanisms needed to carry out a project in the best conditions.

European funds are the largest sources of funding but also the most commonly used to support projects in Romania, and those funds come, especially from the Operational Programs such as the Large Infrastructure Operational Program (LIOP), Regional Operational Program (ROP), Human Capital Operational Program (HCOP), Competitiveness Operational Program (COP), Administrative Capacity Operational Program (ACOP), Technical Assistance Operational Program (OPTA).

Although Romania is not ranked among the first countries to attract the European funds, the percentage is started to grow because there are a lot of new specialists applying for the funds needed to implement a project. This area of specialists is found in the Southwest Oltenia region, and we can see that in the growing number and value of projects signed and implemented through European funding programs.

Romanian researchers have implemented many projects because they want to improve the quality of life through constant research of new, better ideas, which can be seen through so many projects implemented. The counties with the highest values of EU contracts are Ilfov, Bucharest, Constanta, Cluj, and Dolj.

The Southwest region of Romania, Oltenia, has a lot of projects implemented through its counties Dolj, Olt, Mehedinti, Gorj, and Valcea, and they sum up a total of 1047 contracts with a value of approximately 14 billion lei.

Slowly but progressively and with a lot of work, Romania is climbing the ladder of the future regarding research and the innovative solutions resulting from the successful projects implemented.

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# Difficulties and Opportunities in Online Promoting and Selling Agri-Food Products

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## Abstract

*The emergence of technological innovations in marketing are key factors of competitive advantage within companies in the agri-food sector. Internet within the global economic panorama, including in the agri-food environment, requires the raising of promotion standards over traditional marketing models. Caught up in this difficult situation, agri-food companies need to focus on them, mainly as an information provider. They need to be aware that they are dealing with a completely new customer who is an active part of the marketing process. As a scope, the objective of the paper is to analyse the contribution of innovations in marketing to the agri-food sector. Specifically, our paper is based on a review of a database of over 300 articles, collected from marketing and business magazines, covering a period of over 20 years.*

**Key words:** agri-marketing, online, promoted, difficulties, opportunities

**J.E.L. classification:** Q13, Q17, Q21

## 1. Introduction

Based on a classic interpretation, Deepak & Jieyakumar states in 2019 that marketing is defined as “a complex of activities of an agri-food company ranging from the creation of a product or service to their use by the buyer.”

Although this definition is comprehensive, it is difficult to define unilaterally and definitively the concept of marketing, due to the constant and permanent evolution of consumer needs and customer preferences. According to Chandra, 2019, it is difficult to identify a single definition that is closely linked to the evolution of the reference context of the agri-food market. Here the company and the technologies used by it work through continuous adaptability to the requirements and needs of the market.

Due to the practical difficulties encountered in trying to fully reveal the concept and role of marketing, it is still possible to develop an evolution of marketing as a discipline. This captures progressive development from a classical to a modern paradigm.

## 2. Literature review

A significant difference between classical and modern theory is that the former is based solely on the model of stimulating the innovation market. It provides for the placing on the market only of products whose need has been clearly expressed by customers, according to Henson, 1995; Lineemann et al., 2006; Macfie, 2007. The latter also include the technological impetus for innovation. By placing on the market products and services that surprise customers either because they cannot express the need or because they do not. Imagine that they can be easily made according to Galati et al., 2016.

This strategy, although it poses obvious risks related to the lack of acceptance by the market characterises the current phenomena of rupture through the past. This happens frequently and with resounding results in terms of profitability for businesses. This success, of real value, is passed on to customers and the entire social structure, based on the increasing spread of digitalisation and its use. In particular, from the development of the World Wide Web on the Internet base of the early 1990s. Since then, an increasing number of companies have felt the need to use WWW as a new marketing channel (Jalilvand et al., 2011).

The progressive and unceasing affirmation of the Internet in the global economic panorama requires breaking from the traditional. Marketing models; the same marketing techniques that use the Web will therefore be very different from those applied to traditional Media (Sparkes & Thomas, 2001).

The Internet itself is just one of the digital media available today, along with emails and social networks. With their help, everyone can connect anytime, anywhere, thanks to a large number of devices. The internet and digital systems are gradually integrated with physical systems, which are traditionally closer to consumers. One case in this context is mobile payment.

Indeed, recently, China is constantly promoting a cashless company by introducing payments using QR codes into consumers' daily habits. According to a survey, 92 % of people in China's largest cities use WeChat Pay or Alipay as their primary means of payment. The rural population, about 47 %, also uses mobile payments very regularly. In 2018, about 83 % of all payments were made through mobile payment modules. This mode of payment recorded a 10 % increase in 2019. Two main factors that can be identified at the root of success are, first, the fact that the Chinese market is a mobile-first one. This highlights that the first device of most internet users is a mobile phone.

Second, credit card usage was low when Allipay and WeChat Pay mobile options were introduced for the first time.

For some time, there has been a widespread view that the Internet would cannibalise and replace all traditional business methods. In many cases, the internet integrates rather than cannibalise traditional business activities and modes of competition. Virtual activities do not completely eliminate the need to perform physical activities, but rather tend to amplify their cruciality. The Internet also creates new opportunities to meet customers' needs more effectively (Constantinides & Fountain, 2008). The revolution was not only technological, but also cultural. In the last decades of the last century, people have felt the need for different ways to express themselves and to relate. Digital systems intercepted this need and provided the technology to meet it (Bruhn, 2008).

One of the most radical changes is that information exchange is becoming more and more decisive on the market, even more than the exchange of goods (e.g. Bruhn & Mason, 2002; Corporal & Monteleone, 2004). There are about 3.77 billion Internet users in the world and nearly 2 billion people working on various social networks and messaging apps. Thanks to computers, tablets and smartphones, all these people are able to connect to the network anytime and anywhere to get and deliver information, interact and exchange goods, services and opinions in a much faster, cheaper and more conscious way than before (Calantone & Vickery, 2010).

Consumers are less and less the weakest part of the exchange, due to the huge amount of information they can easily access at low cost. This raises awareness of the relative value of different offers (e.g. Gunes & Tekin, 2006). They expect to be able to choose from a wide range of more personalised products and services, comparing prices from different manufacturers and exchanging views with other consumers around the world. Consumers can access an increasing amount of information with reduced time and costs, and transaction costs are reduced. The limited traditional rationality of the consumer gradually leaves room for greater awareness. Digital systems have changed consumers' purchasing behaviour by providing them with more accurate and real-time information on prices, product availability, variants, methods and delivery times (e.g. Bruhn, 2007; Grankvist & Biel, 2001).

The context in which agri-food companies operate has been characterised in recent decades by changes and innovations that have inevitably changed the way they operate (Caiazza & Volpe, 2012). Factors such as globalisation (Sterns & Peterson, 2001), innovation (Avermaete et al., 2004; Caiazza, 2015; Caiazza et al., 2014; Stewart-Knox & Mitchell, 2003), internationalisation (Ayoç & Remaud, 2003; Bertolini & Giovannetti, 2006; Pritchard & Rama, 2005, pp. 219-252;

Testa, 2011), competitiveness (Caiazza & Volpe, 2013, 2014; Sahay et al., 2006), technology (Mohezar & cloud, 2014), preferences of new consumers (Jandt, 2006; Khan et al., 2013; Ronteltap et al., 2007) as well as trends in food science and technology.

As well as the requirements of the other actors in the supply chain (Kireziova et al., 2013; Leat et al., 1998; Vermeiren et al., 1999), are just a few examples of factors that have changed the way they are and work in the agri-food sector.

The agri-food company, in this new context, must think of itself first, mainly as an information provider and must be aware that it is facing a new type of customer, which is becoming an active element of the marketing process.

Research has highlighted how simple it is to measure the influence of the characteristics of any product on the consumer's perception, on the product itself, which in turn affects his decision to use (Booth, 2014), as well as his willingness to pay (Sillani & Nassivera, 2015). Therefore, it is the information, content and services offered by the site that attracts the consumer to the agri-food company. On the other hand, it is the internet user who decides which sites to visit based on the content they are interested in and how and when to use the information (e.g. Huotilainen & Tuorila, 2005; Olsen et al., 2010). Therefore, the characteristics of the environment require a complete reversal of the marketing approach that is no longer selective push but attractive pull.

Doing web marketing means first and foremost placing the consumer in the spotlight before, during and after the buying process; establish a dialogue as sincere and loyal as possible, in which sale is not the primary objective but the natural consequence of the established relationship; abandoning a quantitative logic in favour of a qualitative dimension. The path from a sales-centered to a consumer-centered business model requires a significant change in corporate culture (Sheth et al., 2000).

As a result of these changes, the new food development process also needs to be changed. As highlighted in literature, in order to succeed in an increasingly competitive context, agri-food companies need to develop new product success values vis-à-vis consumers (Jacobsen et al., 2014). At the beginning of the new product development process there are customer needs, which are understood by the agri-food company through market analysis. The information derived from it gives impetus to the conception and production of products or services that meet the identified needs.

The agri-food company sets a price, promotes a product or service by informing its customers about its characteristics and distributes them on the market. In a modern perspective, however, marketing goes beyond the limits of the agri-food company and monetary exchange and extends its range of actions to other topics (Saguy & Srotinskaya, 2014; Stanton & Burkink, 2008).

Another topic of our research, which saw increased attention in the new decade, is related to the concept of the brand, which in fact will link a double thread to that of consumer trust and loyalty: almost a quarter of the articles under our analysis revolve around this concept.

The software used for the clustering process returned 4 groups of articles for analysis, which are summarised under the label, keywords and number of component elements.

The first cluster is the largest of the four clusters: In fact, there are 138 articles that refer to the Web Analytics tag. This concept refers to the detection and tracking of user behaviour by software, for statistical and strategic purposes, and can generally be defined as "the assessment of a variety of data, including web traffic, web-based transactions, web server performance, usability studies, user-submitted information and related sources to help created a generalised understanding of the online visitor experience" (Pakkala et al., 2012).

The usefulness of this process is based on the belief that in predicting consumer behaviour, it is reasonable to assume a stable link between "offline" attitudes and online activity, and that today an increasing number of consumers rely on online content when they want to have accurate information about a particular brand.

It is also an analysis that allows overcoming a quick and superficial approach, for example, in the study of brand sentiment, allowing for deepening the standard classification of positive, negative and neutral user judgement. This simple scale is not able to provide more accurate information about the polarity of positive or negative attitudes towards a brand or even about the reasons for such approaches (e.g., De Veirman et al., 2017; Ferreira & Barbosa, 2017; Sohn et al., 2017).

Focusing only on the number of positive and negative assessments, a brand manager is unable to determine which characteristics of the brand lead to a particular type of assessment, hence the need for tools, which are exactly those of Web Analytics, which allow justification and well-founded reasons for feeling (Mazlounian et al., 2013; Pakkala et al., 2012).

The second group, which includes 55 articles, received the Web 2.0 tag. This term means a second generation of websites, including community portals, wikis, communication sites focusing on cooperation and mutual exchange of ideas and values (e.g. Fauser et al., 2011; Kim & Park, 2017).

Singel (2005) defines the difference between the two types of virtual environment as follows: Web 1.0 was commerce. Web 2.0 is people.

The key concepts of evolution brought about by Web 2.0 are: • the site as a sharing platform, • active participation of users, • self-improvement of service due to contributions users, • focus on content, • continuous beta users become part of the quality assessment process and their contribution is the basis for future marketing developments, • develop a rich user experience.

Within the cluster, the Web 2.0 topic is addressed from 3 different perspectives, namely: Information, technology and community. If the creation and collection of information is still central, as in the “pre Web 2.0” era, it is the concept of community that has taken on entirely new importance (e.g., Clark et al., 2017): the main change is the ability to create content, which has allowed us to overcome the clear distinction between the roles of the editor and the reader.

The third group includes articles focusing on the concept of Customer Relationship Management CRM and its evolution over time (e.g., McIntosh et al., 2010; Mohamad et al., 2014), CRM is a strategic approach to marketing supported by marketing relationship theory Morgan & Hunt, 1994, a comprehensive process and strategy that allows an organisation to identify, acquire and cultivate a profitable customer base by building long-term relationships with it. As we pointed out at the beginning, the world of web marketing has as a priority an innovative management and different from the traditional channels of communication of the relationship with the client, and the importance of CRM must be read in this respect. The acronym CRM is also used in practice to define that category of software consisting of applications that help agri-food companies manage, analyse and optimise customer relationships.

Articles dedicated to this topic are mostly focused on new CRM technologies, applied to social media, which, by their nature, facilitate relationships with the consumer: Here is the key concept of customer engagement missing in previous CRM models. A correct implementation of CRM models has a positive impact on the performance of consumer relations, understood as the satisfaction and loyalty of consumers to an organisation: elements that lead to greater competitiveness and more efficient services and support to the customer. It is a key concept both in business to business logic in relations with companies and in the case of business-to-consumer. Among the 48 articles, some offer examples of CRM applications in the food industry. Noteworthy is the future-oriented example of CRM adopted by the Swiss company Nestlé (Rezaeegiglo et al., 2014).

The company, starting from the belief that health problems are becoming an increasingly important problem, has begun to produce healthy foods and beverages in Japan as a “customised nutrition” provided through the company’s own online platform “Nestlé Wellness Ambassadors”. With the help of CRM and its online platform, the company collects valuable data about the digital health of its users. They, in turn, get their DNA tested there and a home test kit, along with a personalised nutritional analysis of all meals made using artificial intelligence. In this way, the company provides individual guidance for healthy nutrition and a healthy lifestyle.

The last cluster focuses on the concept of brand value or brand capital, one of the fundamental intangible resources for an agri-food company (e.g., Iaia et al., 2017; Sturiale et al., 2017). The idea of increasing brand value is inherent in the concept of marketing and advertising, even in its original sense and therefore with traditional communication channels (Kerin & Sethuraman, 1998; Paasovaara et al., 2012).

The radical transformation of the media world over the past decade has seen the birth of social media and blogs that have gradually become established on the net: the cluster articles we analyse focus on the role these new communication channels play in creating brand value and on differences and relationships with traditional channels. In addition, in the world of social networks, the content created by the company and generated by users coexists (Aspasia & Ourania, 2015).



Now, the impact of the global exchange of information between consumers on social platforms can no longer be neglected and should therefore be rethought in a logic that no longer considers marketing communication as the exclusive prerogative of the agri-food company, but the fact that, on the contrary, to create and improve the value of a brand must necessarily take both contributions into account.

### **3. Research methodology**

In the research, 329 articles were examined. First, data on publication trends were analysed in the analysed period 1997-2020.

After the first analysis, we focused on the space where these articles were published. Finally, we focused on keyword analysis, key concepts and main topics that were indicated by the author.

Of the 329 articles examined, 203 articles have been published since 2014, accounting for about 61.67 % of the total. If we consider a timeframe up to 2012, the items under examination are 254, or 77.34 %. And if we expand by 2005 we reach 300 articles 91.05 %. This proves that the subject has developed in the last decade mainly due to the existing technological advance. Also, during this time, the attention of publications in specialised journals increased. In general, the attention to web-marketing is a directive of the new millennium, the proof being only 3 articles from our research that were published by the year 2000, 0.77 %. The volume of articles published annually has been significantly increasing since 2010. If we tried to simulate a total number of items based on possession data, we would reach the result of an increase of about 10 % compared to 2017.

The evolution of publications shows what we pointed out at the beginning of the analysis: the number of publications increased considerably in the new decade.

Of the 329 articles analysed, 82, about 25 %, belong to the magazines dealing with marketing in its most varied forms. The specialised articles that have found their space in specialised online magazines and publications account for 39 or 12 % of the total, a number less than the one previously found, but still significant of the total.

The journal with the most publications on the subject was found the Journal of Research in Interactive Marketing, with 33 articles 4.6 % of the total, followed by the Journal of Business Research, with 13 articles 1.8 % of the total, and Journal of direct, data and digital marketing practical with 7 articles 1 % .

### **4. Findings**

Based on the results of our analysis, four main pillars of web marketing in the agri-food industry can be identified. The first pillar is to track user behavior through software for statistical and strategic purposes. In predicting consumer behaviour, it is reasonable to assume a stable link between offline attitudes and online activity. Consumers of agri-food products are increasingly expressing their demands for attention and personalised services (e.g., Cardello et al., 2007; Cast iron et al., 2008; Frewer et al., 1997; Frewer et al., 2003; Grunert et al., 2003), companies use web marketing to provide memorable, satisfying and relevant experiences for consumers.

Optimising consumer experiences through web marketing is a way for agri-food companies to use this treasure of consumer information and interact with consumers in new ways. Specifically, they may use consumer information to continuously model their brand. In fact, future companies will use the information to encourage their consumers to contribute and stimulate brand evolution. Customer information needs to expand its brand relevance. As part of their efforts to optimise consumer experiences, agri-food companies will have the opportunity to expand their offerings beyond the scope of products to include services. To this end, the second pillar has also become important, focusing on a new virtual environment based on the second generation of websites, including community portals, wikis, communication sites focusing on cooperation and mutual exchange of ideas and values.

The third pillar includes Customer Relationship Management CRM, which is a strategic approach to marketing supported by the theory of marketing relationships. This is a comprehensive process and strategy that allows an organisation to identify, acquire and cultivate a profitable customer base by building long-term relationships with it.

Agri-food companies must further promote consumer experiences in order to achieve consumer privacy. This means engaging with consumers in new ways to shape your experiences on every occasion.

In fact, leaders will help consumers become active participants in creating the privacy that underpins loyalty and trust. Consumer experiences and consumer privacy will be the winning formula for marketing companies in the new.

## 5. Conclusions

Currently, advertising technologies, marketing technologies, e-commerce platforms, CRM systems, and sales and service applications operate in isolation. They will need to be integrated and then orchestrated to provide the most comprehensive vision of the consumer. In addition, the complexity and volume of customer contact points, along with the proliferation of marketing technologies, will require agri-food companies to collaborate with IT to create and manage brand value. This leads to better alignment between marketing and IT operations. Collaboration with IT will become increasingly important as agri-food companies rely more on consumer data to strengthen consumer experiences and consumer privacy. The value of future analysis will be its ability to help marketers predict consumer behaviour and create more accurate forecasts. Efficient data ownership and management is essential for consumer knowledge. These considerations lead to the need to improve web marketing strategies in providing, in particular, better communication and accurate information to consumers. The progressive establishment of these trends will not lead to the disappearance of traditional marketing, but it will necessarily have to be complemented by new strategies aimed at building customer relationships. Each business function and process must be closer to the consumer and be defined according to how they add value to the relationship. Practitioners and academics investigating these topics should take into account the different behaviour of consumers. Indeed, their behaviour varied by country, region, age and other factors. This implies the need for better research, as there remains a lack of in-depth analysis and comprehensive statistics in this regard.

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## Changes and Trends in Consumers` Behaviour and Online Purchasing: a Post-COVID-19 Analysis

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### Abstract

*This paper examines changes in consumer behavior in the post-pandemic era, as reflected in e-commerce statistics, with the aim of predicting future trends that will help companies manage their online businesses.*

*The dramatic impact that the global SARS-CoV-2 pandemic, which brought restrictions in terms of social distancing, affected people in many aspects of their lives (social, psychological and economical). In terms of consumer buying habits, adapting to a new environment created by the sanitary crisis (meaning that people had to get accustomed with online shopping) and the influence of other factors such as the unstable economic environment, the instability of the labor market, the increase in unemployment, etc., caused major shifts in consumer behaviour, forcing many companies to reconsider and reorganize their business strategies accordingly. This paper examines the changes in consumer behavior in a post-pandemic era, reflected by e-commerce statistics, with the purpose of anticipating future trends which will help companies manage their business in the online environment.*

**Key words:** consumer behaviour, e-commerce, online purchasing

**J.E.L. classification:** M30

### 1. Introduction

In recent years, tradesmen have improved their expertise in e-commerce, following the COVID-19 pandemic, which was crucial for some sectors to function properly. Changes were reflected in recent statistics that indicate the growth of the European e-commerce at up to €718 billion, an increase of 13% since 2020

([https://ecommerceeurope.eu/wpcontent/uploads/2022/06/CMI2022\\_FullVersion\\_LIGHT\\_v2.pdf](https://ecommerceeurope.eu/wpcontent/uploads/2022/06/CMI2022_FullVersion_LIGHT_v2.pdf))

The world as we know it has been drastically altered by the COVID-19 pandemic. The way people live today is different, as have their buying habits and opinions on the consumption of various categories. Concerns about their health and finances have taught them to adjust and prioritize purchases, and current research indicates that these newly acquired habits will endure after the crisis. Large global enterprises as well as small firms will be impacted by all of these changes. As a result, the SARS-CoV-2 health emergency changed the sector in real time and accelerated some trends (for example, the rise of e-commerce due to the inability or limitation of purchasing options in traditional and mandatory stores). rules) and introduce fresh marketing and management difficulties (Zaif et al., 2020).

Even if it appears that we are finally leaving the pandemic behind after more than two years, Europe has just sadly turned into a key battleground.

The conflict in Ukraine and its horrific effects on the Ukrainian people exposed the frailty of the continent's peace, but they also showed how eager Europeans are to assist one another in difficult circumstances. Although the protection of the Ukrainian people is a major priority, the war's impacts may be seen all around Europe. Although it is now difficult to foresee its long-term effects, the war

in Ukraine has already had a significant effect on European and international markets. Energy and inflation costs have dramatically increased due to the conflict, reducing consumer purchasing power.

## 2. Theoretical background

### 2.1. Consumer behaviour

Consumer behaviour is nothing more than an economic manifestation of human behaviour in general; by studying it we can identify the variables that determine people's consumption patterns, which can be social, psychological, economic and so on, starting from the moment of the purchase decision, continuing with the frequency of consumption of goods and services and its fluctuations. Myers and Reynolds (1967) define consumer behaviour as the totality of acts, attitudes and decisions of an individual in relation to the use of his/her income for the purchase of goods and services, i.e. for saving. Consumer behavior is described as "the totality of decision-making acts performed at the individual or group level, directly related to the acquisition and use of goods and services, in order to satisfy current and future needs, including the decision-making processes that precede and determine these acts" (Căţoiu and Teodorescu, 2004).

Consumer behavior is the study of how people choose, pay for, use, and then discard products, services, ideas, or experiences to fulfill their needs and desires (Kotler and Keller, 2012).

### 2.2. E-commerce

E-commerce is an innovative business method that addresses the needs of organisations, merchants and customers to build (or strengthen) capitalised brand value using digital (or internet-based) media. Today, e-commerce is conducted through a number of specific channels, including websites, online stores, social media, apps, etc. There are a number of advantages offered by an e-commerce company that we can list:

Table no. 1 The advantages of e-commerce

<b><i>Accessing markets globally</i></b>	This can give small companies the opportunity to compete with big brands and position themselves in international markets;
<b><i>Increase brand visibility</i></b>	By implementing online promotion strategies, advertising messages will reach much larger audiences and the brand will get much better exposure; thus, there is a possibility to increase brand awareness.
<b><i>Reduced costs to attract, serve and retain consumers</i></b>	New technologies offer creative and interactive possibilities for communicating with customers, which, apart from the advantage that they are considered more efficient and faster, cost much less than traditional means of communication, and are not perceived as aggressive approach techniques by consumers;
<b><i>Increased order processing capacity</i></b>	Companies can process and manage order processing without being constrained by time limits;
<b><i>Fast delivery of goods and services</i></b>	Once the products have been placed in the virtual shopping cart and the order has been completed, they will arrive at the customer's door shortly;
<b><i>Business expansion opportunities</i></b>	Every modern company today is part of the so-called 'connected economy', which gives them the opportunity to call on resources outside the company to streamline their work ( <i>outputs</i> );
<b><i>Cutting out the middlemen</i></b>	With the Internet, brands can approach potential and current customers, partners or suppliers directly, eliminating a number of steps, processes and costs;
<b><i>Improving customer service</i></b>	This translates into increased consumer satisfaction and therefore increased sales;
<b><i>Integrated communication</i></b>	A brand that takes a <i>multi-channel</i> approach (uses multiple types of communication channels) will increase its chances of sales growth by offering customers both types of experiences (traditional and digital);

<b><i>Transparency</i></b>	Online, consumers can control their exposure to brand advertising messages and can more easily decide whether to purchase a product or service based on their evaluation of other people's reviews or actual photos of products posted on social media, for example;
<b><i>Maintain or strengthen relationships with partners or suppliers in an easier way</i></b>	As with customers, constant online interaction facilitates communication with company employees; entrepreneurs can use resources such as email to send them various messages, whether informational, communications or personal messages such as birthday greetings (e-cards), congratulations on important events or other examples, giving them the opportunity to maintain or improve their professional relationships.
<b><i>Knowing consumer behaviour</i></b>	Companies can observe and monitor consumer behaviour online by using analytics tools or by turning to specialist firms that can provide them with information on the number of people accessing their website, measure interactions and activities on social networks, search engines, etc.; using this data, companies can segment their target audience more effectively;
<b><i>Building networks and communities</i></b>	Online communication enables the formation of networks and brand communities resulting from user-generated content (feedback, reviews, shares, electronic WOM); communities generally consist of loyal consumers, which will generate positive WOM and can attract new customers, and the brand community will grow. Communities and networks create a sense of belonging among consumers;
<b><i>Adaptability to market requirements</i></b>	The dynamic business environment created by rapid technological advancement has given rise to new marketing techniques that have been taken up by most companies in almost every industry, creating a highly competitive environment; thus, companies have developed the ability to adapt to these new challenges and to align their marketing strategies with the new technologies;
<b><i>Process automation</i></b>	From purchasing or buying raw materials, to production, stock keeping, distribution and logistics, sales and marketing, after-sales service, invoicing, debt collection, etc.;
<b><i>Reducing employee-related costs and training</i></b>	Automating processes means reducing the number of employees performing these tasks and reducing salary costs.

Source: (Zaif, 2021)

### 3. Research methodology

The approach with which this research was carried out on the basis of statistical reports drawn up by reputable companies at an international (Eurostat) and national level, companies that are part of the community of retailers and online store operators, which centralize data and publish the Romanian online trade reports annually.

The variables taken into account concerned the number of Internet users, the frequency of purchases from the online environment, the means of purchase on different devices, problems encountered in the online purchase process, the motivation of consumers to shop online or not, the categories of products most frequently purchased online, etc.

Further, we will present figures, statistics and future estimates to form an overview of how consumer behavior has changed during the pandemic and what are the trends anticipated by specialists in the field. The main source of this study is an article written on GpeC, the organiser of the most important e-commerce events, conferences and workshops in Romania and Central and Eastern Europe and the largest local community of online shops (<https://www.gpec.ro/blog/raport-gpec-e-commerce-romania-2021-cumparaturi-online-de-62-miliarde-de-euro-in-crestere-cu-10-fata-de-2020>).

### 4. Findings

The Romanian e-commerce sector is expected to reach the milestone of 6.2 billion euros by the end of 2021, about 10% more than in 2020, when the value of online trade was estimated at 5.6 billion euros, according to estimates by ARMO(<https://www.arro.org.ro>), GpeC, and the major



players in the market. The rise fell short of earlier projections, which called for a 15 percentage point increase and €6.5 billion in online sales by year's end. The fact that most manufacturers who were hit by the pandemic globally had low stock levels and challenges in the supply chain as a result is one of the factors contributing to the slower growth than was previously anticipated.

According to The Economist's estimate, the increase in energy costs at the end of 2021 had a negative effect on the durables market as well. A 10% increase in energy prices corresponds to a 4.7% reduction in the durables market.

Last but not least, it is important to keep in mind that the Romanian e-commerce market has started to consolidate; this process was supposed to start in 2020 but was delayed by the pandemic due to the faster growth of online orders (a 30% increase was seen in 2020 compared to 2019). A similar consolidation and slow development period is projected until 2022.

The €6.2 billion estimate for the Romanian e-commerce sector in 2021 covers all transactions made in Romania with both domestic and foreign online retailers, and it only includes the e-tail segment, or physical (tangible) goods that have been purchased online. Services, utility bill payments, digital content, air travel, vacations, travel, hotel reservations, and tickets to various events are not included in this amount.

#### 4.1 Romania in the European context: internet users and online shoppers

According to the most recent Eurostat report, which was released in January 2022 ([https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=Ecommerce\\_statistics\\_for\\_individuals#General\\_overview](https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=Ecommerce_statistics_for_individuals#General_overview)), 44% of internet users made at least one online purchase in 2021, which is 1% less than in 2020, but overall, the number of online shoppers has increased given the growth of online shopping. With 42% of all internet users shopping online, Romania is the only EU nation behind Bulgaria.

If we include the entire population of Romania in the 16–74 age bracket (not just internet users), 38% of people made online purchases in 2021, up dramatically from 23% in 2019 (before to the pandemic), illustrating the effect of the health crisis on the sector's fast expansion. Romania remains at the bottom of the list, nevertheless, when compared to the average for Europe, where 66% of people (aged 16 to 74) made online purchases in 2021. This indicates that Romania's e-commerce market has a lot of room to develop in the years to come. In 2021, the highest percentages of internet shoppers were found in Norway (92%), Denmark (91%), the Netherlands (89%), Sweden, Ireland (87%), and Iceland (85%).

Figure no. 1 Internet use and online purchases in Europe in 2021

	Proportion of individuals who:	
	Used internet within the last 12 months	Purchased online within the last 12 months
EU (*)	90	66
Belgium	94	76
Bulgaria	78	33
Czechia	90	75
Denmark	99	91
Germany	92	76
Estonia	92	70
Ireland	99	87
Greece	79	54
Spain	94	67
France	93	76
Croatia	82	57
Italy (*)	81	44
Cyprus	91	54
Latvia	92	62
Lithuania	88	60
Luxembourg	99	81
Hungary	89	66
Malta	88	65
Netherlands	95	89
Austria	93	63
Poland	87	61
Portugal	83	52
Romania	88	38
Slovenia	90	72
Slovakia	90	75
Finland	97	79
Sweden	97	87
Iceland	100	85
Norway	100	92
Switzerland	98	83
Montenegro	83	26
North Macedonia (*)	84	34
Serbia	84	45
Turkey	82	40
Bosnia and Herzegovina	77	30
Kosovo (*) (*)	97	46

(\*) estimates

(\*) 2020

(\*) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

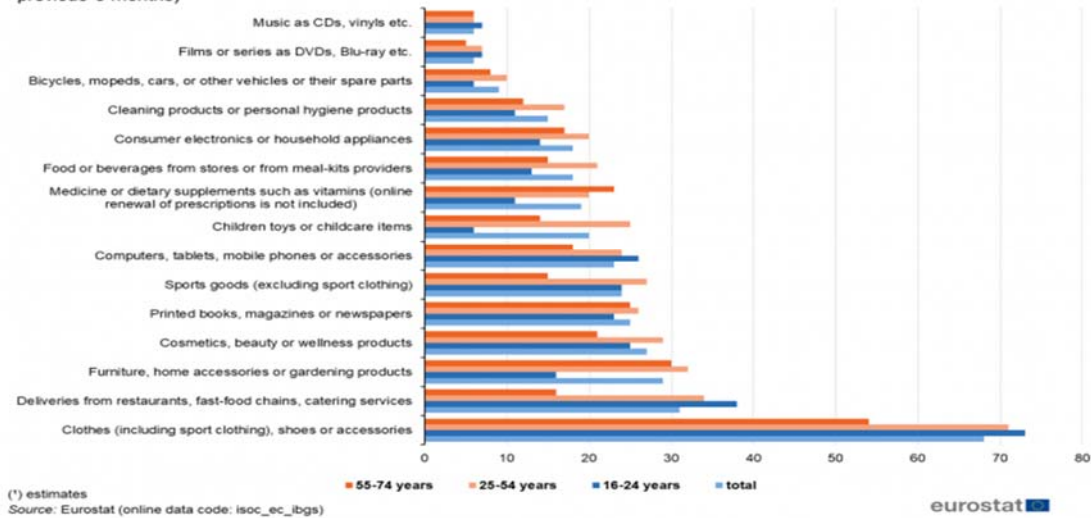
Source: Eurostat (online data codes: isoc\_ci\_ifp\_iu and isoc\_ec\_ib20)



Source: (Eurostat, 2022)

According to Eurostat, the top 6 categories of products and services sold online in Europe in 2021 are in the clothing industry (clothing, including sportswear, footwear, and accessories, with a 68% share). These are followed by food deliveries from restaurants, fast food chains, and catering services, which have increased by 2% since 2020 (31%). The following categories also performed well in European online shopping: furniture and home and garden accessories, 27% (equal to 2020), clothes, footwear, and accessories, 29% (+1% vs. 2020), and cosmetics and beauty and wellness products, 25% (-2% vs. 2020). - Printing of books, magazines, and newspapers: 24% (up in ranking 2020).

*Figure no. 2 Online purchases of goods in Europe in 2021*  
(% of individuals who bought or ordered goods or services over the internet for private use in the previous 3 months)

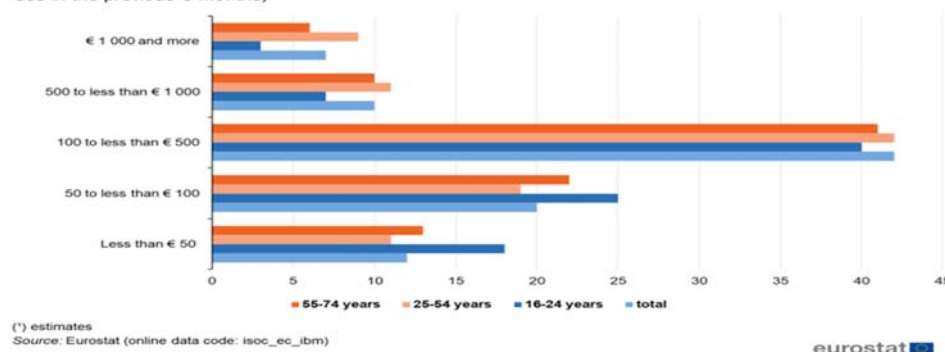


Source: (Eurostat, 2022)

#### 4.2 Europeans' frequency of purchase and money spent online

In the past three months, one-third of European internet buyers made up to five purchases, while 15% made more than ten. Online shopping is most popular among people aged 25 to 54, with 6 to 10 transactions (17%) and even more than 10 purchases (18%) made in the previous three months. The average number of online purchases made by young people (16–24 years old) and seniors (55–74 years old) in the previous three months is 1-2.4 out of 10 online buyers spent between €100 and €500 during the previous three months, according to Eurostat. Typically, those between the ages of 16 and 24 spend less (under €100), whilst those between the ages of 24 and 54 pay primarily between €100 and €500, and 11% between €500.

*Figure no. 3 Money spent on online shopping by European consumers in 2021*  
(% of individuals who bought or ordered goods or services over the internet for private use in the previous 3 months)



Source: (Eurostat, 2022)

### 4.3. The most common problems with online shopping

The Eurostat poll found that 63% of European online buyers claimed they had no hassles or difficulties when making purchases. It's decreased from 71% in 2020. The primary issues that European consumers had were deliveries taking longer than the period promised on the online store website by 22% (+5% from 2020); 10% (+2% vs. 2020) - Usability and functionality difficulties with the website; 8% (similar to 2020) of customers received damaged or different products from what they ordered; 6% (up 2% from 2020) had trouble locating data on product warranties or consumers' legal rights; 5% (about the same as in 2020) had trouble filing a complaint or didn't get a sufficient response to their concerns; 4% (equivalent to 2020) of consumers had issues with foreign internet retailers not offering their products in their native country; 3% of consumers (approximately 2020) report that final costs are higher than what was originally stated on online retailer websites; 3% (similar to 2020) - additional issues (irregular card use, completely undeliverable goods or services, etc).

Figure no. 4 Problems encountered when buying over the Internet in 2021  
(% of individuals who bought or ordered goods or services over the internet for private use in the previous 3 months)



(\*) estimates  
Source: Eurostat (online data code: isoc\_ec\_iprb21)

Source: (Eurostat, 2022)

The following were the primary deterrents to internet shopping for European consumers: 18% of consumers say they prefer to make their purchases offline (either out of habit or the desire to physically inspect the product); 14% did not require online shopping; 6% are worried about the security of transactions or personal information; 5% of people think they lack the skills necessary to shop online; 5% of people worry about returning something and getting their money back; 3% of people are worried about delivery prices; 3% of people are concerned about the timeliness or dependability of delivery services; The desire to purchase from a single European market outside of national borders is shown by the 32% of European customers that shop online from cross-border stores, an increase of 2% from 2020.

Figure no. 5 Reasons for not buying online in 2021



(\*) estimates  
Source: Eurostat (online data code: isoc\_ec\_inb21)

Source: (Eurostat, 2022)

#### 4.4 Average transaction value on Desktop and Mobile in Romanian e-commerce

The average value of online transactions climbed marginally in 2021 compared to 2020 for both desktop and mobile purchases, according to 2Performant figures (<https://2performant.com/>). Romanians spent, on average, €66.67 in 2021 on desktop-based online transactions, up from €61.5 in 2020. The average basket value for mobile purchases increased from €43.5 in 2020 to €46.47 in 2021. The average order on a desktop computer is still higher than on a mobile device, suggesting that Romanians are making more significant financial purchases from their desktop computers.

On the other hand, Romanians mostly use their mobile phones to make online purchases when they are making impulsive purchases that do not necessarily involve careful research into the goods or a lengthy decision-making process. Mobile devices now account for 75.5% of all online shop traffic in Romania, up from 71.9% in 2020. The percentage of traffic coming from mobile devices approaches 85% in the case of well-known online stores that GPeC consulted. Additionally, mobile beats desktop in terms of value: although though the average transaction value is lower on mobile than on desktop, altogether 61.7% of the value of online transactions in Romanian e-commerce originates from phone transactions, compared to only 38.3% from desktop, in comparison to 2020, when 57.4% of the value of e-commerce transactions was generated on mobile.

Both desktop and mobile traffic rises proportionately in the morning, however desktop traffic begins to decline after 11:00 while mobile traffic rises steadily until then. The busiest hours on mobile are 21:00 to 22:00. According to the 2020 trend, the majority of sales are made between 11:00 and 15:00 on desktop and between 20:00 and 22:00 on mobile. The biggest value transactions are conducted between 21:00 and 22:00 on mobile devices and between 10:00 and 12:00 on desktop computers. Monday through Wednesday are the busiest days of the week for transactions, which drop off from Thursday to Saturday before picking back up on Sunday night.

Both mobile and desktop purchases show the trend. In 2021, Mondays saw the largest value in e-commerce transactions, while Saturdays saw the lowest value. 60% of the time, the choice to buy is made within the first hour of clicking, and 4.6% of the time, within the first 24 hours.

#### 5. Conclusions

New trends in e-commerce promote the orientation of business activities towards satisfying customer requirements (potential or actual) as efficiently as possible. Thus, within a company, attention should be directed towards knowing and anticipating the requirements of the market and the typology of its consumers, in order to be able to adapt its marketing activities to meet their actual or potential needs and to design and implement an effective and at the same time rational marketing strategy (managers must be aware of the limits of a company, whether in terms of financial, human or other resources), adapted to the products or services it markets. In order to identify and understand these consumer needs and requirements, and to monitor and anticipate them in a dynamic market environment, an in-depth study of consumer behaviour is needed.

Even if the statistics place Romania in the last places in terms of online purchases at the European level, the significant increases registered in the last two years among users who make their purchases via the Internet offer, exactly as it was mentioned by the specialists in the field, a perspective the positive aspect of the local e-commerce landscape.

The research presented in this paper has the role of revealing the marketing and management strategies (online and offline) that can have a positive impact on certain organizational objectives and a better organization of economic activities for entrepreneurs.

Research results can reveal the degree of profitability of implementing new strategies (evaluating their effectiveness) and can offer new perspectives in building a business in the digital environment, as well as identifying new opportunities that can be exploited. However, having these results as informational support, companies can achieve better planning of budgets allocated to economic activities (efficiency of financial resources), segment their target audience (adapting respective strategies according to specific audiences) and choosing the best channels both to increase business and to deliver a favorable experience to their customers, as well as for promotion (for example, launching a mobile application to facilitate the purchase process in the case of certain categories of products that users frequently purchase from mobile devices).

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## Human Resources Management - A Process Adapted to 2022

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### Abstract

*Human Resource Management (HRM) is a collective term for all formal systems created to help manage employees and other stakeholders within an entity. Human resource management has three main functions: recruiting and compensating employees and assigning work. In the corporate world, the role of HRM is unlikely to change significantly.*

*In this article, we have conducted quantitative research in the form of a questionnaire, and the objectives include: analyzing the opinions of specialists working in the HRM segment, highlighting the best tools that contribute to improving current HR processes and highlighting how which specialists in this field can implement in the recent activity the latest generation tools.*

*Because of the results obtained, it can be highlighted that in Romania, the processes in the HRM area are in a comprehensive development process, that in our country, it is necessary to use policies that have proven to be successful and used. Furthermore, in public and private entities in other states, internet of things technology can be one of the tools that can be used successfully to achieve the new goals of human resource management.*

**Key words:** HRM, change, strategies, adaptation, novelty

**J.E.L. classification:** E24, O15

### 1. Introduction

In a highly volatile global market, new solutions must be constantly adapted. Strategic management involves the formulation of an initiative and the implementation of significant objectives by stakeholders to mitigate the unexpected context and optimize organizational goals. Strategic management is also the art and science of formulating, implementing, and evaluating cross-functional decisions that contribute to forming the ideal framework so that an organization can achieve its goals. From the above definition, the idea can be extended that strategic management focuses on integrating management, marketing, finance and accounting, production and research operations to achieve organizational success (Ansoff et al., 2018)

Strategic management aims to exploit and create new and different opportunities in the medium and long term by adapting current policies in organizations.

The strategic management process captures four stages: substantiating the strategy, formulating the components of the system, implementing the plan, and evaluating the design. The rationale for the approach is to analyze the organization's external and internal environments, identify its opportunities and external threats, and determine its strengths and weaknesses (Greenwood, MR, 2002).

Formulation of strategy components includes developing a vision and mission, setting long-term goals, generating alternative strategies, and choosing specific procedures to follow. Issues in formulating the system include the decision on how an entity can expand its business, whether



there is an opportunity for expansion or diversification, or whether there is an opportunity to enter international markets. Also, at this stage, the realistic chance of the idea of a merger or the formation of a joint venture is analyzed.

Strategic activities are formulated, implemented and evaluated at different hierarchical levels: the corporate, strategic, and functional levels. Strategic management encourages organizational competitiveness through specific actions to improve communication and interaction between managers and employees at different hierarchical levels. Most small businesses and some large businesses do not have strategic business divisions or units; they have only corporate and functional groups (David, FR et al., 2016)

Due to the problems caused by the pandemic that began in the first part of 2020, several companies have repeatedly changed their practices, diversifying their offer and innovating to maintain their standards and policies, and achieving unpredictable revenues in 2019 (Drnevich et al., 2020).

A competitive advantage exists when an organization can produce its goods or services more efficiently or for less money than its competitors. Successful organizations focus their competitive strategy on one of two areas: Cost management Focusing on cost reduction and low-price market leadership is the nature of this competitive approach. This strategy will require a business to focus on high productivity, purchasing power to negotiate the lowest cost of production inputs and simplified distribution channels. Differentiation A differentiation strategy is less cost-focused and more likely to invest in high-quality items such as material, functionality, or durability. In addition, the brand of the product or service is highly developed and well communicated. A competitive strategy is just one factor in business management. An experienced HR professional must understand the organizational design factors determining how to implement this strategy (Aaltonen & Ikävalko, 2002).

## **2. Theoretical background**

An organization is an environment that relies on interdependence to survive. The whole is more significant than the parts, so the atmosphere breaks down if the parts are deficient. Similar to the nervous system of an organism or a technical picture, specific components work based on the inputs that lead to the outputs. Between inputs and results are the processes from which the work is performed. Human resources teams work both diagnostically and prescriptively. When part of an entire system is defective, HR can lead teams to identify the deficiency in people, processes, or organizational design. Driving to the root is necessary so any intervention strategy - the prescription - can address the cause instead of just the symptoms. Human resources also serve the system by defining each role and the knowledge, skills and abilities of the people needed to do the work so that availability is reduced and efficiency is improved. There is a ripple effect when a decision is made at any level within an organizational system. Thus, systems theory requires a holistic approach, with an eye on the whole system, instead of just the broken component (Budhwar & Mellahi, 2018).

When you learn new concepts, you will find it helpful to look at them from opposite perspectives - in this case, silos versus systems. In business, silos refer to independent business units with little or no shared information. Instead, business systems are those systems that are designed to optimize the connection between data, people, and innovative solutions. Systemic thinking is what Peter Senge called the "fifth discipline" of a learning organization. Systemic thinking is a change of mind from seeing only the whole parts and then creating an environment in which employees take ownership. This environment is one in which employees feel free to express opposing views, are open to new ideas, and know that they need to work together to achieve organizational goals. Systemic thinking is built on an agency basis, the statement that successful organizations are made up of teams that "continually improve their ability to create their own future" (Peter Senge, Image Books, 2006. *The Fifth Discipline: The Art and Practice*) of the Learning Organization). This requires flexibility, adaptability and creative supply with new ways to get results at all levels of the organization. It also requires a change in the traditional management structure as directors and the reform of leaders as system architects. In this way, employees are expected to seek feedback and are allowed to use their natural motivators, individual impulse and

creativity to solve problems and get results. As I mentioned earlier, systemic thinking is the fifth discipline, so we need to ask ourselves, "Well, what are the other four disciplines then?" Senge's research team developed the learning organization concept, where groups look for new knowledge and then apply change and project management planning to adopt new ways of doing things. It is a profound work that requires intentional concentration. The five disciplines that characterize an actual learning organization are the following: 1. Personal mastery: An individual process that clarifies and deepens our unique vision, followed by action steps to achieve that vision. 2. Mental models: deep-rooted attitudes and beliefs formed by employees in response to their organization. It often presents as a form of bias that blinds their ability to see reality clearly. 3. Common vision: According to Senge, "people do not play by the rules of the game, but feel responsible for the game." These signs an effective employee can maintain vision without ignoring reality. Systemic thinking anchors vision in realistic needs about what will be needed to achieve the desired result (Chelladurai & Kim, 2022)

### 3. Strategic planning

A strategy is a planned course of action. Building that action plan requires identifying the inputs from which a management team can coordinate efforts to achieve the desired results. This process requires a level of analysis that begins with data collection and ends with the evaluation of results, the framework for the strategic planning process (Miller et al. 2017).

Several well-known tools are used to scan the environment. Watching the environment is to identify the forces that shape organizational decision-making. These are classified as internal and external forces that must be considered when establishing a course. Internally, an organization should have a clearly stated mission, vision, and values (MVV). The company's mission defines the purpose for which the organizational effort will be applied. Values represent what the company believes in - attitudes and beliefs about which they are not willing to compromise in their day-to-day business. The vision is forward-looking, describing where the company wants to be. A well-made and authentic MVV serves the organization in many ways. As Patrick Lencioni, author of *The Five Dysfunctions of a Team* (Jossey-Bass, 2002), puts it, "If everything is important, then nothing is." For example, defining the MVV before the strategic planning process and then using it to guide action planning ensures that the company applies its resources (people, time and money) to the best use. And while the MVV remains relatively stable over time, the strategic planning process needs to be more agile, using the MVV as a link to launch efforts appropriate to the current environment (Schlechty, PC, 2002).

Numerous external forces lead to organizational decisions. These forces are conditions and events that require a corporate response. You can plan some of these forces, while others require a more reactive approach. In the following, we review some useful analysis tools for scanning the external environment.

#### *The IPO model*

The Input-Process-Output (IPO) model helps scan the environment. The entries will reveal constraints, such as an unqualified management team. The process review will include examining functional needs to achieve organizational strategy, such as having effective enterprise software. The results are best described as strategic intervention, such as gaining new market share, increasing sales, reducing costs or improving diversity (Blaga, 2015).

#### *FISH*

FISH is an acronym for external forces that requires attention when developing a strategy. These are as follows: Political. These are the forces shaped by government regulations and political agendas. In the two-party political system in the United States, priorities change depending on which party is in office and how many times every four years. Impact issues include immigration, taxation and global trade (Irawanto, 2017).

#### *Economic*

The economy has a significant impact on strategic business decisions. Expansion plans, for example, may need to be scaled according to labour supply and demand. Other economic factors determining the strategy include household income, consumer confidence and interest rates on business loans. Social factors drive organizational behaviour in many ways. Current examples



include the impact of racism on diversity in the workplace, an older or younger workforce and the cost of graduating from university. Technological technology is perhaps the fastest change of all external forces and is an area of significant human resource spending in the next few years. Factors include securing employee and customer data, technological trends, and innovative iterations that can improve competitiveness. Legal forces are similar to political parties in that they are built on government-adopted regulations. Law enforcement is the focus of this force, as well as the fight against labour lawsuits and patent infringement. Environment Environmental forces are related to responsible business practices supporting our environmental resources. Consider water use, pollution, and global warming (Pudelko, 2006).

#### *The SWOT analysis*

Assessing the internal strengths and weaknesses of an organization or department, as well as external threats and opportunities, is the focus of SWOT analysis. A strategic analysis tool, SWOT (strengths, weaknesses, opportunities and threats), details what is most important at a given time. From this, action plans can be developed to maximize internal strengths, minimize the impact of internal weaknesses, mitigate or eliminate external threats to competitiveness, and take advantage of external opportunities (Suksup et al., 2020).

#### *Growth rate matrix*

The growth rate matrix was developed by Bruce Henderson and first published in 1964 by The Boston Consulting Group in an essay entitled "Perspectives." This information provides us with the context to understand the instrument in that it is changing its outlook towards growth, as opposed to decline or status quo. From this point of view, a business can determine a strategy for products, services or investments. The horizontal perspective indicates the direction of market share, with the vertical axis delimiting the market's growth rate (Nuttin, 1964).

#### *The strategic planning process*

The strategic planning process is a coherent roadmap that guides organizational decision-making. The environmental scan identifies the conditions under which the strategy can be formulated and then translated into actionable plans for implementation and evaluation.

#### *Strategy formulation*

Simon Sinek, the author of Start With Why, notes that business is a creative process that requires continuous improvement and adaptation. He claims that the result is less important than the process. If Sinek is correct, the formulation stage of the strategic planning process becomes a key factor for competitiveness and achieving excellence through disciplined process management. Sinek's opinion also takes into account the whole vision that is at the heart of systems theory. It requires consideration not only of the transactional components of the business, such as growth goals, but also less tangible (but just as important) concepts such as ethical behaviour. In this way, the strategy's formulation must consider the needs of all stakeholders. Finally, the formulation of the system refers to taking over the internal and external data collected by scanning the environment and defining the targets over time. It includes conversations about Budgets: Both operational and strategic tracking tools: How will progress be measured? Staff needed: Human resources are required to achieve results. Training needs: Identifying the short and long-term goals needed to complete the strategy Technology needs: Understanding the system's current capabilities and what may need to be upgraded or replaced. Communication: Planning how the strategy will be communicated at all organizational levels. Once the design has been formulated, setting goals can begin. The focus of setting goals is to align the efforts of each business unit to achieve synergy. Proper alignment can serve as an effort multiplier. From the organizational strategy, the individual departments and objectives are set to focus on what has been identified as the most important. For example, consider a strategic 7% increase in sales in the new fiscal year. Human resources can support this goal by hiring quality team members to handle additional sales. Learning and Development can support this goal by designing training programs for new products or services that will be needed for results. Marketing can create campaigns to stimulate consumer messages. Production will identify what is required to support additional production. In short, setting goals that flow from the core strategy and align with other business units will increase the chances of positive outcomes (Hansen, 2017).

#### 4. Research methodology

The aim pursued through this article was to identify coherent, current solutions that can be used in the future to build efficient management of human resources in Romania. Furthermore, the elements that make up the concept of HRM (human resource management) were highlighted, as well as the natural way they can be integrated into companies.

In terms of objectives, we can highlight that the current level of processes used in human resource management in Romania was analyzed, methods by which it can be improved, what are the technologies through which human resources processes can be effectively quantified and whether the entities that apply these policies are open for the implementation of new standards.

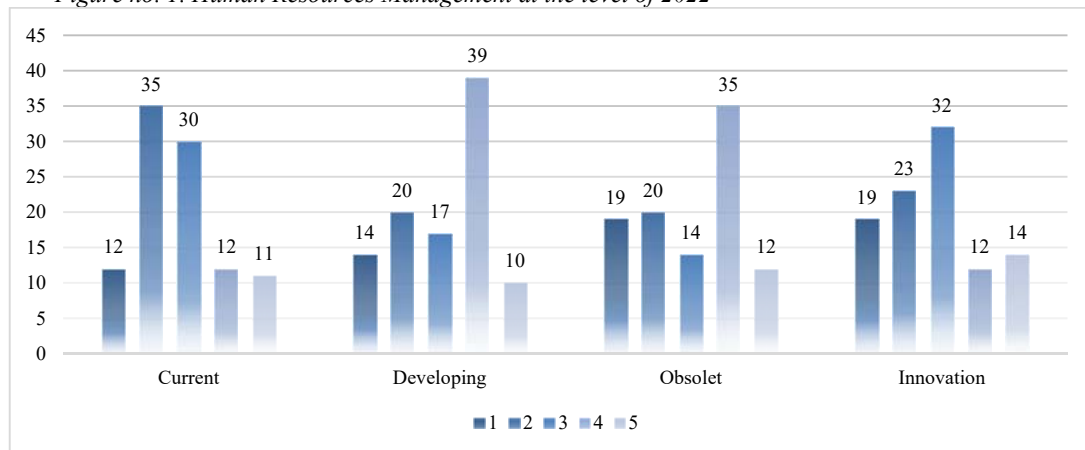
The research was based on a sample of 100 people and had a questionnaire consisting of 21 questions as a research tool, five of which were classified and identified. In Romania, this was done between March and May 2022 by sending the questionnaire to specialists from public and private companies. This questionnaire was applied through Google Forms.

#### 5. Findings

Through the following questionnaire, we aimed to analyze the opinion of specialists in human resources on how to efficiently manage the most critical resource in an entity, namely employees.

##### 5.1. To what extent do you consider that the following elements define, at the level of 2022, the Human Resources Management processes in Romania?

Figure no. 1. Human Resources Management at the level of 2022



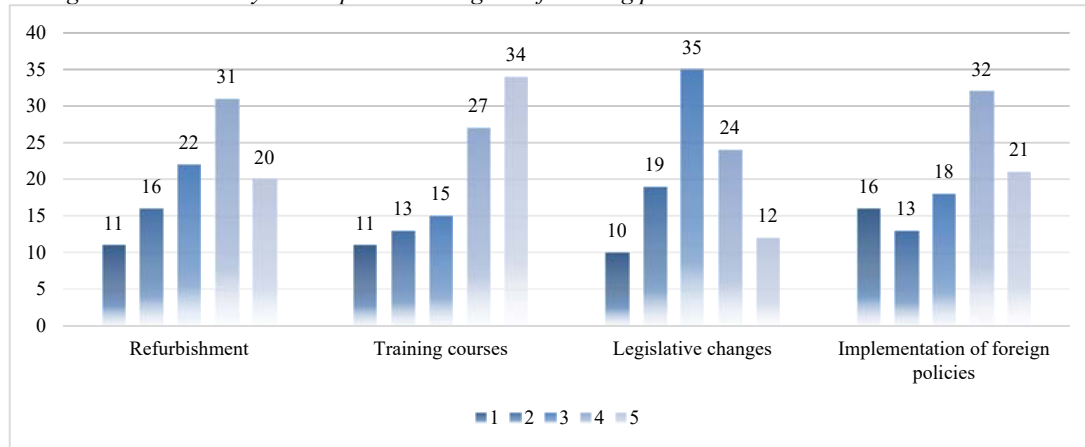
Source: Graph made by the authors during the research

1. Current :  $1 \times 12 + 2 \times 35 + 3 \times 30 + 4 \times 12 + 5 \times 11 = 275/100 = \mathbf{2.75}$
2. Developing:  $1 \times 14 + 2 \times 20 + 3 \times 17 + 4 \times 39 + 5 \times 10 = 311/100 = \mathbf{3.11}$
3. Obsolete:  $1 \times 19 + 2 \times 20 + 3 \times 14 + 4 \times 35 + 5 \times 12 = 301/100 = \mathbf{3.01}$
4. Innovation:  $1 \times 19 + 2 \times 23 + 3 \times 32 + 4 \times 12 + 5 \times 14 = 279/100 = \mathbf{2.79}$

As can be seen, the highest score highlighted the fact that HRM processes in Romania are constantly evolving. Although there have always been public and private entities at the national level, it should be noted that the current processes and actions of human resources management are still in Development. At the same time, analyzing the opinion of the specialists who answered this questionnaire, it was concluded that at the level of our country, they are implemented in the form of good practice models, especially within companies abroad.

## 5.2. To what extent can the HRM system be improved through the following processes?

Figure no. 2. HRM system improved through the following processes



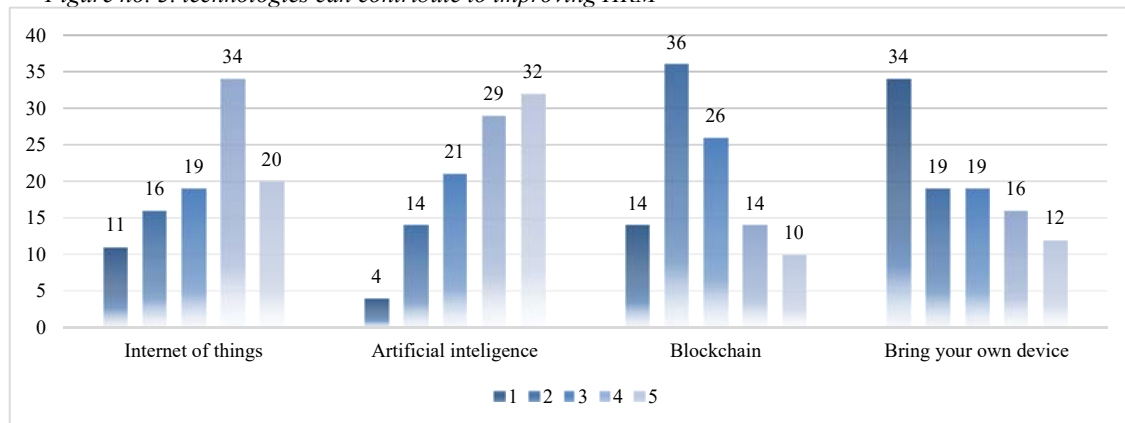
Source: Graph made by the authors during the research

1. Refurbishment :  $1 \times 11 + 2 \times 16 + 3 \times 22 + 4 \times 31 + 5 \times 20 = 333/10 = \mathbf{3.33}$
2. Training courses:  $1 \times 11 + 2 \times 13 + 3 \times 15 + 4 \times 27 + 5 \times 34 = 315/100 = \mathbf{3.15}$
3. Legislative changes:  $1 \times 10 + 2 \times 19 + 3 \times 35 + 4 \times 24 + 5 \times 12 = 309/100 = \mathbf{3.09}$
4. Implementation of foreign policies:  $1 \times 16 + 2 \times 13 + 3 \times 18 + 4 \times 32 + 5 \times 21 = 329/100 = \mathbf{3.29}$

Improving the HRM processes in Romania is a desideratum; through the answers provided by specialists in the field, it was confirmed that the restructuring of human resources management processes is necessary to view the evolution of public and private entities. The feasibility of rebuilding processes is essential for both employees and employers, but it involves consuming specific resources, especially for the latter. Even so, internal analyzes show the urgency with which these restructurings must be made.

## 5.3. To what extent do you think the following technologies can contribute to improving HRM processes in Romania?

Figure no. 3. technologies can contribute to improving HRM



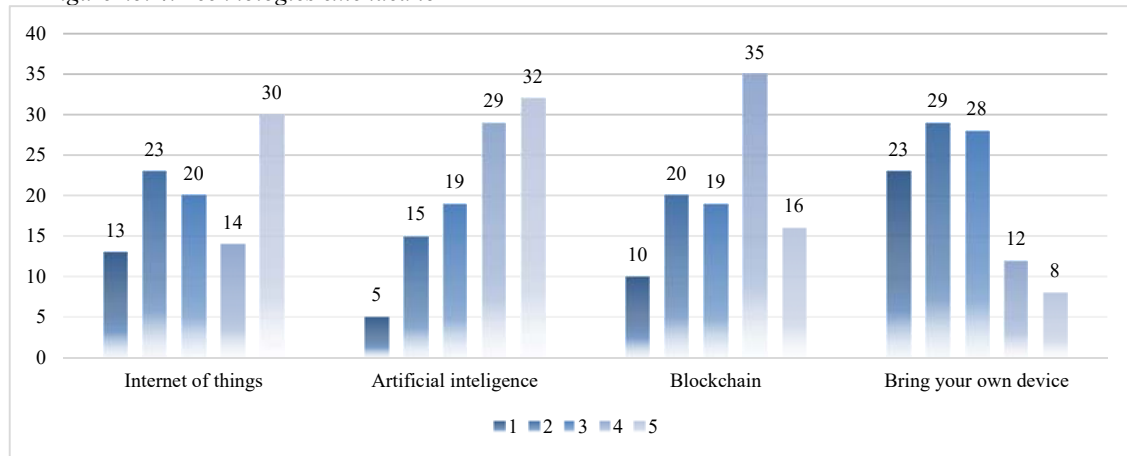
Source: Graph made by the authors during the research

1. Internet of things :  $1 \times 11 + 2 \times 16 + 3 \times 19 + 4 \times 34 + 5 \times 20 = 336/100 = \mathbf{3.36}$
2. Artificial intelligence :  $1 \times 4 + 2 \times 14 + 3 \times 21 + 4 \times 29 + 5 \times 32 = 371/100 = \mathbf{3.71}$
3. Blockchain:  $1 \times 14 + 2 \times 36 + 3 \times 26 + 4 \times 14 + 5 \times 10 = 270/100 = \mathbf{2.70}$
4. Bring your own device:  $1 \times 34 + 2 \times 19 + 3 \times 19 + 4 \times 16 + 5 \times 12 = 253/100 = \mathbf{2.53}$

Through this question, the level of impact of the elements contributing to the Development of the concept of HRM was analyzed. As can be seen, the best score was obtained by the answer "artificial intelligence", a technology that contributes to the overall Development and improvement of organizational culture. Although it is not possible to create a direct link between IoT and HRM, it can be seen that this technology contributes decisively to the "well-being of the organization", employee management, various automated processes and real-time feedback.

**5.4. To what extent would you be willing to go deeper into one of the technologies listed above and implement it within the company in which you operate?**

Figure no. 4. Technologies extended to HRM



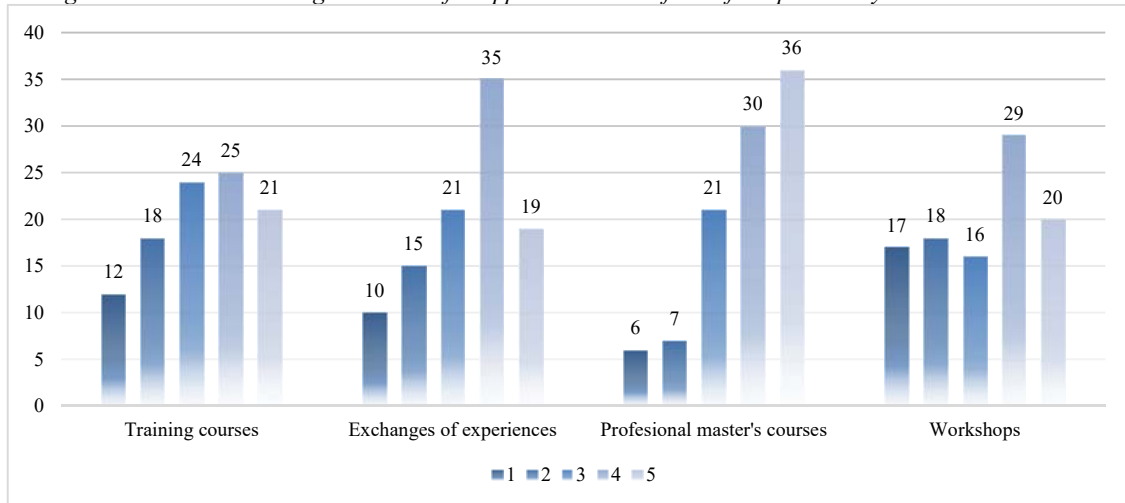
Source: Graph made by the authors during the research

1. Internet of things :  $1 \times 13 + 2 \times 23 + 3 \times 20 + 4 \times 14 + 5 \times 30 = 325/100 = 3.25$
2. Artificial intelligence :  $1 \times 5 + 2 \times 15 + 3 \times 19 + 4 \times 29 + 5 \times 32 = 368/100 = 3.68$
3. Blockchain:  $1 \times 10 + 2 \times 20 + 3 \times 19 + 4 \times 35 + 5 \times 16 = 327/100 = 3.27$
4. Bring your own device:  $1 \times 23 + 2 \times 29 + 3 \times 28 + 4 \times 12 + 5 \times 8 = 253/100 = 2.53$

Deepening new technologies is a process that will have to be followed first by the company's board and then by all the people working in the execution. However, most respondents considered that "to a large extent", they agree to acquire knowledge in the field of artificial intelligence to contribute to improving HRM processes. Also, in the opinion of HRM specialists, IoT technology is a segment suitable to be successfully implemented in private and public entities in Romania.

### 5.5. How can HRM specialists learn new technologies suitable for application in the field of responsibility?

Figure no. 5. new technologies suitable for application in the field of responsibility



Source: Graph made by the authors during the research

1. Training courses:  $1 \times 12 + 2 \times 18 + 3 \times 24 + 4 \times 25 + 5 \times 21 = 325/100 = 3.25$
2. Exchanges of experiences :  $1 \times 10 + 2 \times 15 + 3 \times 21 + 4 \times 35 + 5 \times 19 = 338/100 = 3.38$
3. Professional master's courses:  $1 \times 6 + 2 \times 7 + 3 \times 21 + 4 \times 30 + 5 \times 36 = 383/100 = 3.83$
4. Whorshops:  $1 \times 17 + 2 \times 18 + 3 \times 16 + 4 \times 29 + 5 \times 20 = 317/100 = 3.17$

Following HR specialists' professional development processes, they must take the necessary steps to continuously improve. In response to this question, most respondents agreed that extended training programs, such as professional masters, are the best way to enhance their knowledge. Experts who have answered this question believe that a paradigm shift needs to be made through a comprehensive training program. It is also worth noting that this training should be institutionalized in the opinion of the specialists highlighted above.

## 6. Conclusions

Strategic human resource management involves going out of the ordinary, day-to-day operations of a busy HR office. It requires a strong focus on business management and the factors and forces influencing its ability to create or maintain a competitive advantage. This focus should be on the whole system rather than a single business unit. The strategic planning process is a formal way to identify the initiatives a company must take in response to several internal and external factors. These include the company's competitive philosophy, mission, vision, values, needs of stakeholders and external forces to which a company must respond. Project planning tools and models allow for a structured approach to strategy implementation. Senior leaders have a high responsibility as strategic business partners. This includes developing the need to work in a volatile, uncertain, complex and often ambiguous environment (VUCA).

New technologies are essential elements in HRM development processes. It is believed that the next few years will be the defining ones in implementing public and private entities. The current research shows that the internet of things will be widely used in Romania.

Developing these skills increases human resources' capacity to align human resource systems with organizational needs. Organizational strategy is based on people, processes and project management, none of which can be achieved without critical talent acquisition strategies.

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# Taxpayer Satisfaction in the Municipality Constanta and Its Perception of Integrity of Public Functionaries

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## Abstract

*The quality of services provided by the public system is an important part of managing the quality of life of a community's residents.*

*In this paper we aim to determine the degree of satisfaction of the taxpayer in the municipality of Constanta and its perception of the integrity of public officials. To achieve the research objectives we used a questionnaire with 14 questions that was completed by 118 respondents, tax payers in the city of Constanta. The questions refer both to aspects related to the assessment of the level of satisfaction of taxpayers with the local budget of the municipality of Constanta, and to the perception of citizens regarding the integrity of public officials within the Public Service of Taxes, Fees and other Revenues of the Local Budget of Constanta.*

*We hope that this research will contribute to the development and improvement of local public services for the benefit of citizens.*

**Key words:** public services, integrity, ethics, taxpayer

**J.E.L. classification:** A13, H83

## 1. Introduction

A public service is any service designed to meet the specific needs of members of a community. Public services may be provided on behalf of or in the interests of the citizens of a country. These services include: fire brigade, police, ambulance, education, etc. Public services are subject to regulations which, for social and political reasons, differ from those applied to the economic sector.

Public resentment of public service providers is an ironically enduring feature of American democracy. Particularly in recent years, acute discontent with the organs of public administration - specifically politicians and the bureaucracy - has become a constant feature of public discourse and government administration. Citizens seem to take it for granted that, despite the best efforts of managers, "public administration bodies do not function well (Laurance *et al*, 2004, p.9).

In this context of mistrust, mistrust propagated to the citizen, public managers have complex responsibilities concerning the coordination of programs, projects and activities aimed at developing administrative capacity, promoting the decentralization of competences, and modernizing central and local public administration, with the aim of increasing the quality of administrative action and public services provided to the citizen.

## 2. Literature review

Public service, in the modern sense of the term, emerged in the early 20th century. The idea of public service thus responds to the fact that certain social activities must, depending on the nature of the objectives and interests pursued, be managed according to specific criteria and not subject to the rules of the market and the search for profit. This facilitates access for all to certain goods and services

and makes an important contribution to the economic, social, and cultural balance and cohesion of society (Dincă, 2013).

The classical definition, developed at the beginning of the 20th century, considers that public service is an activity of general interest provided only by a public person. Public service is the activity that the governed are obliged to perform in the interests of the governed (Duguit, 2018). In the interwar period, the idea of providing a public service through a private firm emerged. Public service is the activity of general interest provided by a private person with the prerogatives of public power under the control of the administration (de Laubodere, 1980).

So, the first condition is 'general interest'. But when we look at the activity of a private person, it is very difficult to distinguish where the general interest goes and where the private interest begins. The best distinction is between necessary activities and profitable activities: "public services have as their primary objective the public interest and not profit" (Chapus, 2010).

At present, by public service we mean the activity or set of activities of general and/or individual interest provided by a public institution or by bodies forming part of an administrative unit for the purpose of satisfying public needs.

In order to increase the quality of public services provided, most public organizations need better management methods, many of these needs being caused by increasing pressures from those who use their services and from those who fund the activities of these organizations (Tomescu, 2021).

At the heart of the key aspects of a service is the customer, and the satisfaction of customer requirements can only be ensured if there is a balance between the interactions between the strategy set by the organization's management, the systems established, and the employees (and other resources) involved in delivering the service (Emilian, 2001).

In order to align with European standards, public institutions in Romania must take important steps to improve their performance both in terms of quality of services offered to citizens, transparency, professionalism, and management. The latter constantly and decisively influences organizational performance and can lead the organization towards fairness and success or towards vulnerability, failure, corruption and criminality.

### **3. Research methodology**

This paper aims to determine the satisfaction of the taxpayer in the municipality of Constanta and their perception of the integrity of public officials. We want to identify the extent to which the public institution under analysis meets taxpayers' expectations and to propose measures to remedy, if necessary, the problems reported by taxpayers.

We approached a theoretical, quantitative research, i.e., the collection and processing of primary data obtained through a questionnaire completed online by the participants. The questionnaire contains 14 questions and was completed by 118 participants, from both public and private sectors, with secondary or higher education, aged between 18 and 55.

The conclusions of the paper were drawn by combining the information from the study of the literature in the field of public services with the processing of primary data from the responses to the questionnaire used as a research method.

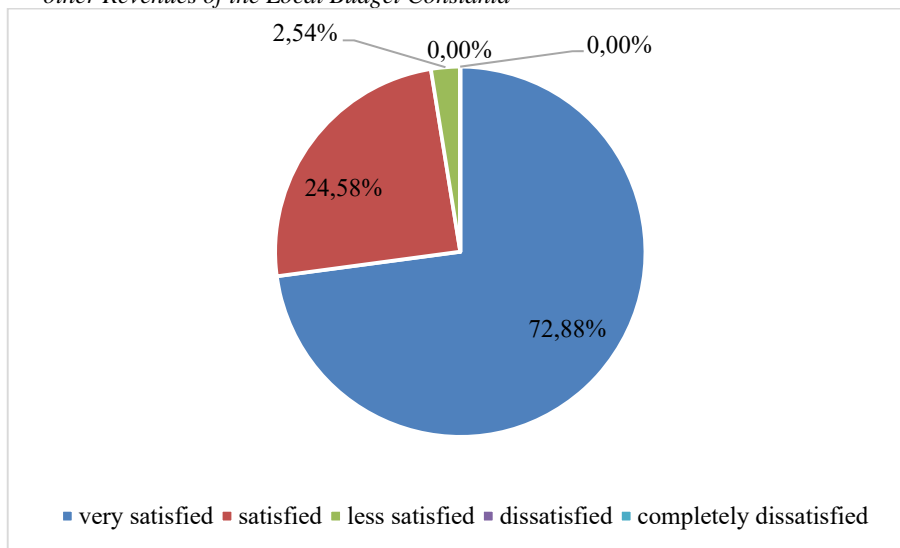
### **4. Findings**

In the following, we will present some of the results of the processing of the data collected through the questionnaire on the view of the Constantinian taxpayer on the services received, as well as on the officials providing these public services.

Most respondents are satisfied with the quality of services provided by the Public Service of Taxes, Fees and Other Revenues of the Local Budget of Constanta, as shown in the following figure:



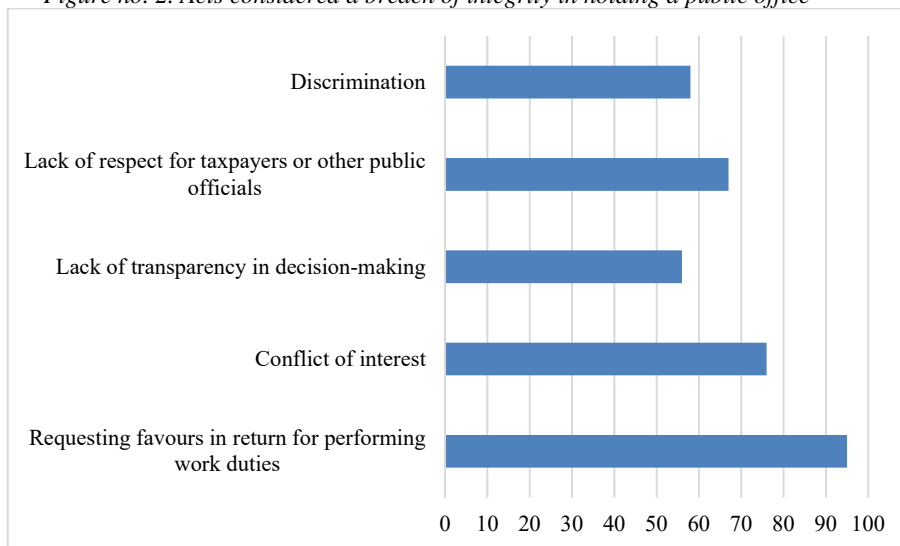
Figure no. 1. Degree of satisfaction with the services provided by the Public Service of Taxes, Fees and other Revenues of the Local Budget Constanta



Source: own processing

First, the act that characterizes a breach of integrity in the exercise of public office is the request for favors in exchange for the performance of work duties, followed by conflict of interest, disrespect towards taxpayers or other public officials, discrimination, and lack of transparency in the decision-making process.

Figure no. 2. Acts considered a breach of integrity in holding a public office



Source: own processing

Respondents rated on a scale of 1 (not at all) to 5 (very highly) the compliance of public officials with the following ethical principles contained in Table 1.

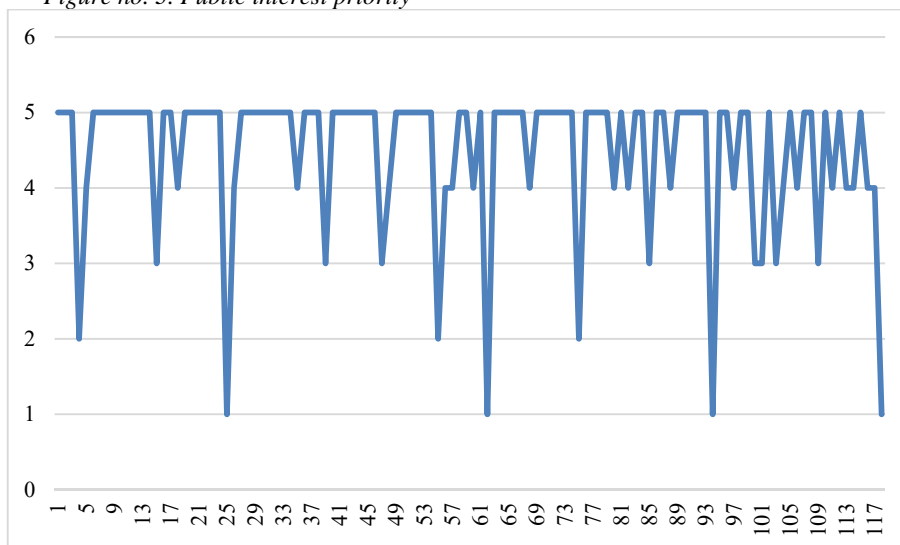
Table no. 1. Ethical principles

Ethical principle	Public interest priority	Equal treatment	Professionalism	Impartiality and independence	Moral integrity	Honesty and Fairness	Openness and transparency
Mean	4.48	4.73	4.76	4.77	4.75	4.77	4.67
Dispersion	0.97	0.61	0.63	0.60	0.70	0.64	0.70

Source: own processing

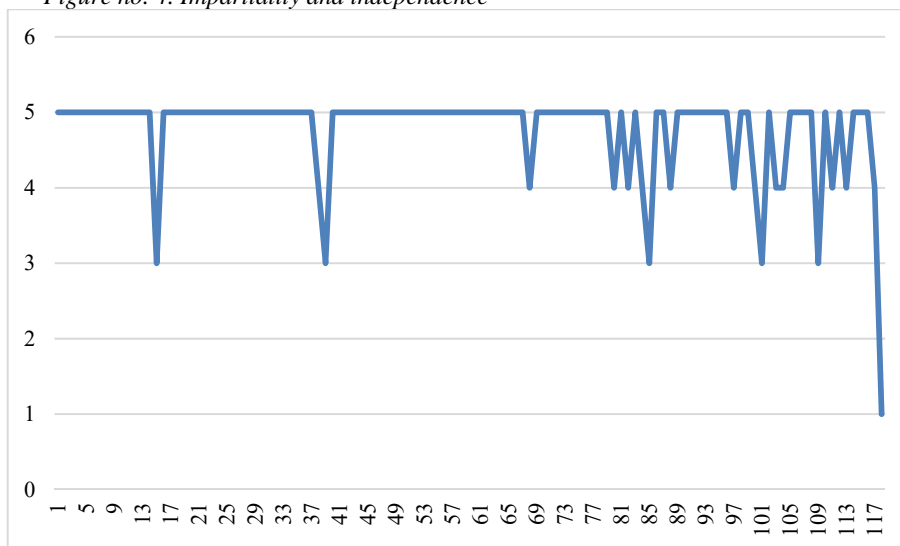
We observe that the averages have values between 4.48 and 4.77, the highest values being recorded for "Impartiality and independence" and "Honesty and Fairness" and the dispersions have values between 0.60 and 0.97. We can see that for the principle "Public interest priority" the respondents' opinions were very varied (see Figure 3). The most homogeneous answers are those concerning the principle "Impartiality and independence", as can be seen in Figure 4.

Figure no. 3. Public interest priority



Source: own processing

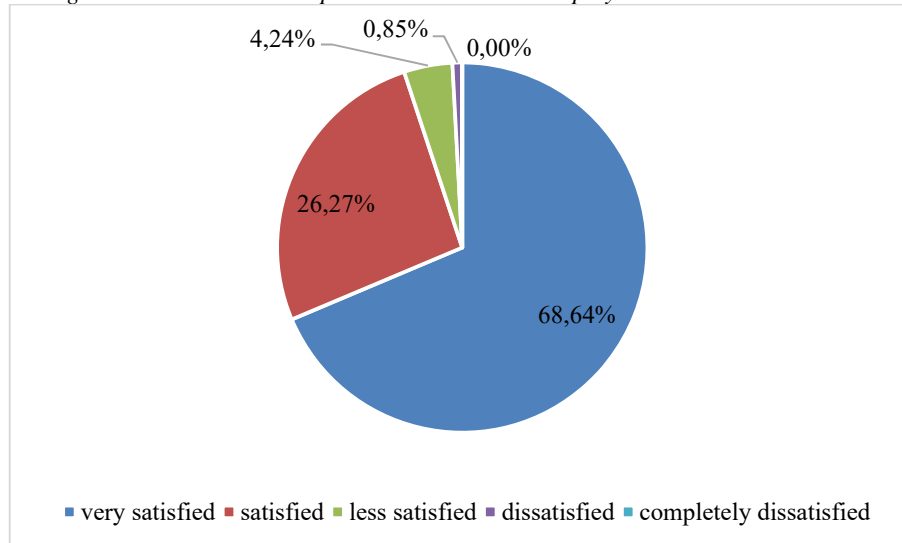
Figure no. 4. Impartiality and independence



Source: own processing

It is worth noting that out of the total of 118 participants in the survey, 81 answered that the level of confidence they have in the public officials of SPIT Constanta in terms of compliance with the rules of ethics specific to public administration is very satisfactory, 31 satisfactory, 5 less satisfactory, while 1 considers it unsatisfactory.

Figure no. 5. Trust level in public administration employees



Source: own processing

In general, the perception of Constanta citizens on the quality of public services provided by the Public Service of Taxes, Fees and Other Revenues of the Local Budget of Constanta is positive.

## 5. Conclusions

As we stated at the beginning of the article, our aim was to determine both the satisfaction of taxpayers with the local budget of the municipality of Constanta and their perception of the integrity of public officials within the Public Service of Taxes, Fees and other Revenues of the Local Budget of Constanta.

Thus, a total of 118 participants, of which 87 female respondents and 31 male respondents, aged between 18 and 55 years, with both higher and secondary education and coming from public, private and school/student backgrounds answered the questionnaire, resulting in the following:

- To the question "Do you prefer to use the services offered online or at the counters of the Public Service of Taxes, Fees and other Revenues of the Local Budget of Constanta?", 92 participants, i.e., 78%, answered that they prefer online services and 26, i.e., 22%, answered that they prefer the services offered at the counters.
- 105 participants considered the integrity of civil servants to be very important for the proper functioning of local public administration, 12 considered it important and 1 considered it not very important.
- When asked "Which of the following ethical values do you consider the most important for the proper functioning of public institutions?", most respondents, 95, considered integrity as the most important ethical value for the proper functioning of public institutions, 62 considered respect, 42 considered honesty and 11 considered courage as the most important ethical value for public officials.

As a conclusion, the positive results that emerge from the interpretation of the questionnaire responses represent the response of taxpayers to the efforts and involvement of the local public authority which, over the 20 years since its establishment, has provided taxpayers with high quality public services, aligned with the current trend in technology and in line with its mission and values.

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# The Role of Service Quality in Ensuring Customer Satisfaction in the Airline Industry

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## Abstract

*Globalisation and intense market competition have affected the business environment of the 21st century. The changes have mainly occurred at the customer level, where expectations in terms of service quality have increased, whilst customer loyalty has not reached the same level of expectation.*

*This change has also been felt in the passenger air transport industry, with passenger airlines increasing their efforts to identify and implement new ways of improving the quality of services they provide to customers. However, air transport, be it cargo or passenger, faces considerable challenges arising from the increasingly dynamic and uncertain environment in which it operates.*

*This paper is part of an empirical study aimed at developing a model for measuring and analysing the quality of air passenger services in order to improve the quality of customer service. This paper therefore aims to present some important aspects of the influence of quality on customer satisfaction in a major international airline.*

**Key words:** air transport industry, customer satisfaction, customer loyalty, service quality

**J.E.L. classification:** M10, M12, M16, M19

## 1. Introduction

The air transport sector is a key provider of a wide range of services and is growing rapidly. The many events and trends influencing it both economically and socially mean that it is also facing an increasing number of challenges when it comes to generating benefits (IATA, 2020; ATAG, 2020).

Air transport, be it passenger or cargo, is one of the most important sectors of the current economy, and has a strong competitive market. The highly competitive environment in which airlines operate means that they have to make every effort to offer high-quality services, especially in passenger transport, in order to ensure customer satisfaction, which is crucial for increasing their market share and profitability.

In a wide variety of circumstances that greatly influence the passenger air transport sector, the key element in ensuring a competitive advantage is not only to offer customers and employees services with high safety and security standards, but also to ensure continuous improvement in the quality of the services provided according to customer expectations and needs.

Increased competition in the service industry has led many companies to view service quality as a strategic tool. In this context, techniques for measuring service quality and service performance have become an important area in the dedicated literature in recent decades. This has led airlines to look for effective ways to meet customer needs and expectations with high standards of customer service in order to retain current customers and attract as many prospective ones as possible.

Quality assurance has always been one of the top priorities for passenger airlines, playing a key role in ensuring a competitive advantage, and strategic and operations management has come to focus on its continuous improvement in line with customer expectations and needs.

More and more theorists and practitioners argue that the increased competition in the international passenger transport market means that airline leadership must find appropriate and effective ways to improve service quality, by better understanding customer needs and expectations then meeting or even exceeding them, with the effect of increasing customer satisfaction and loyalty as a measure of organisational performance.

As enhanced passenger service quality and organisational performance are viable ways of ensuring airline competitiveness, the main objectives of this research are firstly to gain a broader view of the contributions made by different authors to the dedicated literature on the role of quality in the organisational performance of passenger airlines, and secondly to determine the role of service quality provided by an international airline in ensuring a good performance.

## 2. Literature review

Today we are witnessing a development of services based on the economics of new experiences that are "intangible, tailored to the customer, co-participant and cannot be stored" (Fitzimmons, 2006:4).

Service, in general terms, can be defined as:

- an activity or sequence of activities with a greater or lesser degree of tangibility "performed during the interaction between customers and employees, and physical resources or assets and systems of the service provider that offer solutions to customer problems" (Gronroos, 1990:27);
- facts, processes and performance (Zeithaml & Bitner, 1996:5);
- any intangible act that one party performs for another and that does not result in possession of the good offered (Kotler & Keller, 2009:789);
- performance, process, production or supply, defined differently in various service sectors (Daniel and Berinyuy, 2010:8).

In contrast with the production of tangible goods, the process of passenger air transport, which is considered a "basic service" accompanied by secondary goods and services offered by each airline, has a number of characteristics that determine a certain specificity in management and supply. They are:

- intangibility;
- the impossibility of storing;
- simultaneity between provision and consumption of the service (implies inseparability between the provider and the customer);
- heterogeneity or variability of services and lack of ownership (the sale of the service does not mean the transfer of ownership as is the case for tangible goods (Zeithaml & Bitner, 1996; Fitzimmons, 2006; Ioncić, 2006).

If we try to classify air services based on the theory of Lovelock et al (2010), which classifies services according to their degree of tangibility (tangible and non-tangible) and the type of product (tangible goods or services), we can say that the services provided by passenger airlines are tangible goods directed at customers, as they must be present when the service is offered, and the quality of the service can only be observed when it is put into operation, there being many points of contact with the customer (Crişan & Ilieş, 2010). When it comes to passenger airline services, "value is created through engagement and contact with the customer in a personalised way" (Fitzimmons et al, 2006:11).

The air transport industry plays an increasingly important role both in the economies of different individual countries and in the world economy, due to globalisation (Suhartanto & Noor, 2012). Passenger air transport has a number of specific characteristics compared to other services, with features such as speed, efficiency, comfort, flexibility and cost, as well as safety and security standards, which are more demanding and sensitive than those for other types of transport, such as land transport (ATAG, 2014; Pacheco, Fernandes & Domingos, 2014).

Improving safety standards has always been one of the top priorities, if not the first priority, in the civil aviation sector (Liou, Yen & Tzeng, 2008). Compliance with these requirements plays a key role, and improving them is a major factor in operations management (McFadden & Hosmane, 2001).

As regards passenger air transport services, contact with the customer is achieved through specific activities on the ground (before and after the flight) and during the flight, and service quality is directly linked to the customer's perception and requirements. Thus, the elements that make up a service can make it stand out in the market and ultimately contribute to a competitive advantage.

Passenger air transport services are characterised by a high degree of professionalism which creates many challenges: staff selection and recruitment; continuous training of employees; application of standard procedures for service delivery; ensuring competitive prices; ensuring a high standard of customer service tailored to the customer's needs and expectations; prompt reaction by involving the customer in the delivery process (Schmenner, 1986; Fitzimmons et al, 2011).

Based on the definition and classification of services by Fitzimmons et al (2006), the defining elements of passenger air transport service are as follows:

- *aircraft, equipment and buildings*
- *information*
- *explicit services*: visible outcomes relating to the purpose of the service provision, requiring staff with general and specific skills; provision of the service to the standards promised in the offer; accessibility and availability of the service, etc.;
- *implicit services*: benefits of a psychological nature, vaguely perceived by the customer and not necessarily associated with the basic service process (e.g. airport and airplane ambience).

To develop an effective strategy for air passenger service quality, airlines need to address a number of issues including both elements relating to the service delivery system (availability of aircraft and specific equipment) and operational issues relating to the implementation of effective management policies and practices, which address human resources, service quality, environmental protection, occupational health and safety, etc. (Sumathi, N et al, 2018).

Airlines provide international passenger transport services. Through the excellence of those services, they not only satisfy their customers' expectations and needs, but also charm them. In recent years, there has been an increase in the efforts made by airlines to ensure ever-higher levels of quality in order to remain competitive in an increasingly dynamic and uncertain market.

The interrelated processes of passenger airlines are dynamic and highly innovative, based on the philosophy of continuous improvement as the essence of Total Quality Management (TQM). When it comes to new technologies, there is an increased focus on equipping the fleet with state-of-the-art aircraft with a high degree of safety and comfort.

Based on the fact that the solutions for ensuring competitiveness are first and foremost people, airlines consider human resources to be an important asset for achieving high performance levels, which is why there is an increased emphasis on providing core and specific competencies that facilitate employee empowerment and commitment.

The participation and active involvement of customers in the service process ensures a differentiated approach by taking into account the fact that their impact is achieved through the actual transport and back office activities, and that the quality of service is directly linked to customer perception, requirements and expectations.

The elements that make up customer service therefore determine quality and can stand out in the market to ensure customer satisfaction and loyalty, thus playing an important role in increasing sales.

Service quality promotes customer satisfaction, stimulates the desire to return and encourages recommendations. In the highly competitive airline industry, managers need to find ways to make their services stand out from the competition. To achieve this, they must understand the needs of their customers and set out to meet and exceed those needs. If service quality is to be improved, it must be reliably assessed and measured. Results from various studies show that quality significantly influences both customer satisfaction, which is positively related to the desire to

repeat the purchase, and word-of-mouth advertising (Nadiri et al, 2008).

Gajjar (2013) points out that the main factors influencing customer satisfaction are price, quality, reliability, empathy and responsiveness.

All awards for excellence based on national and internationally recognised standards focus on quality and customer satisfaction. Thus, one of the best-known excellence awards, the M. Baldrige Award (USA), focuses on the level of customer service, for which it awards up to 300 points out of a possible 1000 (Brown, 2008). At the same time, EFQM (the European Foundation for Quality Management) promotes the concept of “customer satisfaction”, showing that it has a major influence on a company’s outcomes. The EQA (European Quality Award) places great importance on customer satisfaction, i.e. how customers perceive the quality of an organisation’s products and services as components of customer service.

The customer service provided by passenger airlines is a key factor for success, delivering value and quality to customers so as to meet their needs and expectations and creating customer satisfaction in order to secure a competitive advantage. Researchers and airline managers alike believe that providing high quality service is an essential strategy for success and competitiveness in an increasingly competitive market. Today, their efforts are focused on measuring and analysing the quality of customer service and developing and implementing effective strategies, policies and procedures to meet and exceed customer needs and expectations.

Today, service quality, customer satisfaction and customer loyalty are at the forefront of management and marketing studies in the increasingly dynamic passenger air transport market, which has undergone sudden and radical changes in the last two years. The size and measurement of service quality is an important concern for most researchers. Customer satisfaction is influenced simultaneously by service quality and price according to the conceptual model of Parasuraman, Zeithaml and Berry (1994).

### **3. Research methodology**

This paper is part of an empirical study aimed at developing a model for measuring and analysing the quality of air passenger services for the purpose of improving the quality of customer service. This paper therefore aims to present some important aspects of the influence of quality on customer satisfaction in a major international airline.

The results of the study are based on quantitative methods of data analysis using the questionnaire as a tool, and qualitative methods using the interview as a tool, in order to assess the respondents’ perception of the quality of services provided by the company under analysis.

To conduct the empirical study on the quality of the services provided by the airline – analysed from the external customer perspective – variables were developed at different levels of aggregation, taking into account the quality level of the services provided by the company under analysis and the factors addressed in the study that influence the company’s performance, based on non-financial indicators. The respondents were customers who had used the flight services.

The research sample consists of 126 customers, i.e. passengers, who have used the services offered by the company under analysis and have agreed to voluntarily participate in this study by completing a valid questionnaire. Given the complexity of the questionnaire due to the volume of information collected, the process required that customers be made aware of the objectives of the study in advance by company contact staff.

### **4. Findings**

Customer satisfaction in air transport is a major factor for ensuring the competitiveness of airlines, and the on-board travel experience has a major influence on the way passengers perceive the quality of the services provided. If customers are dissatisfied, low satisfaction will lead them to choose another airline for their future travel.

Knowing one’s customers and their requirements and having an informed customer base is an important step in increasing satisfaction. By having a good understanding of customer interest and requirements, a company can measure the degree to which the service it provides meets customer expectations.



Customer satisfaction is an essential indicator in the analysis of quality from the perspective of a company's customers; it expresses their degree of satisfaction with the services provided by the company. The statistical variable summarising customer satisfaction is the aggregate variable *Stsf\_cl*, which sums up 9 items/primary variables.

According to the results of the reliability analysis, the variable *Stsf\_cl* has a good internal consistency, with a Cronbach's Alpha coefficient of 0.8834. According to Table 1, the variable *Stsf\_cl* has a mean of 4.1751, a standard deviation (sd) of 0.4177, which is considered good, and a standard error "se(mean)" of 0.0372, meaning that the mean of the variable and the true value are sufficiently close.

Table no. 1 The variable *Stsf\_cl*

variable	N	mean	sd	se(mean)
Stsf_cl	126	4.1751	.4177	.0372

Source: own research

According to the respondents, the most important factors determining customer satisfaction with the passenger service provided by the airline under review are:

- quality of the services provided by the company;
- prices;
- efficiency and honesty of the staff;
- company image;
- prompt handling and resolution of complaints;
- safety and security levels for the service provided;
- past experience;
- quality and performance of the aircraft fleet;
- promptness and quality of the service provided by the company in the event of a cancellation;
- appropriate external communication channels.

The analysis showed that an important factor determining customer satisfaction was the emotional one: passengers felt well treated by the company's employees, felt safe and were offered individual treatment. These aspects explain why customers can be satisfied even if the flight is delayed, the dish they order is no longer available or their ticket is expensive. Furthermore, some research performed by the company has indicated that even if passengers do not forget negative experiences with the company, they appreciate positive ones as well as their emotional relationship with the company, created by factors such as a modern fleet of well-equipped aircraft, the competence and empathy of the employees or the company image.

The passenger air transport sector has experienced rapid growth and transformation over the last 10 years, resulting in increasing competition in the market. This has led airlines to focus not only on customer satisfaction but also on retaining customers through the creation and development of customer loyalty programmes.

Building on the quality research into the degree to which services meet the requirements of the customers who use them (Montgomery, 1996), the model adopted in this study focuses on measuring customer perception of the service provided (offered to customers), which reflects the extent to which the product/service matches the way in which the customer intends to use it. This choice aims to measure service quality as perceived by the customer in order to identify problems and improve quality as an important factor for increased customer satisfaction and loyalty.

The main variables showing the quality of passenger service from the customer's perspective and presented in this study are:

- *Pre-flight ground service quality (PFGSQ)*: summarises the quality of the ground transport process and covers website design; passenger information; baggage policy; online booking and check-in policy; staff attitude and behaviour; passenger boarding

procedures; airport lounges. To these are added the services performed by the airport staff, such as checking and loading baggage onto the aircraft; services performed by shops and restaurants; recreation areas in the airport; adequate waiting areas; airport facilities equipped with new technology, etc. This category is represented by the variable statistic *PFGSQ*, which has a very good internal consistency, Cronbach’s Alpha  $\alpha = 0.9401$ , a mean of 4.0547, a standard deviation of 0.3613 and a standard error of 0.0189.

- *In-flight service quality (IFSQ)*: summarises the quality of the in-flight passenger service provided by the airline and includes aircraft type, cabin configuration, interior design, catering services (quality of menus, beverage selection), flight crew behaviour, employee image, ability to answer questions and provide passengers with assistance, etc. The category is represented by the statistical variable *IFSQ*, which has a very good internal consistency, Cronbach’s Alpha  $\alpha = 0.9523$ , a mean of 4.0789, a standard deviation of 0.3547 and a standard error of 0.0182.
- *Post-flight ground service quality (PFSQ)*: summarises the quality of the passenger service after the flight and refers to airport design; passenger information; baggage return and handling policy; staff attitude and behaviour; passenger disembarkation procedures; airport facilities; adequate waiting areas; provision of transport and hotel services upon request, etc. To these are added special safety and security services. The category is represented by the statistical variable *PFSQ*, which has a very good internal consistency, Cronbach’s Alpha  $\alpha = 0.9705$ , a mean of 4.0295, a standard deviation of 0.5036 and a standard error of 0.0258.
- *Overall (whole process) service quality (OSQ)*: summarises the quality of air passenger service over the whole process and includes the three sections (pre-flight, in-flight and post-flight service quality). It is represented by the statistical variable *OSQ*, which has a very good internal consistency, Cronbach’s Alpha  $\alpha = 0.9560$ , a mean of 4.0722, a standard deviation of 0.5065 and a standard error of 0.0251.

It can be observed that all aspects of the passenger service provided by the airline under review show a good level of perceived quality.

In the following paragraphs, we would like to study the impact that the variables determining the quality of passenger service have on customer satisfaction from the customer’s perspective.

Table no. 2 Influence of independent variables expressing service quality on the dependent variable customer satisfaction

Independent variable	Dependent variable	N	Prob > F	R-squared	Coef.	Std. Err	t	P> t
<i>PFGSQ</i>	Stsf cl	126	0.0000	0.7354	.9446715	.0569341	16.59	0.000
<i>IFSQ</i>	Stsf cl	126	0.0000	0.7091	.8826691	.0743134	11.88	0.000
<i>PFSQ</i>	Stsf cl	126	0.0000	0.4538	.4158358	.0692126	6.01	0.000
<i>OSQ</i>	Stsf cl	126	0.0000	0.7759	.957849	.0488801	19.60	0.000

Source: own research

In Table 2, we see that all the variables studied, which show the quality of passenger service from the customer’s perspective, have a statistically significant impact on customer satisfaction. This is supported by the *F-test*, whose *Prob > F* is 0.000 in all the cases analysed.

We would also like to note that the variable which explains most of the variations in customer satisfaction is the one that summarises the overall (whole process) quality of service (*OQS*), with a level of 77.59%, followed by the one summarising the pre-flight ground service quality (*PFGSQ*), at 73.54%.

As for the value of the regression coefficient, it can be observed that the variable with the highest value is the overall quality of the whole service process (*OSQ*), with an impact coefficient of 0.9578 ( $P > |t| = 0.000$ ). This translates into the fact that the overall quality throughout the service process has a statistically significant impact on customer satisfaction, which means that for an increase of one unit in the *OSQ* variable, the customer satisfaction variable will increase by

0.9578 units. It can also be seen that the pre-flight ground service quality (*PFGSQ*, 0.9446) and the in-flight service quality (*IFSQ*, 0.8826) variables also have a significant impact on customer satisfaction. It should further be noted that, according to the regression analysis in Table 2, post-flight ground service quality (*PFSQ*) has a low impact (0.4158) on customer satisfaction.

## 5. Conclusions

Successful airlines undertake targeted customer studies to gain useful insights into their passengers' experience and develop appropriate quality and performance improvement programmes. The primary aim is to collect information from customers to help the company and its employees better understand the customer experience. Another goal is to find appropriate and effective ways to change the mindset of employees and managers in accepting change when it is required.

The dedicated literature has suggested that the main reasons for improving customer experience are related to the focus airlines put on its positive impact on customer satisfaction, thus increasing customer loyalty and trust. A positive customer experience creates benefits not only for passengers but also for the airline and its employees, which can lead to job satisfaction and commitment to the work and the company.

The company's efforts to ensure customer satisfaction by improving customer service are essential in retaining customers, which costs far less than winning back lost customers or attracting new ones (Heskett et al, Schlesinger, 1997:63). Based on the findings in the present study, we can say that customer satisfaction comes from a positive experience with a specific product or service, contributing to a repeated purchase, positive word-of-mouth advertising and, ultimately, increased loyalty and higher profitability. In the extremely challenging airline market, one of the key indicators influencing competitive advantage and sustainable market shares is passenger loyalty. The concept of a loyal customer has developed over the years thanks to researchers, academics and various schools who have carried out studies analysing the relationship between customer satisfaction and customer loyalty as a measure of company performance.

Customer satisfaction has a great impact on a company's business, as poor satisfaction means low loyalty and consequently fewer repeated purchases. It is therefore necessary to monitor non-financial indicators that express performance, identifying both the strengths of the services provided and the weaknesses – compared to competitors – that require improvement.

As is well known, there are many studies by recognised authors in the field providing evidence of a significant and positive relationship between airline passenger/customer satisfaction and customer loyalty. Satisfaction is known by many researchers to be a good predictor of customer loyalty, and is considered a determining factor in repeated sales, positive word-of-mouth advertising and customer loyalty (Gures et al, 2014).

All these aspects, acknowledged and appreciated by the respondents to the questionnaire and the customers who participated in the interview, demonstrate the company's care for its passengers, based on an adequate and effective customer experience and attitude prior to the actual purchase. That said, it also appears that one of the main sources of increased customer satisfaction and loyalty is the emotional factor determined by both customer satisfaction and the company image.

From the results of the empirical study on the quality of passenger air transport services in the company analysed, we can see that the approach to quality, both as a whole process and in its specific dimensions, has a significant impact on customer satisfaction and loyalty. At the same time, a high level of customer satisfaction has a great impact on customer loyalty.

In conclusion, it can be said that the quality both of the whole process and of specific elements is a good predictor for ensuring customer satisfaction in a very direct manner. Quality is also a good predictor that determines customer loyalty both directly and indirectly through customer satisfaction. In the same context, it is shown that customer satisfaction is a good predictor of customer loyalty.

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# Leaders Leading Networked Mentoring: A New Language of Leadership in the Era of Knowledge

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## Abstract

*The aim of this study is to present a general bibliometric analysis for the main key-words of my research topic.*

*We are living in **The Era of Emerging Knowledge**, where the 4<sup>th</sup> Industry revolution is taking place, and the evolving of knowledge and technologies are so frequent that the ability to change and be current is a necessity. Managers and employees must cope with uncertainty and adapt quickly to rapid changes. **Mentoring** programs are an organizational mechanism for developing professional identity. Despite the leader’s significant role as a mentor and a developer to his subordinates, no **leadership** studies have been found to have combined the evolving knowledge of mentoring and developmental networks.*

*In this study, I will analyze the knowledge from those disciplines, **trying to combine them** into a whole complex that offers a leadership style, leading to the existence of **developmental networks** – the **networking leader**.*

**Key words:** Mentoring, Developmental Network, Leadership, Complexity Leadership

**J.E.L. classification:** J24, J28, J53, J62

## 1. Introduction

The aim of this study is to present a general bibliometric analysis for the key words of the combined conceptualization: **Leaders Leading Networked Mentoring**. Through the **VOSviewer** mapping methodology, I will demonstrate the current knowledge, and its gap.

In this study, we will try to integrate the knowledge from those disciplines into a whole complex that offers a leadership style, leading to the existence of **developmental networks** – the **networking leader**. It must be in service of the organization’s work and goals. Leading the developmental networks of the subordinates should influence the networks’ members and expertise, aiming the occupational development towards organizational goals. “*Leadership networking is about building relationships and making alliances in the service of others . . . and in service of the organization’s work and goals*” (Grayson & Baldwin, as cited in Novak, 2008, p. 7).

We will suggest the “**complexity leadership theory**” (Uhl-Bien et.al 2017), as a leadership concept which enables the leader to lead his team in a way of variability, up-to-date and innovation. This leadership conception (like other developmental leadership theories) emphasizes the role of the leader in the development of his subordinates. There is a complexity in understanding the impact of the manager’s leadership on his subordinates’ professional development. To a better understanding of this complexity, a bibliometric analysis was conducted in three facets. I added “*Management*” to the search key-words, to elaborate the array of data to studies that refers to the ‘role’ at the organizations.

The three facets of analyzing:

- i.* Management /Leadership & Mentoring.
- ii.* Management /Leadership & Mentoring & Developmental Network.
- iii.* Management /Leadership & Mentoring & Complexity/ Enabling Leadership.

## 2. Theoretical background

Vuca!

*“It is not the strongest of the species that survive, nor the most intelligent, but the one more responsive to change” (Charles Darwin).*

We are living in **The Era of Emerging Knowledge**, where the 4<sup>th</sup> **Industry** revolution is taking place. It seems Darwin’s statement is truly relevant!

In the era of emerging knowledge, the evolving of knowledge and technologies are so frequent that the ability to change and be current is a necessity- to the organization, to employees, and to managers. Managers and employees must cope with uncertainty and adapt quickly to rapid changes. **Mentoring** programs are an organizational mechanism for developing professional identity. As careers become more boundary less, so will be the sources from which individuals draw support in their careers. The traditional dyadic mentoring steps aside in favor of the ‘*multiple mentoring*’- the **Developmental network** (Higgins et. al, 2001). Despite the leader’s significant role as a mentor and a developer to his subordinates, no **leadership** studies have been found to have combined the evolving knowledge of mentoring and developmental networks. It seems that the research of mentoring and the study of leadership in organizations are developing in parallel facets. The parallel research did not combine the conceptualization into a world of contemporary organizational knowledge.

## 3. Research methodology

The bibliometric analysis was conducted by **VOSviewer**- a software tool for creating visualized maps based on network data (Eck et.al, 2022). The data were driven from [webofscience](#) or [lens.org](#) (preferring the last, for better exporting options). VOSviewer creates Maps based on items. Items are: terms, publications, researchers. For each item a strength of a **link** is calculated, represented by a positive numerical value. A **link** is a connection between two items. The current bibliometric analysis used two forms of links:

- “**Citation**”- bibliographic coupling links between publications. It can be analyzed by documents, sources or authors. I chose the ‘author’ option, to locate the main authors on each analysis. The strength of a link indicates the number of cited references two publications have in common.
- “**Co-Occurrence**” - links between terms. It can be analyzed by author keywords, all keywords or MeSH keywords. I usually chose the author keyword, unless it wasn’t available. The strength of a link indicates the number of publications in which two terms occur together.

The items are clustered by the strength of the links. An item may belong to only one cluster. There may be items that do not belong to any cluster.

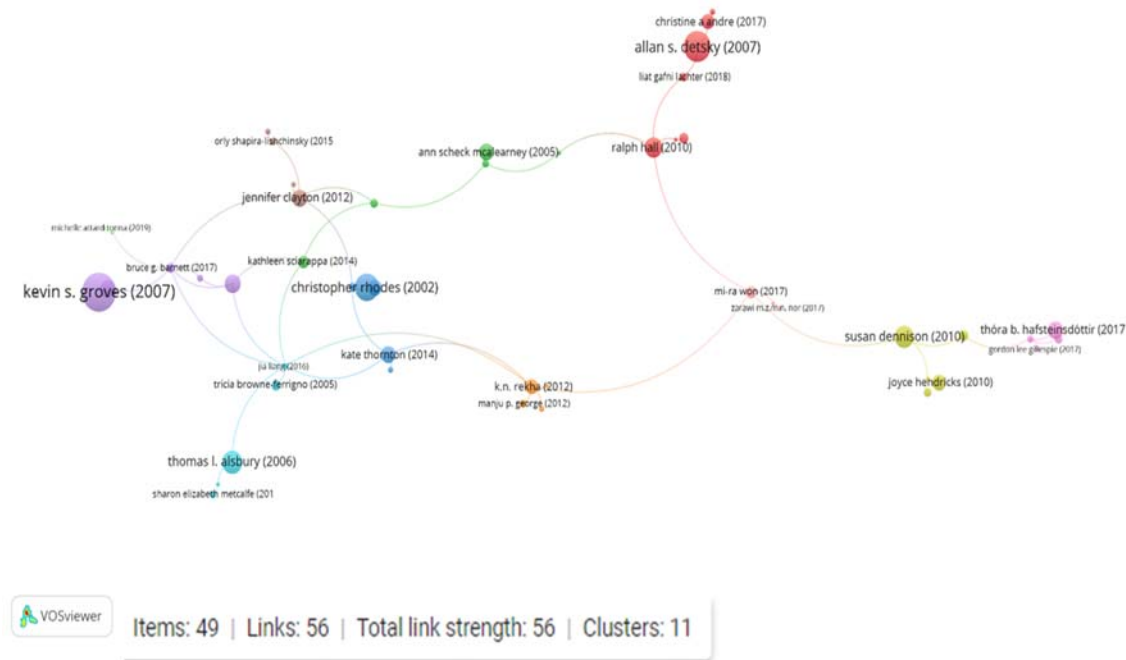
## 4. Findings

### 4.1. Management /Leadership & Mentoring

Image 1 shows the VOSviewer citation map for [*Leadership, Management, Mentoring*]. The Lens search brought up 9,865 publications in the time period: 2001-current (2022). VOSviewer map could include up to 1,000 publications. The most relevant 1,000 produced 730 Links, only 108 of them connected in 18 clusters. Unfortunately, that map couldn’t be shared by VOSviewer, unless I had limited the included items for “*minimum 3 Citations*”. That definition created the map on Image 1. 533 Items were included, 49 of them connected in 56 links on 11 clusters. The total strength of the links is 56. That is much less strength compared to the previous maps mentioned above. It will be the same for the next maps, as an improvement to the argue of our research.

Images 1 and 2 demonstrate the links between studies on those topics. Table 1 below describes the search characteristics.

Image 1 Citation map- *Manag.Lead\_ment* <https://tinyurl.com/2yfydp43>



Source: Own computation

Table no. 1 Lens’s search characteristics for Images 1 and 2

	<b>Image 8</b> <i>Manag.Lead_ment</i>	<b>Image 10</b> <i>Manag.Lead_ment Dev.Net</i>
<b>The search words</b>	<i>Management (Mang.) Leadership (Lead) Mentoring (ment)</i>	<i>Management (Mang.) Leadership (Lead) Mentoring (ment) Developmental Network (Dev.Net)</i>
<b>Lens’s Scholar located</b>	9,865	5,022
<b>Lens’s search link</b>	<a href="https://link.lens.org/NjqlydxBFne">https://link.lens.org/NjqlydxBFne</a>	<a href="https://link.lens.org/hagDsuscvXe">https://link.lens.org/hagDsuscvXe</a>

Source: Own computation

Both searches were focused to Lens’s Subjects:

*Management Science and Operations Research, Industrial relations, Management Information Systems, Tourism, Leisure and Hospitality Management, Strategy and Management, Business and International Management, Management, Monitoring, Policy and Law, Economics, Econometrics and Finance (miscellaneous), Computer Networks and Communications, General Social Sciences, Marketing, Organizational Behavior and Human Resource Management, Management of Technology and Innovation, Education, Sociology and Political Science, Applied Psychology, Economics and Econometrics, Leadership and Management.*

Table 2 below contains the main author for each cluster, the number of times cited and main key words. The most cited authors are: Kevin S. Groves (2007)- 228 times cited, Allan S. Detsky (2007)- 147 times cited, Christopher Rhodes (2002)- 115 times cited. Out of these 3 authors, we find Groves’s key words to be the most relevant to the current study, specifically: Management Development, Leadership Development. None of the main authors’ work were published at the past 5 years! Naturally, the newest the publication is, the less often it could be cited. Looking back at the array of

data, we looked for the “*Normed score*”, which is “*the number of citations of the document divided by the average number of citations of all documents published in the same year and included in the data*” (see Image 2). Those authors got a high Normed score, more than some of the main authors included in Table 1. The main key words of these two authors are closer to the topic of the current research: *Mentoring, Leadership; leadership development*.

Table no. 2 Main author for cluster, Number of citation and main Key Words (By image 1)

Cluster	Main Author	Cited	Main Key Words
1	Allan S. Detsky (2007) Ralph Hall (2010)	147 65	Nurse education; Public health; Peer mentoring; Leadership theory; Higher education; Psychology; Pedagogy; Organizational skills; Peer feedback;
2	Ann Scheck Mclearney (2005) Kathleen Sciarappa (2014)	44 25	Psychology; Health care; Protégé; Leadership development; Health services; Pedagogy; Instructional leadership; Training program; Internship
3	Christopher Rhodes (2002) Kate Thornton (2014) Pak Tee Ng (2012)	115 44 41	Sociology; Pedagogy; Psychological intervention; Coaching; Teacher learning; Medical education; Professional development; Educational leadership; Professional support; Performance management
4	Susan Dennison (2010) Joyce Hendricks (2010)	77 40	Nurse education; Peer group; Nursing; Social support; Health care quality; Peer mentoring; Medical education; Leadership; Educational leadership; Pedagogy; Leadership style; Neuroleadership; Transformational leadership; Shared leadership
5	Kevin S. Groves (2007) Christopher Rhodes (2013) Sally J. Zepeda (2012)	228 55 50	Business; Management; Neuroleadership; Management development; Leadership development; Line management; Cost leadership; Knowledge management; Shared leadership; Psychology; Pedagogy; Coaching; Talent management; Professional development; Educational leadership; Sociology; Instructional leadership
6	Thomas L. Alsbury (2006)	82	Psychology; Pedagogy; Career development; Teacher education; Medical education; Professional development; Internship
7	K.N. Rekha (2012)	36	Employability; Psychology; Pedagogy;
8	Jennifer Clayton (2012)	50	Educational leadership; Sociology; Pedagogy; Accountability; Instructional leadership; Leadership development; Academic achievement;
9	Thóra B. Hafsteinsdóttir (2017)	47	Nursing; Mentorship; Career development; Nursing research
10	Mi-Ra Won (2017)	24	Pedagogy; Mentorship; Peer mentoring; Medical education; Medicine; Coping (psychology)
11	No main Author		

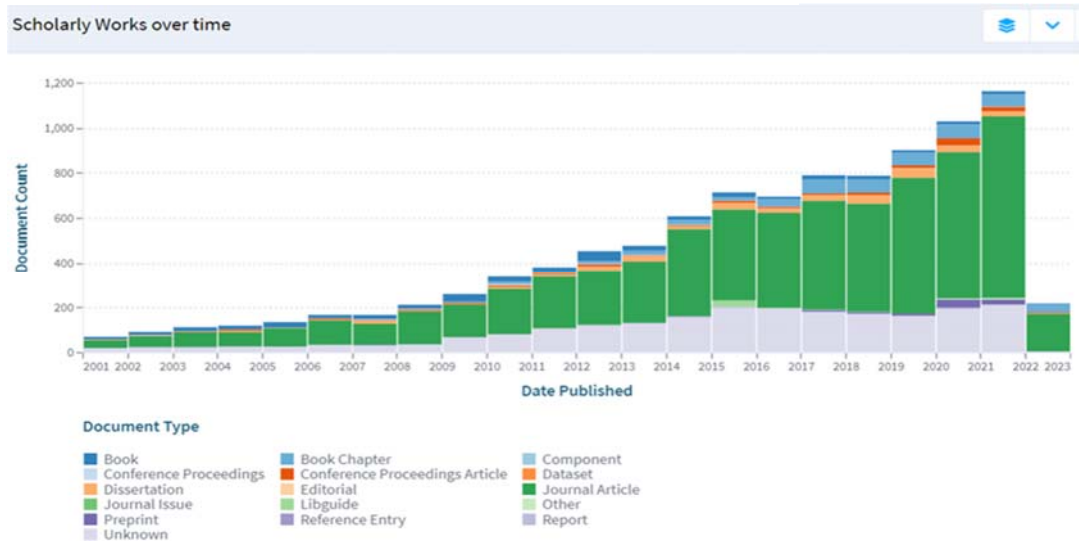
Source: Own computation

Image 2 below is taken from Lens analysis for “*Scholarly Work over time*”. There is a clear trend of increasing Documents count over the years. This trend reinforces the question mentioned above, regarding the low number of cited publications on the last 5 years.



The above analysis (Images 1 and 2 and Table 1) refer to the first facet of Networked Leadership - traditional mentoring. On the next section we will add the facet of Developmental Network, as the Era of Knowledge borderless multiple mentoring.

Image 2 Lens Scholarly Work overtime



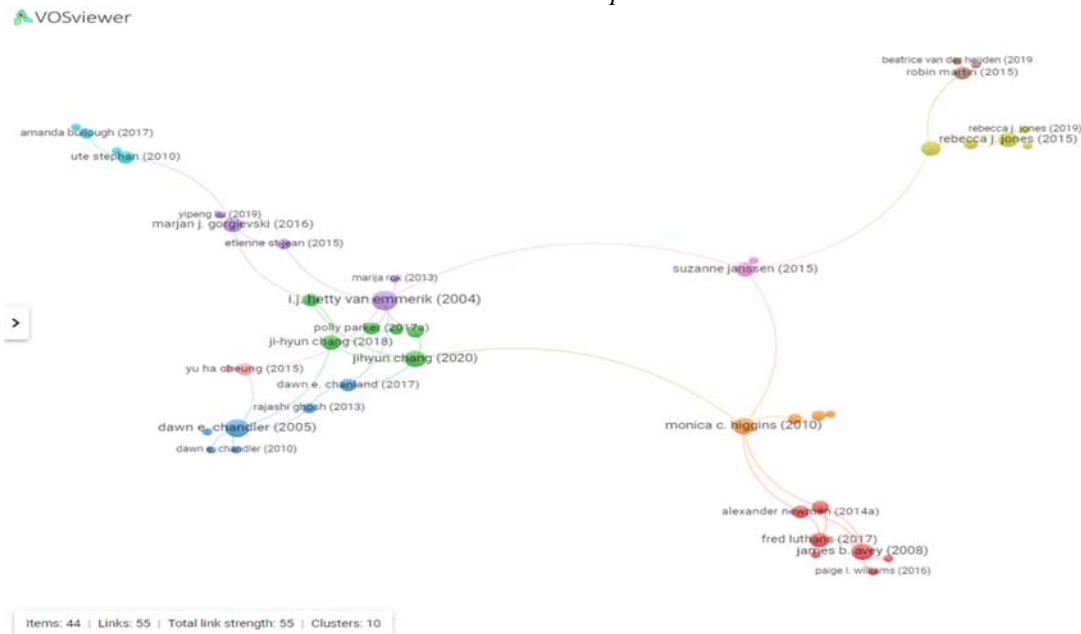
Source: Own computation

#### 4.2. Management /Leadership & Mentoring & Developmental Network

Image 3 shows the VOSviewer citation map for [*Leadership, Management, Mentoring, Developmental Network*]. The Lens search brought up 5,022 publications on the time period: 2001-current (2022). VOSviewer map could include up to 1,000 publications. The most relevant 1,000 produced 934 Links, only 47 of them connected in 11 clusters.

In order to keep standard criteria, we kept the limitation of including items with “*minimum 3 Citations*”. 823 Items were included, 44 of them connected in 55 links on 10 clusters. Total strength of the links is 55. The characteristics of the current analysis are very similar to the previous one. Nevertheless, the items are different, as can be noticed on Table 3 below.

Image 3: Citation map- Lead.Manag.ment.Dev.Net; <https://tinyurl.com/266yhq5y>  
Source: Own Computation



Source: Own computation

Table 3 below contains the main author for each cluster, the number of times cited and main key words. The most cited authors are: James B. Avey (2008) - 783 times cited, Ute Stephan (2010) - 425 times cited, Robin Martin (2015) - 376 times cited, Fred Luthans (2017) - 372 times cited. Out of these 4 authors, I didn't find any key word that is relevant to the current research, or could elaborate new knowledge on the topic.

Like the previous analysis, none of the main authors' work were published in the past 5 years! Again, looking back at the array of data, we looked for the “Normed score”. Those authors got a high Normed score, more than some of the main authors included in table 2.

Table no. 3 Main authors, Number of citation and main Key Words (By image 3)

Cluster	Main Author	Cited	Main Key Words
1	James B. Avey (2008) Fred Luthans (2017) Alexander Newman (2014a) Alexander Newman (2014b)	783 372 276 268	Organizational citizenship behavior; Psychological resilience; Psychology; Optimism; Positive organizational behavior; Social psychology; Organizational commitment; Well- being; Human capital; Applied psychology; Self- efficacy; Authentic leadership
2	Yan Shen (2011) Thomas W. Dougherty (2008)	61 46	Psychology; Career development; Expatriate; Network diversity; Social psychology; Personality; Employee development
3	Dawn E. Chandler (2005)	63	Adult development; Erikson's stages of psychosocial development; Developmental psychology; Psychology; Interpersonal communication; Personal learning
4	Rebecca J. Jones (2015) Gil Bozer (2018)	269 87	Job performance; Coaching; Peer coaching; Applied psychology; Social psychology; Professional development; Goal orientation

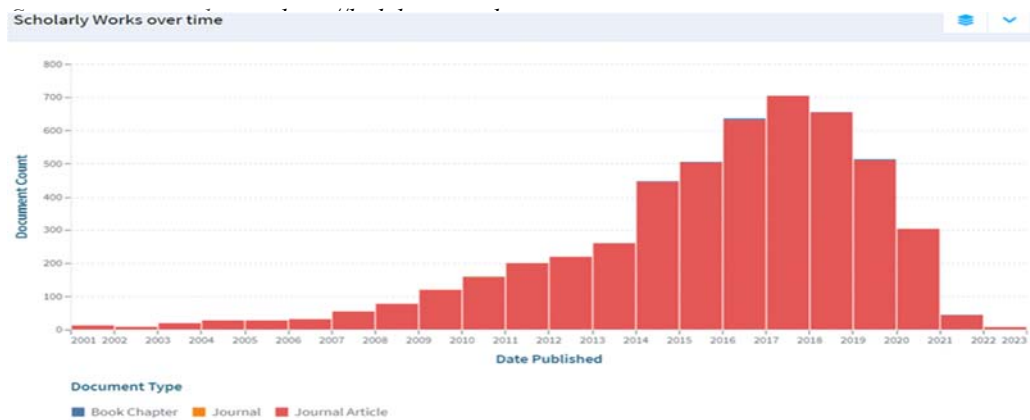
Source: own processing in VOSviewer

5	I.J. Hetty Van Emmerik (2004) Marjan J. Gorgievski (2016)	140 105	Psychology; Job satisfaction; Career development; Career satisfaction; Applied psychology; Social psychology; Personality; Well-being; Differential psychology
6	Ute Stephan (2010)	425	Global Leadership; Economics; Marketing; International business; Organizational behavior; Organizational culture; Social psychology; Entrepreneurship
7	Monica C. Higgins (2010)	58	Psychology; Psychosocial support; Social psychology
8	Robin Martin (2015)	376	Psychology; Job satisfaction; Reciprocal; Positive relationship; Work performance; Social psychology
9	Suzanne Janssen (2015)	43	Psychology; Social exchange theory; Network approach; Transactional leadership; Social psychology; Interpersonal relationship
10	Yu Ha Cheung (2015)	13	Core self-evaluations; Developmental psychology; Psychology; Management; Network size; Network structure; Strength of ties; Strong ties; Personality research

Source: Own computation

Unfortunately, the added authors didn't add relevant key words. And why should it? Lens analysis for “Scholarly Work over time” (Image 4) demonstrate a decreasing trend of Documents count over the last 5 years. It is clear that there will be a small number of cited publications on the last 5 years.

Image 4 Lens Scholarly Work overtime



Source: Own computation

### 4.3. Management /Leadership & Mentoring & Complexity/ Enabling Leadership

The third and last facet of Networked Leadership is the facet of *Enabling Leadership*, a concept driven from *Complexity Leadership Theory*. The theory is based on Complexity science, and it allows us to develop leadership perspectives that extend beyond bureaucratic assumptions to add a view of leadership as a complex interactive dynamic through which adaptive outcomes emerge. In their longitude study, *Uhl-Bien & Arena, (2017)* found that in the reality of complexity, in order to create adaptability in the organization, three types of leadership are needed to be operating in sync: operational leadership, entrepreneurial leadership and *enabling leadership*- a leadership concept which enables the leader to lead his team in a way of variability, up-to-date and innovation. This leadership conception (like other transformational leadership theories) emphasizes the role of the leader in the development of his subordinates.

The following analysis focuses the Leadership concept to *Complexity* and *Enabling Leadership*. The Lens search is for [*Complexity leadership, Enabling leadership, Developmental Network, Mentoring*], (<https://link.lens.org/MXNhw27OqUf>).

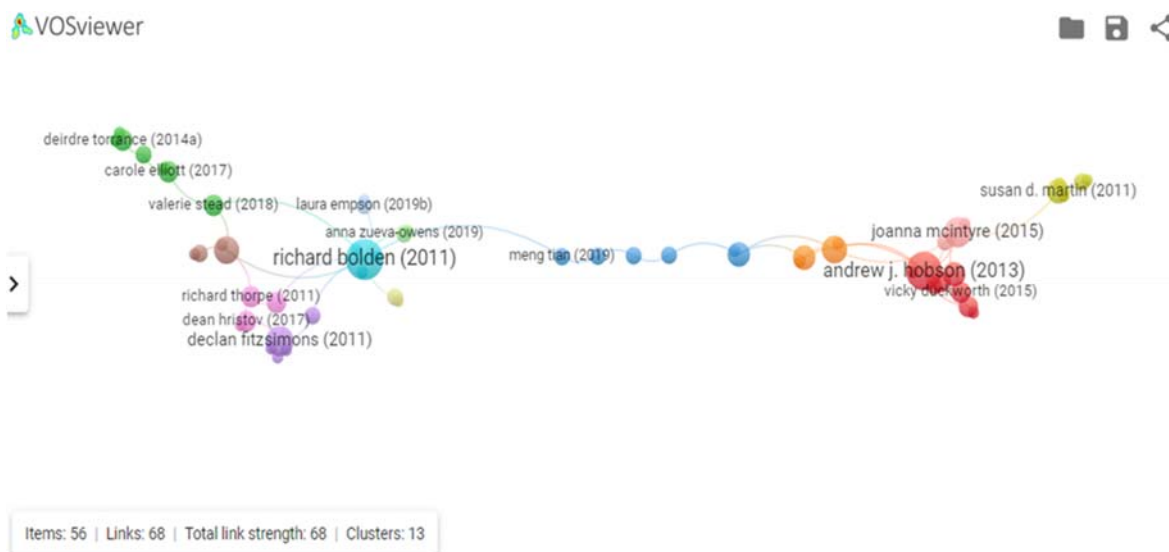
For better understanding of the existing knowledge in this field of research, I analyzed Lens’s array of data in two ways: *Co-Occurrence and Citation*. The Lens search brought up 6,957 publications in the time period: 2001-current (2022).

Image 5 shows the VOSviewer *Co-Occurrence* (Author keyword) map. VOSviewer map could include up to 1,000 publications. The most relevant 1,000 produced 193 Links only 56 of them connected in 9 clusters. Total link strength is 33.5.

The most linked word is *Leadership* (23 links, 4 Co-Occurrences). The weak strength of the map is clear.

From the most relevant 1,000 (out of the 6,957 located) 927 items were included, only 56 of them connected in 68 links on 13 clusters. Total strength of the links is 68.

Image 5 Citation map: *Comp.lead\_dev.net\_ment*; <https://tinyurl.com/yd59mkn2>



Source: Own computation

Table 4 below contains the main author for each cluster, the number of times cited and main keywords. The most cited authors are: Richard Bolden (2011)- 631 times cited, and far behind: Susan D. Martin (2011) - 255 times cited, Andrew J. Hobson (2013) - 128 times cited,

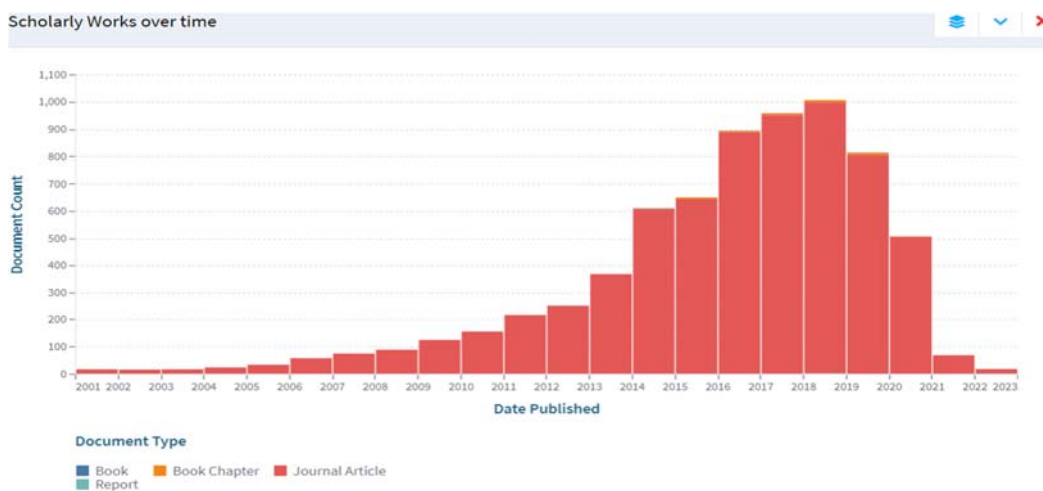
Richard Thorpe (2011) - 115 times cited. Out of these 4 authors, we find Bolden's key words to be the most relevant to the current study, specifically: *Leadership Development*. Most of the main Key words from the previous Image (5) are not included in the main authors of Image 6. The exceptions are: “*Leadership*” with 23 links, which can be related to Bolden's “*Leadership Development*”, and “*professional development*” with 12 links, which appears few times as the main keyword (Image 5/ Table 4). Like the previous analyses, none of the main authors’ work were published at the past 5 years! Unfortunately, looking for the “Normed score” at the array of data, we couldn’t add any author with a high normed score. It is interesting to notice that although the concept of Complexity Leadership is relatively new (Uhl-Bien, et. al., 2007), and should be interesting for the *Era of Knowledge*, the Lens’s analysis shows a decreasing trend of Documents count over the last 5 years (Image 6).

Table no. 4 Main authors, Number of citation and main Key Words (By image 6)

Cluster	Main Author	citated	Main Key Words
1	Andrew J. Hobson (2013)	128	Psychology; Pedagogy; Teacher education;
2	Sharon Mavin (2016)	56	Embodied cognition; Social relation; Sociology; Identity (social science)
3	Michael Fullan (2015) Stewart Ranson (2008)	89 73	Business; Human capital; Capacity building; Professional development; Collective responsibility; Sociology
4	Susan D. Martin (2011) Joke Voogt (2015)	155 122	Sociology; Pedagogy; Supervisor; Teacher education; Educational psychology; Professional learning Professional development
5	Declan Fitzsimons (2011)	115	Epistemology; Sociology; Distributed leadership; Confusion; Social science
6	Richard Bolden (2011)	631	Sociology; Distributed leadership; Leadership development; Social science; Shared leadership
7	Caroline Daly (2017)	23	Psychology; Professional learning community; Pedagogy; Narrative; Teacher education
8	Helen Borland (2014) Beverley Hawkins (2013)	60 51	Environmental resource management; Economics; Process management; Sustainability organizations; Strategic management; Sociology; Pedagogy
9	Richard Thorpe (2011)	115	Sociology; Distributed leadership; Social science; Engineering ethics
10	Joanna McIntyre (2015)	44	Professional learning community; Pedagogy; Teacher education; Professional development
11	No Main Author		
12	Paula Jarzabkowski (2009)	80	--
13	L.A. Havermans (2015)	73	Psychology; Management; Qualitative research; Knowledge management

Source: Own computation

Image 6 Lens Scholarly Work overtime



Source: Own computation

Source: own processing in VOSviewer

## 5. Conclusions

The topic of our research is: Leaders Leading Networked Mentoring. Starting with the inspiring article of Higgins et.al (2001), our aim is to combine the insights of Developmental Network theory, with contemporary Leadership theories.

It seems that the research of mentoring and the study of leadership in organizations are developing in parallel facets. The current bibliometric analysis demonstrates these parallel facets.

The combined search of: Leadership, Mentoring, Development Networks, and Complexity leadership - yield low strength maps, containing a small number of items. In addition, we saw a downward trend in publication in recent years.

At the Era of knowledge, the leader has a significant role as a mentor and a developer to his subordinates. We were looking for leadership studies that had combined the evolving knowledge of mentoring and developmental networks. The analysis was conducted on three facets, beginning with Leadership & Mentoring, than adding Development Networks, and on the last facet- adding Complexity leadership.

The major conclusion of those analyses is that there is a gap in research and knowledge, regarding the topic of our research. All of VOSviewer maps are characterized by small numbers of items and weak strength of links. Most of the items of the Main authors were published more than 5 years ago, and there is a downward trend in publication on recent years.

There are few authors that were more cited, and their key words are of more relevance to the topic of this research:

- Groves (2007): Integrating leadership development and succession planning best practices
- Andre (2017): Students helping students: vertical peer mentoring to enhance the medical school experience
- Hafsteinsdóttir (2020): The leadership mentoring in nursing research program for postdoctoral nurses: a development paper
- Bolden (2011): Distributed leadership in organizations: a review of theory and research.

Managers and leaders of the *Era of Knowledge* should take a significant role as a mentor and a developer to their subordinates. I am suggesting a combined perspective, taking the best insights from both *Leadership* and *Mentoring* fields of study, In the benefit of the organization and the people working in it. The *Enabling leadership* 'way of thinking' that evolved from the complexity of the *Era of Knowledge* (Uhl-Bien et.al, 2017), is a possible way to combine the knowledge.

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## The Service Sector in the Post - Pandemic Era

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### Abstract

*The paper aims at analyzing the tourism industry in the post-pandemic era, as well as its capacity to recover the status of the largest employer worldwide. This recovery must be analyzed in relation to the restrictions that have emerged during the pandemic, and which will be maintained even if to a less consistent extent. Apart from the external factors that affect and will keep affecting the tourism demand, there are also the intrinsic factors that ought to be analyzed, which are meant to shape the mentality of the consumer of tourism services, a mentality that has suffered major changes throughout the pandemic. In this respect I have conducted an analysis of the evolution of the economy in 4 areas, that have been seriously affected by the COVID-19 pandemic, in an attempt to outline an evolution scenario for the tourism activity as well.*

**Key words:** tourism, pandemic, service sector, hospitality sector

**J.E.L. classification:** Z32

### 1. Introduction

Even though we are dealing with a medical phenomenon with undisputable negative effects on the human health, the COVID-19 pandemic has a long-term and much more serious impact on the social and economic environment.

The already fragile tourism industry, because it has always depended on external factors hard to control such as natural disasters, severe weather phenomena, strong seasonality, the dependence on the vacations of the tourists who have a job and who ordinarily follow the same pattern, or epidemics and even pandemics, has been rudely shattered in 2020, when the SARS-CoV-2 virus appeared.

Historically speaking, the catastrophes that have threatened the human life and health have generated strong effects on people and on their behaviors, with the self-preservation instinct prevailing over the primal instincts of satisfying some needs. (Cohn, 2003).

The World Tourism Organization has come up with a package („Tourism Recovery Technical Assistance Package”), with the help of which they are not only trying to revive the tourism industry after its collapse during the pandemic, but also to work on creating a stability of this sector, in order for it to be safer and more solid by setting in motion a new type of sustainable tourism. The interest in this type of tourism resides also in the fact that the tourism industry, just like other sectors it is connected to, will count on this support.

### 2.Theoretical background

The COVID-19 crisis has generated an affluence of studies, researches, opinions and theories regarding the evolution of the tourism industry, by mobilizing critics, specialists, but also entrepreneurs in an attempt to create a sustainable future for the tourism. But, in order to shape a new normality within the tourism industry, one has to understand, to accept and to acknowledge the destructive condition of the mass tourism, which is usually regarded rather as a capitalist accumulation for those who work in the tourism industry (Devine & Ojeda, 2017).

This crisis has singled out a series of other problems dating from the pre-pandemic time, which were already overwhelmingly affecting the tourism activity, but there were no major contributions when it came to solving them. The personnel fluctuation, as well as job cuts, have increased throughout time and pointed out the flaws of the tourism activity, by warning people against unsatisfying salary situations and against the lack of benefits the employees should have. (Baum et al., 2016). Higgins-Desbiolles reckons that the COVID-19 pandemic will produce certain changes in the tourism industry and in the environment, where its main activities unfold. (Higgins-Desbiolles et al.)

Nonetheless, the specialists have warned us against the fact that tour operators will set in motion significant programs in order to revive the tourism activity (Elliot C), which will be implemented right after all the restrictions will be abolished, by ignoring the lessons the pandemic has taught us, a fact already locally confirmed through the high demand of tourism services.

### **3. Research methodology**

The research aims at analyzing the evolution of the tourism phenomenon in contrast with other activities from the service sectors, which have been affected during the pandemic and whose revival has started once the restrictions were gradually lifted, when some activities came back to normal. Thus, certain data have been analyzed, such as the turnover or the increase or decrease of the number of enterprises founded after 2020 for activities in the service sector, in an attempt to set a behavior pattern among the organizations that were severely affected by the pandemic.

In order to be able to validate this hypothesis, I have checked statistical data regarding the increase or the decrease of the turnover of certain companies grouped by the NACE codes such as: 9602 – Hairdressing and other beauty treatment, Physical well-being activities, 5630 – Bars and beverage serving activities, 5610 – Restaurants and mobile food service activities, but also the increase or decrease of the number of companies in each area of activity. I have thought these activities to be specific, because, like tourism, these sectors have been seriously affected by the COVID-19 pandemic.

Unlike tourism, these activities counted on a sooner reopening, because they are activities that can take place within close proximity of the house and don't require serious amounts of cash in order to be bought. Concurrently, the reservation in a restaurant or the reservation in a salon do not imply taking the same risks as when booking a vacation, because they can be easily rescheduled without any additional costs. In this respect, we aim at analyzing the extent to which the above-mentioned activities have been able to get reinvented and have managed to cope with the losses from the lockdown period, in an attempt to shape a scenario for the tourism activity, which seems to take advantage on the lack of constraints since all the restrictions were abolished.

### **4. Findings**

After two years since the economic activities were cut off and of job cuts because of the pandemic phenomenon, some activities, at least the ones in the health system, seem to have been resuscitated without great losses, but the situation does not look the same in all the economic sectors. The hospitality industry has been probably the most severely affected sector, even though it now has a significant revival during a period of time when the number of reservations has rapidly increased as a response to the decision to abolish all the restrictions, but this rapid increase will be followed by a long period of stagnation.

This phenomenon can be found in the beauty sector or in the food industry, areas which have been severely affected by the pandemic in 2020 and that seemed to truly recover as soon as the restrictions were gradually lifted, due to the same phenomenon of escaping the family environment and turning to other social environments or ways of spending the leisure time. Shortly after, the excitement for beauty services began to decrease and people did not go on with their habits prior to the pandemic, but they have rather embraced the habits they acquired during the restriction period. Therefore, the official data indicate an obvious decrease in the number of enterprises in the beauty sector, both because some activities have been shut down, but also because the number of such companies founded with these NACE codes has been reduced. The same phenomenon has been identified in the food industry as well, a sector which, according to the statistics, has suffered a collapse not in 2020, as many expected, but in



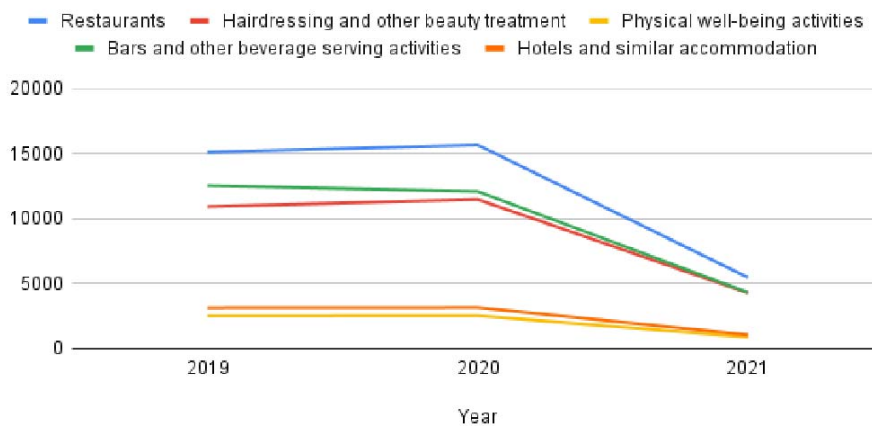
2021, when the population had the possibility of getting vaccinated, and the activities were reopened, even if the restrictions were not completely lifted.

Table no. 1 The evolution of the number of companies in the service sector from 2019 to 2021

Activity type	2019	2020	2021	Changes 2020/2019 %	Changes 2021/2019 %
Restaurants	15120	15685	5486	3,73	-63,71
Hotels and similar accommodation	3159	3177	1076	0,57	-65,93
Bars and other beverage serving activities	12556	12107	4333	-3,57	-65,49
Hairdressing and other beauty treatment	10941	11491	4300	5,02	-60,69
Physical well-being activities	2537	2550	905	0,51	-64,32

Source: own processing after www.lege5.ro

Figure no. 1. Evolution of the number of companies in the service sector



Source: own processing after www.lege5.ro

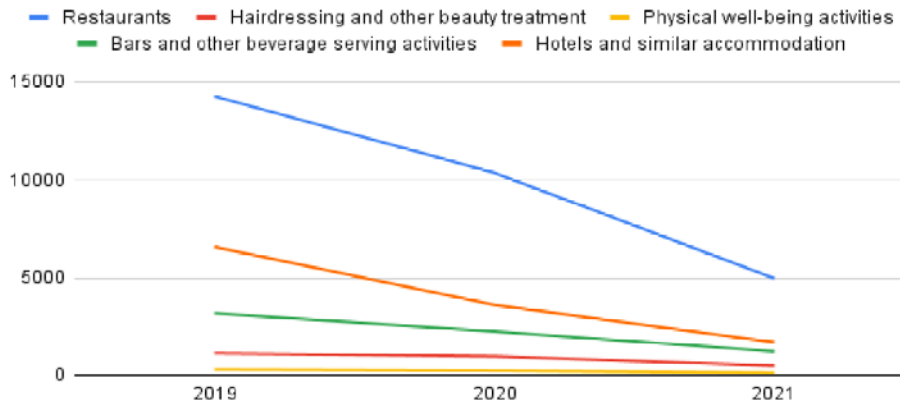
Table no. 2 The evolution of the turnover in companies from the service sector from 2019 to 2021

Millions Lei

Activity type	2019	2020	2021	Changes 2020/2019 %	Changes 2021/2019 %
Restaurants	14262,4	10366,3	4966,3	-27,31	-65,17
Hotels and similar accommodation	6572,2	3614,6	1706,1	-45,00	-73,21
Bars and other beverage serving activities	3191,4	2259,0	1230,2	-29,21	-61,45
Hairdressing and other beauty treatment	1128,8	970,5	500,0	-14,02	-55,70
Physical well-being activities	313,1	50,2	135,6	-20,08	-56,69

Source: own processing after www.lege5.ro

Figure no. 2. Evolution in turnover in the service sector companies



Source: own processing after [www.lege5.ro](http://www.lege5.ro)

By looking at the statistical data of each of the four activities under discussion, 2020 is not the year when they suffered a collapse, as we might believe, but the pandemic effect is well reflected in the data of the year 2021. If we were to analyze the evolution of the number of companies in the service sector, the increases recorded (3,73% for restaurants, 5,02% for hairdressing and other beauty treatment) in 2020 for all company types, except for the ones with NACE code 5630 (-3,57%) are visible. In 2021, the collapse was massive for all these company types (-63,71% for restaurants, -60,69% for hairdressing and other beauty treatment). This phenomenon is a paradox, because in 2020 the economy was completely paralyzed for a few months, there was no vaccine and no treatment, and we were not very familiar with the evolution of the disease.

If we look at the evolution of the turnover, one can easily notice the decreases that occurred for all company types, both in 2020, and especially in 2021. Thus, the turnover for restaurants has registered a decrease of 27,31% in 2020, and of 65,17% in 2021.

In spite of this, right after the lockdown was partially lifted in May 2020, the economy had a strong recovery, and the pandemic effects were regarded as being minor ones at that particular time, bearing in mind the evolution of the sectors and the loss recovery. But the governments have gradually stopped supporting the economy, because part of the restrictions were lifted, and they even came up with the solution for the virus treatment or for preventing the virus to spread with the help of the vaccine. Clearly the four sectors have registered significant losses, many companies were shut down in 2021 without being replaced by other companies, and the entrepreneurs became interested in safer areas of activity.

The same phenomenon is visible in the present time as well, because one has the illusion that the tourism industry will not only come back to its pre-pandemic financial situation, but it will also recover all of the losses it had during the pandemic, because the people who invest money in this sector reckon new investments as the most appropriate thing to do based on some favorable predictions of the moment. Nonetheless, this recommencement must be taken reservedly and restrainedly, and it should be submitted to an evaluation over a longer period of time, because there is a risk, after the tourist achieves satisfaction, of coming back to a more reserved attitude towards the tourism phenomenon, if we take into consideration other economic phenomena that affect the incomes of the population and even its safety.

Most of the entrepreneurs in the hospitality industry have made the decision to increase the prices, first of all in order to cover the losses from the pandemic period and to mitigate the impact of the inflation. For now, this price increase, even though it does not affect the tourism phenomenon, will be perceived as an insubstantial decision, because the increased prices are no valid reason for improved quality services or better conditions, since they are warranted only by the losses the sector has registered.

Once the need for tourism services is satisfied, there will be other needs that will take over, aiming at an inversion of the human needs, so that the needs with regard to spending the leisure time, especially the expensive ones, will be gradually replaced by current needs such as the physiological needs, which for many people seem to be hard to hide.

Moreover, the pandemic has pointed out more than ever the negative aspects of the hospitality industry, such as the seasonal employees or even the employees without a legal employment contract, who have lacked any type of support during the pandemic. Due to the uncertainty of the job, the problems related to the shortage of qualified workers and the problem that has major effects on the customer's satisfaction degree, became more and more severe during the post-pandemic period, when employees, especially well prepared and competent employees, switched to jobs with a better job security in other industries which had a higher degree of resilience during the pandemic. What is also important is the fact that people regard the current period as an exclusively post-pandemic period, although the powerful countries with top health systems seem to not have gotten over the pandemic, and this occurs long after China appeared to have a better handling capacity than Europe's developed countries.

According to the current data, 61% of the employees worldwide choose not to report officially their work, and there are also a lot of enterprises that start their activity without declaring it. In what the tourism activity is concerned, apparently there seems to be a higher percentage of the unreported employment because of the specificity of the tourism activity (Williams & Horodnic, 2020). The same hypothesis goes also for the tourism organizations which have the tendency to avoid declaring all their incomes, some of them being family organizations.

This is a widespread phenomenon because it covers not only the accommodations or public catering units, but tourism also includes the transportation activities, especially the micro-activities which tend not to declare their incomes, such as local transport between different resorts or tourist attractions, the maritime transport with small capacity ships or other types of employees who provide for the entertainment in the accommodation units or even when it comes to maritime transport.

Hence, even the salary increases for the personnel in the tourism industry will not solve the problems, if we think of the lack of stability and of the reliability of the job, the strong seasonality, as well as the trauma caused by the COVID-19, which lead to the conclusion that the tourism industry is a fragile sector, that should be reinvented based on the sustainability.

## 5. Conclusions

The present paper contributes to the vast research on reorganizing the tourism activity set in motion by the specialists, by developing an analysis model of the reorganization of the tourism activity which tends to be more pessimistic, bearing in mind the current and future limitations, as well as the challenges in the tourism industry.

Therefore, the fervor the decision of lifting the restrictions came with, the large amount of requests for numerous vacation packages, the rise of the incomes in the tourism industry which have revived this area must be dealt with reluctantly and maturely, if we think of the economic and social context people try rebuilding a seriously affected sector in. Thinking about past events (epidemics, natural disasters etc.) does not stand for a sustainable analysis, considering that, on a large scale, there is a favorable context which is a supporting and development point for tourism, a context which now is no guarantee.

Even though a lot of organizations such as WHO state the fact that tourism has always proven to be capable of recovering and of clearing the road of obstacles, the COVID crisis will point out that the tourism industry is not as shock-resistant as people thought it to be, it cannot be analyzed separately, but in relation to other industries which have also had major collapses and cannot be rebuilt individually.

Therefore, we cannot speak of coming back to normal, but rather of rethinking the perception of normality. The COVID pandemic has affected not only secluded or isolated areas, the period of time when this virus was active was long and it still has impact on certain regions, not only tourism was affected, but also other branches related to it, and it has had a strong impact on the labor market, which has migrated to other more stable types of activities. In this way, tourism will keep bumping into limitations, restrictions will be introduced, considering that this is a pollution factor and a means of transmitting different epidemics turned into pandemics, but also that it has a major impact on the quality of life in certain already crowded areas. A reorientation towards the domestic tourism or even towards the rural tourism might be an alternative to reorganizing the activity. Considering the actual conflict caused by the outbreak of the war and the inevitable threat of the outbreak of a food crisis, the agritourism will have a special significance as long as the activities will go by certain environment protection rules, ensuring the sustainability of an already fragile economy.

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## Leadership Styles and Organizational Behavior

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### Abstract

*The present paper proposes to investigate a potential relationship between the two variables specific to the human resources field: leadership and organizational behavior. Leadership refers on how the person invested with a certain power exteriorizes and behaves, derived from the position of the employed leadership, its predictability, fidelity, sustainability and the multitude of its particular characteristics. The perception over a leader it may be subject to errors of judgement and its nature may take a distorted form when the assumption on the subject is rather general, not specific. The uniqueness of each individual leader, alongside with his charisma, cannot be globalised, but need to be reported separately according to the group, the society and the field to which he is committed. On the other hand, organizational behavior brings with it a wide range of responsibilities, from knowing and meeting the needs of staff, to accepting and understanding the culture of each member of the organization.*

**Key words:** diversity, leadership, organizational behavior, typologies

**J.E.L. classification:** L20, L22

### 1. Introduction

First of all, leadership is a behavioral complex, a typical activity profile of a person in a leading position of a group, organization, or community (Zamfir & Vlăsceanu, 1998, p.604).

On the other hand, organizational behavior has been conceptualized by Fritz Roethlisberger and Elton Mayo, which analyzed the relationships between individual and group behavior, as well as how they merge and express influence on labor productivity. This stands out for dynamism, energy, vivacity and progress. Since individual behavior has been expressed over time rather by personality subsystems, the collective one, which is also the subject of research, has been presented as: the conduct of several actors acting in a more or less coherent way to achieve a common goal (Gilles, 1998, p. 32).

The research carried out in this respect has been a major interest in the field of research and is differentiated because of the high exposure of the needs, shortcomings, strengths and vulnerabilities existing in the relationship of leadership - organizational behavior. It also adds value to the field of study by focusing on work in terms of both efficiency and effectiveness, and in terms of personal, situational and social factors. A distinct note of the research is also provided by the exposure of scientific evidence of professional stress, which the World Health Organization considers to be an occupational disease. Undoubtedly, dynamics of leadership - organizational behavior varies due to elements such as: interpersonal harmony, support, empathy, altruism, trust, communication, initiative and more.

## **2. Theoretical background**

### **2.1. The personality trait-centered approach**

Numerous research in leadership has focused on identifying those personal traits that can differentiate leaders from non-leaders. Their primary objective was to argue what an effective leader is, not how to run effectively. The initial presumptions were those that expressed that not everyone can lead, and the one who is „born” to lead has a number of specific characteristics both physically and psycho-socially. It found that there is a strong relationship between personality traits and perceptions of leadership style, with a large number of specialists believing that intelligence, male or female interests and dominance correlate with the ability to be a leader.

However, it is considered essential to take into account several factors in order to avoid generalization and erroneous judgments.

Although trait theory has not been successful in establishing an invariable set of particular traits that distinguish between a leader and a subordinate, it has brought to the fore the need to use personality tests and interview in the process of selecting managers. Moreover, it has established the ideal qualities and abilities to be considered in order to occupy a certain position.

### **2.2. Behavior-centered approach**

Within this approach, exploring a leader’s behavior represented the key concept. In this sense, interest has derived from identifying the tasks that an effective leader can solve and not from the features that he or she would need. Research by the University of Ohio and the University of Michigan has revealed a number of essential issues.

Ohio University has brought to the fore the concepts of: Initiation of the structure, respectively consideration. Structure initiation refers to leadership behaviors derived from the establishment of procedures and ways to achieve organizational objectives and as the ability to consistently direct the work of the working group.

At the opposite pole, consideration refers to the motivational process of each person, to what satisfies him in relation to the activity carried out and to the homogeneity of the group. Within this dimension, the role of the leader is to focus on the organizational climate and the needs of the staff. The two dimensions, the initiation of structure and consideration, combine in such a way that they „give rise” to four distinct types of leadership.

The first model attests the existence of a close relationship between behavioral variations of a leader and the performance of the work group. In order to achieve an optimal level of satisfaction, the ideal situation is represented by the high level on both dimensions: structure and consideration.

The second model reveals that regardless of the combinations made, a high level of consideration is always associated with a high level of satisfaction.

The third model expresses that the effectiveness and attitude of a leader depends on the nature and size of the group. Depending on the numerical character of the group, adopting one dimension or another will create varying effects.

The latter model establishes that the two dimensions coexist and have an interdependence ratio.

On the other hand, the University of Michigan has established that there are two types of leaders: production-centered and employee-centered, with the chosen orientation being in most situations and faithful.

The orientation on production attests the leader’s concern for achieving performance as well as the focus on working methods, a specific note of which is the supervision of the staff activity.

It is the orientation of leaders on employees that values team spirit, communication between group members, involvement of staff in decision-making and cultivation of mutual respect, trust and devotion.

### **2.3. The theory of behavioral continuum**

The theory elaborated and developed by Rensis Likert assumes the existence of four styles of leadership: the exploitative-authoritarian style; the benevolent-authoritarian style; the advisory style and the participative style.

The exploitative-authoritarian style is identified by the hierarchical level of power (up-down), frequent punishments and threats, poor communication process, lack of group cohesion and minimal productivity.

The benevolent-authoritarian style differs from the previous one through greater indulgence at the decision-making level and counterproductive phenomena: absenteeism, fluctuation of personnel and low productivity.

The advisory style is identified by effective communication, regardless of the hierarchical level, promoting group values such as cohesion, dynamism and unity, high satisfaction, high motivation and increased productivity.

Participative style is identified by hypercomplexity, promotion of the principles and participation of the group in the work activities, efficient, full communication and maximum productivity.

#### **2.4. Cognitive theory**

Starting from the importance of the decision-making process and from the hypothesis that it is rather social because it targets interactions, events and social situations, the specialists evaluated not only the ability of leaders to solve problems, but they also created a model meant to attest to their orientation on two types of problems: group and individual.

The decision-making model of Victor Vroom and collaborators revealed the existence of the following leadership styles:

Autocratic style I expresses the fact that the leader solves problems and makes decisions on his own using the information held at that time.

Autocratic style II expresses the fact that the leader uses information obtained from his subordinates, but he also makes the decision on his own. They are not aware of the problem, their role being only to provide solutions.

The advisory style I attests the fact that the leader informs the subordinates about the problem, accepting ideas, solutions, proposals, but only individually, not collectively to make a decision.

The advisory style II demonstrates that the leader informs on the problem, accepts ideas, solutions and proposals, but only in a group way, in order to reach a decision.

The group style highlights the fact that the leader assigns the problem to his subordinates, as a group, evaluating it together and reaching a common denominator. The leader's concerns are to direct, maintain and fix the crucial points of the problem, being equally interested in accepting and implementing the solution supported by the whole group.

#### **2.5. Path-goal theory**

The fundamental principle of the „path-goal” theory is that a person has the ability to engage behaviorally in various functions when there are facilitating conditions. Starting from this aspect, the proposed model targets the leadership styles approached by a leader, the particularities of subordinates and environmental factors.

In this regard, the following typologies are outlined: directive styles (involves the free interpretation by subordinates of work tasks); supportive style (aims at the relationship of equality between leader and subordinates); participative style (involves consulting subordinates before making decisions) and achievement-oriented style (expresses concern for setting and meeting goals, towards the achievement of the optimum performance and towards the continuous progress).

The characteristics of the subalterns refer to the experience and skills they hold for one function or another, while environmental factors express the type of professional task, the working group and the means by which authority is structured.

The „path-purpose” theory differs from the other theories by the coexistence of the organizational, cognitive and motivational dimension, as well as by the decisive impact they have on the working climate. This surprises by highlighting the inter-human differences regarding the satisfaction and performance in work.

#### **2.6. Organizational behavior**

Workplace behavior is a fundamental component of the organizational environment. According to specialized research, organizational behavior encompasses all actions and interactions of members of an organization that can directly or indirectly affect its progress. This represents in equal measure

also a reaction to particular or general situations that people come into contact with within the corporation.

Healthy organizational behavior is the one that derives from solid, sustainable, inclined and based on human values interpersonal relationships, from support, equity, respect and tolerance, aspects that make it possible to orient toward performance and evolution.

There are a number of internal and external factors that influence workplace behavior and can have unintended effects on the entire organization.

In addition to leadership style, there are other variables involved in generating behaviors, such as organizational culture, professional responsibilities, communication, personal life and workplace relationships.

Organizational culture comes to be directly responsible for the degree of comfort, harmony and joy experienced by people in the workplace. Being made up of attitudes, behaviors, beliefs, habits, thoughts, values, rules and regulations, this requires transparency and provides security. Strong and stable organizational cultures are defining for professional development and sustainability. Research shows that high levels of organizational culture determine behaviors by which people manage to cope with difficult, crisis situations, to enjoy a sense of belonging to a group and feel protected.

In turn, professional responsibilities determine the emergence of varied behaviors. Not by chance, positioning the right man in the right place is a wise decision that favors achieving the yield in the shortest possible time. When people benefit from guidance, being directed toward training and developing professional skills, they end up being much more informed, self-assured, much more committed to work and productivity and not least much more connected to the idea of self-actualization. Otherwise, we will have to deal with exploitation, overuse, confusion, poor quality of work, lability, passive or aggressive behavioral responses that will alter the whole way things work. The goal of management is, among other things, to correctly trace tasks and distribute them according to the skills of each individual, to avoid victimization, frustration, misconceptions and turning the entire working environment into a hazard.

Effective communication requires not only a bilateral report, but also the identification of the best method of issuing and receiving information. Within an organization, decisions, dispositions, suggestions and opinions must be clear to avoid multiple interpretations.

Human behavior changes when people notice that they are being avoided, unwanted, and may end up feeling unimportant, abandoned, and this can lead them to act in various ways. It is not in the advantage of the organization for staff to lose interest in their professional activity on the basis of this consideration, as it may at any time express personal discontent, displeasure and dissatisfaction in the most inappropriate and harmful manner possible.

In terms of personal life, studies have shown that most family problems determine the expression of irrational behaviors in the workplace. Unfortunately, situations that people face outside the profession cause them to be anxious, stressed, tense, to have no results and even „explode” at certain times toward others. Most of the time, when personal life is stable, the behaviors adopted at work are pleasant, inclined towards altruism and empathy.

Finally, workplace relationships reflect both people’s social needs and the existence of partnerships, regardless of their sentimental nature, built on sincerity, devotion and values, common ideals. In the case of isolation or self-isolation, the behaviors emitted become disagreeable and harmful to others. Studies show that high levels of inter-human relationships generate energy for the professional environment, outline distinct visions and ensure a harmonious overall climate for all involved.

Organizational behavior is assimilated to collective behavior and must be observed from several angles, taking into account the degree of organization, objective, duration and social acceptance.

Gustave Le Bon’s law of mental unity of the masses (2007) explains collectivity in terms of emotions, feelings, thoughts, intentions, and actions of those in the crowd that end up being unanimous. Collectivity implies identical principles, characteristics and ways of achieving goals that make possible the occurrence of the phenomenon of mental contagion. In the event of this contagion, principles, beliefs and opinions are unconsciously accepted. Thus, collective thoughts and actions can determine positive or negative behaviors, in their consistency, the degree of maturity and emotional stability being defining.



## **2.7. Cognitive dissonance and the theory of planned behavior**

The theory of planned actions expresses that in most situations, behavioral predictions can be made based on behavioral intentions. Starting from the assumption that people are rational and the behavior emitted is guided by information, knowledge and attitudes, it is concluded that intentions derive from thought behavior. It is also noted that attitude changes depending on the rewards or losses that a certain behavior brings. When there are several conflicting thoughts, people experience unpleasant psychological states.

On the other hand, the theory of cognitive dissonance targets those behaviors that are not consistent with the person's attitudes, creates discomfort and causes attitudes to be modified in such a way that they are consistent with the behavior. Research has shown that the prohibition of certain behaviors does not cause their change in reaction, but what will make the difference will be the advice, the recommendation in this regard. Because the adaptation of the human being to the environment in which they live is not exactly easy, attitudes and behaviors end up conditioning each other.

Undoubtedly, there are other factors that can determine the prediction of behavior, such as the degree of coercion, social pressure, and the possibility that the situations people have gone through will recur.

From an organizational point of view, careful observation of staff can make it possible to infer future behaviors.

## **3. Research methodology**

Organizational progress is ensured by a multitude of specific elements, including both the ability of the leader to manage the problems and situations they face, from the best known to unpredictable, as well as the organizational behavior in their hypercomplexity.

That is why, in the present paper, we have set out to look at the specific features of leadership style, the heterogeneity of human behavior, in organizational terms, and the potential relationship between the two multiple subspects, specific to the field of interest: communication, professional stress, organizational culture, influence and power.

The applicative objectives of the paper were to identify the predominant leadership style at the organizational level; to evaluate organizational behavior and to determine the possible relationships between the predominant leadership style and organizational behavior, with the help of appropriate tools aimed at evaluating variables.

The general hypothesis was that there is a relationship between leadership styles and organizational behavior.

In addition, the working hypotheses were that:

- There is a positive, statistically significant correlation between participative leadership style and autocratic behavior;
- There is a positive, statistically significant correlation between participative leadership style and paternal behavior;
- There is a positive, statistically significant correlation between participative leadership style and supportive behavior;
- There is a positive, statistically significant correlation between participative leadership style and collegial behavior;
- There is a positive, statistically significant correlation between authoritarian leadership style and autocratic behavior;
- There is a statistically significant positive correlation between authoritarian leadership style and paternal behavior;
- There is a positive, statistically significant correlation between authoritarian leadership style and supportive behavior;
- There is a positive, statistically significant correlation between authoritarian leadership style and collegial behavior.

Quantitative research has focused on the development of a questionnaire, with the method of collecting data being psychometric. Its objective was to collect information relevant to assessing both leadership and organizational behavior from 70 employees located in Argeş county, with ages, backgrounds and various professions. We wanted to shape rigorous, extensive analysis that includes employees from organizations with a distinct profile. The data collected was used to identify a possible relationship between the two research variables: leadership and organizational behavior.

Regarding the tools used, the questionnaire for the leadership style variable, „T-P Leadership Questionnaire”, respectively the questionnaire for the organizational behavior variable, „Organizational Behavior Survey” offered to employees for completion, laid the foundation for the academic approach.

„T-P Leadership Questionnaire” focuses on the characteristics of leadership style, by highlighting two types of guidance: people-oriented (P) and task-oriented (T). The two guidelines focus on participative leadership and authoritarian leadership. The questionnaire consists of 35 items, located on a Likert-type scale, with five possible answers, as follows: always; often; occasional; rare; never.

„Organizational Behavior Survey” focuses on organizational behavior, by highlighting four types of behavior in which the organization engages: autocratic, paternal, supportive and collegial. The questionnaire consists of 20 items, on a Likert-type scale, with five possible answers, as follows: almost never; rare; occasional; frequent; almost every time.

#### 4. Findings

The hypercomplexity of the organizational environment, together with its vitality, is expressed by the multitude of interacting factors at the level of the professional activity carried out by people. In this respect, the research developed focuses on leadership and organizational behavior, with the related statistical processes constituting a solid argument in the academic approach.

We wanted in this way to follow the human being closely in the laborious process of work and to identify what it is experiencing, what changes would like, what feelings might have in relation of its work activity, what visions and prospects would have in relation with the subject of interest, how would like to be perceived by the leader, what expectations would have from him and especially what motivates him to go, day by day, further, despite all the obstacles.

Far from the already renowned information, the report leadership - organizational behavior is also fundamental in terms of the quality of human life. Leadership uses varied typologies with multiple particularities in terms of both efficiency and effectiveness, as well as in terms of satisfaction, motivation, degree of authority, degree of assertiveness, degree of aggressiveness and organizational climate.

Thus, the classical approach to leadership style (Lewin, Lippitt & White) provides the existence of three distinct styles: authoritarian, democratic and laissez-faire. The specific features were developed by them, taking into account: satisfaction, efficiency and group dynamics. The first style is distinguished by efficiency, goal orientation, multiple work tasks, control, assertive attitude and often by employee dissatisfaction, tension and predisposition to conflict.

The second style involves the leader's orientation toward people, toward their needs, toward the creation of a favorable working environment for evolution, development and toward general positive attitudes.

On the other hand, organizational behavior is closely related to both the leadership style approached and the professional activity itself. There are many factors that influence the appearance of one behavior at the expense of the other, and according to the literature, in order to create positive, agreeable behaviors, oriented toward accomplishment and professional success, equally positive attitudes are needed to cultivate them. In other words, in order to achieve what is desired from a behavioral point of view, leaders need to display the behavior that employees would want and would cause them to act in the optimal manner.

In this respect, Pearson correlation, as a process of inference statistics, the one aimed at testing the working hypotheses mentioned in the previous chapter, determined the existence of positive correlation, statistically significant, only in the case of two working hypotheses. Thus, the hypothesis attesting that there is a statistically significant positive correlation between authoritarian leadership style and autocratic behavior has been confirmed because  $\text{Sig} = 0,029$ , where,  $\text{Sig} \leq 0,05$ .

One possible explanation for this is that authoritarian leadership style is precisely the one for which productivity and organizational objectives prevail over people. This style, which involves conducting the entire professional activity and in which the subordinates are not entitled to reply, are not involved in the decision-making process, they are not consulted on the decisions made, nor do they matter in terms of ideas they could express and emit at work, is unfortunately associated with appropriate behavior. Respondents believe that this style of leadership imposes an autocratic behavior, characterized by satisfying the leader’s need for power, attitudes such as „the order is executed, not discussed”, his obvious inclination to ask for things, without giving, using threats and penalties that cause employees to obey, but not to give respect to it.

Table no.1. The correlation between authoritarian leadership style and autocratic behavior

		Stil de conducere autoritar	Comportament autocratic
Stil de conducere autoritar	Pearson Correlation	1	,262
	Sig. (2-tailed)		,029
	N	70	70
Comportament autocratic	Pearson Correlation	,262*	1
	Sig. (2-tailed)	,029	
	N	70	70

Source: Created by the authors through the statistical software S.P.S.S in order to test one of the working hypotheses

At the opposite end, the hypothesis that there is a statistically significant positive correlation between participative leadership style and supportive behavior has been confirmed, since Sig = 0,011, where Sig ≤ 0,05.

The arguments that support the hypothesis are that the right attitude of a leader is a small detail that makes a major and significant difference.

Thus, directing the leader toward human needs, integrating them into decision-making, effective communication, conflict prevention and mediation, cultivating self-motivation, encouraging growth and development of human potential, both personally and professionally, together with its deeply generous and benevolent attitude, represent a predictor in establishing organizational behavior.

The interpersonal abilities of the leader also play a decisive role in the report under consideration as they refer to: support, availability, flexibility, optimism, future orientation, initiative to align personal and organizational interests in the desire to create a unitary whole and to establish a working environment.

In the end, looking for the background and not the shape, looking beyond stereotypes, being open and visionary and considering man the measure of everything is what determines evolution.

Table no.2. The correlation between participative leadership style and supportive behavior

		Stil de conducere participativ	Comportament suportiv
Stil de conducere participativ	Pearson Correlation	1	-,304*
	Sig. (2-tailed)		,011
	N	70	70
Comportament suportiv	Pearson Correlation	-,304*	1
	Sig. (2-tailed)	,011	
	N	70	70

Source: Created by the authors through the statistical software S.P.S.S in order to test one of the working hypotheses

## 5. Conclusions

„Leadership Styles and Organizational Behavior” represent the research that has been aimed at analyzing how the two variables interact and determine the effects of leadership on organizational behavior, as well as the validity, energy charge that this report provides to the environment in which it is deployed.

A healthy leadership at the organizational level, according to the specialists, is the one which identifies itself through equity in attributing tasks, knowledge and taking on roles, duties, obligations, objectives, successes and failures, and undeniably focus on the needs of the human being - authentic human being, incomparable, with reference systems and multiple perspectives, with personal ideals and dissatisfaction, but for which appreciation and valuing the true standards produces the wonders of tomorrow.

The general hypothesis of the research, which aims at the relationship between leadership styles and organizational behavior, an approach to which 70 respondents contributed, of which, 33 females and 37 males, from Argeş County, aged between 20 - 42 years, with distinct backgrounds and professions, has led to multiple results.

It was found that the two leadership styles: authoritarian and participative, respectively, are associated with specific behaviors, in the case of the former, major control by the leader, huge responsibilities, planning and forecasting targets, lack of support and understanding, along with minimal consideration of subordinates, reveals a socially unpleasant behavior and can always lead to the same type of behavior on the part of employees.

In the case of the second style, the participative one, the quality of life of the employees is considerably improved, the support they have from the leader making them feel that they are part of a real family and that their opinion matters. It is fundamental for people to be treated properly, to know that thanks to them society is prosperous and that they can always lay the foundations for great, bold goals, because a good leader has taken care to make them notice this.

The participative leadership style is also the one that is differentiated by the courage it offers people to be heard, by obtaining what is he wants without resorting to force and through the correct vision of the situations he faces.

From the perspective of the limitations of the study, we mention: the small number of participants that makes it impossible to generalize the result at the level of the population, the backgrounds of the subjects, the way in which they can respond to the social performance for fear of not being evaluated, age, education level and subjective particularities.

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# The Influence of Management and Leadership on Performance at the Level of the School Organization

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## Abstract

*The managerial capacity at the level of the school organization is measured in certain performance indicators, quantitative and qualitative, which reflect the extent to which the organizational objectives have been achieved in a certain period of time. Management is a systemic process whose junction with leadership responds to the current need to take the human factor into account. More than ever, the COVID pandemic has proven that performance is not a simple mathematical algorithm, but the result of processes and, above all, the attitude of an organization's leader towards people's problems, their values and expectations. Management can no longer be exercised without activating leadership as a form of specific and motivating influence in crisis situations. The article focuses precisely on emphasizing the need to double the role of manager through that of leader, the only formula capable of maintaining the cohesion and concentration of efforts on a common path.*

**Key words:** leadership, management, organization, performance

**J.E.L. classification:** M11

## 1. Introduction

The success of school organizations depends not on the principles and procedures on which they operate, but on the way people think, the way they cooperate in unison, turning the organization into a system of social responsibility for performance. The change of mentalities aims at a certain relational ethic, oriented towards a modern leadership, with motivational accents materialized in the configuration of certain qualities of the leader.

Leadership has filled certain gaps in the functioning of the management system, wanting to be an optimal solution to the challenges in the social, medical, educational and economic, even ethical, challenges caused by the COVID pandemic. Leadership, as an activity based on a network of influence, has been capitalized in order to improve the results, severely affected by health rules and restrictions. People are the engine that activates resources and means to maximize results, without which nothing can move. We realized this especially in the context of the current pandemic, which made us realize how fragile the social structures in which we used to live are.

Leadership focuses on the emotional side of the organization, which is related to human relations, being a process that has proven its practical effectiveness especially during the current general crisis. In our information society, tense with the lack of predictability and linearity of the entire economy, leadership has proven to be a factor of harmony and balance that can maintain the motivation and cohesion of the organizational group. Leadership efficiency derives from its very definition as a process of social influence, "including an intentional dimension, exercised by a single individual (or group) over other individuals (or groups), in order to structure activities and relationships within a

group or an organization. " Leadership can assess organizational potential and develop the key competencies needed to maintain vision. The term leadership first appeared in the treatises on psychology and sociology, later overlapping with the term management (specific to the economic field), an overlap that generated much confusion. Over time, leadership has gained independent status as a field of practice and research, as a result of observations on the link between performance and methods of influencing it. The definition of leadership as a dynamic process of influence that determines the members of the organization to engage voluntarily in the accomplishment of tasks or goals highlights the relationship of leadership with people, values the work of working with them and emphasizes the need to have permanent view of their individual or group lives, interests, aspirations, aspirations, aspirations. Knowing and mastering the rules by which leadership acts (as a factor in achieving unity) can help the manager to consolidate and improve his results. A leader "who uses only his formal authority to influence his subordinates will not get results as convincing as those who exercise and lead" (Montana, 2000).

Any change in the behavior of the members of the organization influences the general level of performance, proving that the best way to run a company is the best way to treat people. The practice of strategic leadership makes the connection between the following three functions, as a form of optimization of results.

The motivating factors (setting challenging goals, recognizing merits, taking responsibility, opportunities for advancement and self-realization) act to maintain a climate conducive to a state of continuous satisfaction and motivation. Leadership appears at the confluence of these elements, emphasizing both the individual factors, the personal and social fulfillment needs of subordinates, and the organizational factors that depend on the policy and management options. Leadership can be considered one of the functional roles of management, but also an independent field of leadership. He uses positive influence, vision, realism, ethics and courage as methods. Regardless of the level at which it operates, leadership involves the assertion of certain qualities necessary to lead a team or an organization, qualities that ensure the unity, solidarity, involvement and freely agreed cooperation of its members.

## 2. Literature review

The notion of leadership is related to the concept of change, of transformation of an organization (Buckingham, 2018). The phenomenon of changing and realigning values derives from the ability of leaders to develop a strong and attractive vision for all members of the organization (Cifali, 2019). The vision will reflect a set of well-articulated and customized values, which will be adopted and applied in the life of the organization, expressing hope, the direction to follow, the possibilities of survival and development, even in the special conditions we live in today. In the literature, there is talk of certain leadership models that can ensure high efficiency in the performance of the organization (Arnulf, 2015):

*a. Charismatic leadership:* is found in people considered charismatic, who have the native talent to influence others in a profound way. Charismatic leaders have important achievements as young children, and their evolution confirms their genetic qualities.

In the conditions in which the native qualities are polished through education, the leader becomes a prominent personality of the community in which he carries out his activity. Charismatic leaders are characterized by a great confidence in their own strengths, in their own values, but also in the ability to get what they want, in the attraction that inspires their supporters. Charisma thus appears as a social relationship built by attribution and by (Cifali, 2019):

- ✓ the ability to create a convincing vision, able to highlight high expectations from supporters, as well as modeling competitive behaviors;
- ✓ the ability to energize through high personal involvement; energizing ability includes asserting one's commitment, expressing personal confidence in the future of the organization, achieving and using success;
- ✓ the ability to develop and use the potential of subordinates in realizing the vision consists in expressing personal support, in manifesting empathy or trust in people.

*b. Transactional leadership:* is based on the leader's ability to negotiate. In order to get the staff involved and attract them to his side, he promises a series of rewards in exchange for making certain decisions and behaviors. The leader must constantly exercise his negotiating skills and be empathetic. If he promises rewards but fails to deliver them within a reasonable time, he loses credibility. Once credibility is lost, it is very unlikely that they will be able to regain lost ground, leading to an increase in the influence of the informal leader, who will want to expand and formalize his power.

*c. Transformational leadership:* it is a way of leading that characterizes leaders who are able to perceive the need for change, who want to effectively design and lead major organizational changes. To succeed, he needs the ability to be open to challenges. To succeed, he needs the ability to be open to challenges. In an environment with a particularly high rate of change (in terms of speed, amplitude and uncertainty), it is vital that the leader has a great capacity for anticipation, to withstand the stress of transforming uncertainty and physical distancing into a state of normality. Transformational leaders respond to intellectual stimuli, practice methods based on creativity, introduce and promote the new, self-learning, individualized consideration, have charisma and the ability to gain loyalty from subordinates, so as to exert a strong influence.

*d. Laissez-faire leadership:* it is specific to leaders who prefer to create a general frame of reference, after which to leave the supporters full freedom on how to achieve the objectives. The leader is only involved in the design part, which means that he does not intervene in the operational area. The leader's supporters establish their own strategy, define and share their roles, make decisions and act without their leader intervening in these elections.

*e. Leadership based on emotional intelligence:* an emotionally intelligent leader is a good listener, able to enter the other person's skin, to recognize and understand the emotional states of others, thus influencing them emotionally. Emotional intelligence helps them build strong interpersonal relationships, self-motivate and motivate others, perform better, function better under pressure, cope with change, and be at peace with themselves.

The new social paradigm generated by the COVID pandemic requires a new kind of leader who instills respect and loyalty, not authority and routine. Leadership can be learned through thorough and appropriate training. Once understood as a simple skill, as a managerial skill conditioned by the existence of team spirit (which reflects the desire of people to think, feel and behave in a harmonized way), leadership has now become a style of self-leadership (Gamble and Gamble, 2019). The latent qualities of a leader can come to the surface spontaneously and can be strengthened through exercise and study.

Creating the premises for the successful manager of the school organization to be considered a true leader is an imperative for the current context in which education is located. As an actor of changes focused on the concept of performance in terms of attitudes and skills, the school leader must manifest (Belker, 2012):

1. personal mastery - by putting into practice in a coherent way one's vision, through a lucid assessment of the present reality (which leads to the development of the ability to make better and more practical choices);

2. shared vision - the people of the school must have a common goal, based on a sense of commitment, on the unitary application of the strategies, principles and practices through which they want to improve their future;

3. reconsideration of mental models - starting from these, the members of the organization develop the ability to speak safely and constructively about the problems of the organization;

4. team learning - is embodied in group interaction strategies, in techniques such as dialogue and competent discussion, through which small groups of people harmonize their ideas, mobilize their energies and actions to achieve their common goals.

A successful leader emphasizes the human character of the organization, the development of human relationships, activism, involvement, and perseverance (Daft, 2019). It promotes a set of moral and social values, with the use of techniques, methods and operational procedures in the background. The social, emotional, and relational dimension of leadership involves devotion and involvement, which determines the involvement and dedication of students / subordinates (Crawford, 2019). The quality of leadership will in fact be measured in the integrity, performance and development of the school organization



In conclusion, the diversity of types of leadership reflects the new conception of leadership theory, corresponding to the current needs of organizations. It is known that, at present, they operate on the basis of flat structures, with a small order, in which the boss can no longer follow all his subordinates due to the development of activities predominantly online. Leaders thus have the task of maintaining a motivating framework so that people can continue to feel a cohesive team, mobilized in the direction of achieving goals (Jones and George, 2018).

### **3. Research methodology**

The aim of this research is to identify the effects of the influence of management and leadership on organizational performance both at school and institution level.

Research objectives:

1. Identifying managerial styles and efficient leadership models, which can improve the performance of the school organization;
2. Establishing the effects that the efficient application of the functions and managerial competences has in the plan of improving the performances of the school organization;
3. Identifying the types of leadership that influence motivation in the direction of improving the performance of the school organization;
4. Establishing the role that managerial communication has in terms of increasing the performance of the school organization;
5. Establishing the personality traits of the ideal manager / leader, which can contribute to optimizing performance in the school organization.

Data were collected, processed and interpreted in the SPSS system. The technical-operational part was standardized with the help of this program, the results of which helped us in the process of validating the hypotheses. The chosen methodology was selected and adapted according to the specifics of the field and the characteristic features of the researched problem. The methodological construction involved the capitalization of the theoretical knowledge in the field and of the meanings that the investigation of the working hypotheses can acquire in the realization of the research approach.

The sociological survey questionnaire was used as a research tool. The method used is interactive, which involves a direct exchange of information between the researcher and the subjects under investigation. The purpose is to collect data on certain phenomena, situations and manifestations, aimed at improving the performance of the school as an organization. As a method of social and psychosocial research, the questionnaire consists of a set of written and logically and psychologically ordered questions. Interviewees may respond orally or in writing. The complexity and quality of the questionnaire depend on its design (number of questions and how they are formulated), but also on the accuracy of the administration. The questionnaires proposed for the research were designed in a complex way, from a relatively large number of questions, based on which to obtain information that would lead to the identification of solutions to certain problems with several variables. The questionnaire includes the introductory part, which motivates the need to apply the questionnaire, briefly presents the purpose and objectives of the research, the person who initiated the research and makes recommendations on how to complete, emphasizing the importance of sincerity and honesty of answers.

The sampling method chosen is stratified sampling, ie proportionally stratified sampling. In this way, the representativeness of the sample structure was fully ensured. Sampling was based on subject availability. Two characteristics were identified that could generate differences in behavior: the area in which the school operates (rural, urban) and the study cycle in which teachers teach.

### **4. Findings**

Most of the teachers surveyed considered that leadership based on the example provided by the manager is the most effective form of leadership, which leads to the highest performance within the organization (Table 1). The personal example of the manager is a very important aspect, which motivates and inspires subordinates, stimulates them intellectually and morally, leads them through conviction to achieve in good conditions the established work objectives. The personal example

makes the difference between words and deeds, being much more convincing than any formal attempt at persuasion, not duplicated by facts or situated in contradiction with the actions of the manager.

Table no. 1 Forms of leadership that help achieve performance

		Responses		Percent of Cases
		N	Percent	
<b>Forms of leadership that help achieve performance</b>	Charism-based leadership	7	3.5%	5.1%
	Leadership based on loyalty	35	17.4%	25.4%
	Negotiation-based leadership	21	10.4%	15.2%
	Leadership based on freedom of action	56	27.9%	40.6%
	Leadership based on the example provided by the manager	82	40.8%	59.4%
Total		201	100%	145.7%
a. Dichotomy group tabulated at value 1.				

Source: developed by the authors based on the collected data with SPSS program

Most of the teachers surveyed appreciated that leadership based on the example provided by the manager is the most effective form of leadership, which leads to the highest performance within the organization. The personal example of the manager is a very important aspect, which motivates and inspires subordinates, stimulates them intellectually and morally, leads them through conviction to achieve in good conditions the established work objectives. The personal example makes the difference between words and deeds, being much more convincing than any formal attempt at persuasion, not duplicated by facts or situated in contradiction with the actions of the manager.

Leadership based on freedom of action is considered important by an important part of the teachers surveyed. The freedom of action of subordinates implies the encouragement of their initiative and the confidence given in the conscientious and professional performance of work tasks. In order to be effective, full freedom of action must be doubled by the seriousness and involvement of subordinates, who must understand this freedom as a factor in stimulating creativity and initiative in the activity carried out.

Loyalty-based leadership was considered effective and efficient by some of the teachers surveyed. Interpersonal relationships based on honesty, honesty and loyalty within schools are a psychological basis that allows the development of feelings of mutual trust between the school manager and his subordinates. Practicing this style of leadership becomes effective if, over time, mutual trust between the manager and subordinates is strengthened. They must act in a transparent and open manner in order to successfully achieve the goals of the organization.

Negotiation-based leadership is a leadership style considered effective by some of the teachers surveyed. Negotiation involves mutual concessions from the manager and his subordinates. Through direct and open communication, they will be able to establish the conditions and limits of action and movement, without the manager imposing irrevocable working conditions, which cannot be negotiated with subordinates.

Charism-based leadership was considered important by a small proportion of teachers surveyed. Charismatic leaders are willingly followed by their subordinates, inspiring a freely accepted authority. Such a form of leadership can be effective if it is doubled by the manager's mastery of the entire arsenal of effective management methods and techniques of the organization. Rather, it is associated with the profile of the informal leader, who overshadows the decision-making activity of the invested leader with the formal authority of the position.

There is a connection between the practice of leadership models and the level of performance of the school organization. This link is highlighted in Table 2.

Table no. 2 Correlation between using different leadership models and increasing performance

			The level of performance obtained by the school management at present			Total
			Satisfying	Good	Very good	
<b>Forms of leadership that help increase the performance of the school as an organization</b>	Charism-based leadership	% of Total	0.0%	3.5%	0.0%	3.5%
	Leadership based on loyalty	% of Total	0.0%	17.4%	0.0%	17.4%
	Negotiation-based leadership	% of Total	0.5%	10.0%	0.0%	10.5%
	Leadership based on freedom of action	% of Total	14.4%	0.0%	13.4%	27.9%
	Leadership based on the example provided by the manager	% of Total	1.5%	29.9%	9.5%	40.8%
Total			16.4%	60.7%	22.9%	100.0%
Percentages and totals are based on responses.						
a. Dichotomy group tabulated at value 1.						

Source: developed by the authors based on the collected data with SPSS program

Table 2 shows the data obtained by associating the variable Forms of leadership that help to achieve school performance and the variable The level of performance obtained by the school management, at present. From here, things get trickier, and this is where the true leadership of the manager comes in! We can say that in some cases it has achieved very good results, and in the vast majority of cases it has achieved good results, compared to the Charism-based Leadership item. In cases where leadership based on the example provided by the manager was used, satisfactory results were obtained only in proportion of 1.5%, compared to leadership based on freedom of action, in proportion of 14.4%.

In Table 3 we find an association between the variable Type of leader that can influence the level of performance of the organization and the variable Level of performance obtained by the school management, at present. We notice from these data that the visionary leader has a great influence in obtaining positive (very good) results, but that the democratic, collegial leader has a greater influence than the visionary leader on the results of the organization. If we look at the results, we can conclude that the visionary leader can achieve maximum performance.

Table no. 3 The type of leader who can positively influence the level of performance of the organization

		The level of performance obtained by the school management at present			Total
		Satisfying	Good	Very good	
<b>The type of leader who can influence the level of performance of the organization</b>	Visionary leader	2.2%		32.6%	34.8%
	Advisory leader	18.1%			18.1%
	Collegiate, democratic leader	1.4%	44.9%	0.7%	47.1%
Total		21.7%	44.9%	33.3%	100.0%
<b>Chi-Square Tests</b>					
		Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square		236.385	4	.000	
Likelihood Ratio		241.273	4	.000	
Linear-by-Linear Association		33.694	1	.000	
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.43.					
<b>Symmetric Measures</b>					
		Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Interval by Interval	Pearson's R	.496	.061	6.660	.000 <sup>c</sup>
Ordinal by Ordinal	Spearman Correlation	.506	.092	6.845	.000 <sup>c</sup>
N of Valid Cases		138			

Source: developed by the authors based on the collected data with SPSS program

In Table 3, we find an association between the variable Type of leader that can influence the level of performance of the organization and the variable Level of performance obtained by the school management, at present. We notice from these data that the visionary leader has a great influence in obtaining positive (very good) results, but that the democratic, collegial leader has a greater influence than the visionary leader on the results of the organization. If we look at the results, we can conclude that the visionary leader can achieve maximum performance.

Following the Chi-Square test, the value of Asymp. Sig. is below the 0.05 threshold, which shows a statistically significant link between the two variables. The Spearman correlation coefficient shows a positive medium strength bond. In conclusion, I could say that the type of leader can influence the results of the school. It can be concluded that the leadership models practiced by the manager lead to the improvement of the performance level of the school organization.

## 5. Conclusions

Following the research, management cannot be applied in the absence of leadership skills. The current management shifts the focus from the positions of authority to participatory management, which involves the involvement of all in the decisions and actions taken at the level of the organization. The human, interpersonal side must support the whole process, especially since the school is a dynamic, constantly changing type of organization, vulnerable to political, economic, social and even medical influences (as has been seen lately). Added to this is the inability of the school environment to learn from its own failures (it would be necessary to introduce a failure management course for both students and teachers who are preparing to train these students).

At the school organization level, the manager who acts as a leader has proven to be the optimal solution. The specificity of this organization requires a leader who is able to reduce tensions, resolve conflicts and stimulate the motivation to work of subordinates. As a formal leader, the manager must take on the characteristics of the informal leader, behave like a true member of the group, whom he must represent in any situation, no matter how difficult.

The leader of a school organization must be, first and foremost, a model who has the qualities and principles that he promotes and demands of others, a man who manages to integrate into the emotional world of his subordinates, so different in human and professional profile. . In other words, the effective leader of a school organization must make the connection between the formal role with which he has been invested and the informal role that he assumes by managing feelings, risks and the unpredictable.

From the perspective of the theoretical and practical approach of the direct influence that the practice of scientific management and leadership has on improving performance in the school organization, we can formulate some general conclusions, which highlight both the advantages and limitations of implementing this leadership model. education level:

1. Improving performance through the effective practice of management and leadership at the school organization level cannot be achieved without creating the conditions for adequate professionalization of managers. European trends in the training of managers at the level of school organizations are manifested in the initial and continuous training of teachers in the direction of shifting the emphasis from knowledge to the training and development of managerial skills.
2. In the context of shifting the focus from knowledge to skills, and especially to values and attitudes manifested in the exercise of management and leadership, aims to adapt the management of school-type organizations to the new requirements of society, which are evolving in the direction innovation, creativity, communication and digitalisation.
3. Improving the performance of managers within the school organization influences the decision-making and operational behavior of the entire organization, in order to improve performance.
4. The activity of the school organization manager depends on the application of a set of specific competencies, representing the central elements of human resources management. These make clear the difference between efficient and inefficient managers, on the one hand, and on the other hand, they directly condition the level of performance.

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# The Role of Standards in Company Management

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## Abstract

*Standardization as an approach and the application of standards both at the macroeconomic and microeconomic level represents in the current period of development an imperative to ensure competitiveness but at the same time a condition that allows participation in certain markets. With increased development among industrialized countries, internationally accepted norms or standards are needed to support this trend. This paper supports and argues the idea that organized standardization has now become an important element of infrastructure needed for the healthy growth of industry and commerce in all countries of the world. The international standards of ISO contribute to benefiting consumers, businesses, governments and society as a whole.*

**Key words:** standards, management, development, competitiveness

**J.E.L. classification:** L15, L21, M10, M11, M14

## 1. Introduction

The adoption of standards for any type of company, regardless of size or object of activity, is currently an indisputable strategic option. Of course, the most important role is played by international standards issued by worldwide organizations, in particular we are referring here to ISO (International Organization for Standardization), although equally important are the standards harmonized with those of the mentioned structure, such as the national branch or company ones.

By using the current series of standards, companies can manage the contracting system in a more efficient way, both in terms of quality assessment and avoiding conflicting situations regarding specifications and quality. ([https://www.unido.org/sites/default/files/2009-04/Role\\_of\\_standards\\_0.pdf](https://www.unido.org/sites/default/files/2009-04/Role_of_standards_0.pdf))

Starting with the 1990s, when the ISO 9000 series standards were launched in the business environment, they aimed to harmonize the interests and practices of companies regarding the application of quality management systems.

The implementation of quality systems inspires the confidence of clients in contractual situations. An even greater number of companies not only implement quality systems in their own activity, but also insist that their suppliers of materials, components and subassemblies have certified quality systems. (<https://www.creeaza.com/afaceri/comert/merceologie/Standardizarea-si-rolul-aceste594.php>)

At the level of an organizational entity, its management must guarantee the fulfillment of the requirements related to products and services expressed by the market, customers and society, related to the protection of human life and the environment, the quality of products and services or the achievement of commercial success.

For these reasons, this paper argues the necessity of reporting to standards and introducing their use in the management of any type of company. The main advantage offered by the use of standards issued and promoted by ISO is to offer technical and economic solutions agreed by international consensus. ([https://www.unido.org/sites/default/files/2009-04/Role\\_of\\_standards\\_0.pdf](https://www.unido.org/sites/default/files/2009-04/Role_of_standards_0.pdf))

Standards must align for a company the mission, business objectives, and organizational leadership, and be implemented consistently across the organization. Standards are what a business aspires to, but they don't guarantee performance.

## 2. Theoretical background

Standards exist in almost all aspects of our actual business environment and even life. The today globalized world cannot exist without norms and rules, in fact standards, which are supporting cooperation, trade, health, safety, and economic development. (<https://www.ispatguru.com/standards-and-their-importance-for-the-organizations/>)

The main goal of standardization is to facilitate the normal development of activities in all areas of the economy, both nationally, regionally and internationally.

By adopting standards of any level and harmonizing technical regulations, all the actors involved will feel favorable effects. Producers can adapt their technical conditions and reduce production and marketing expenses, by referring to a unique set of rules. Consumers benefit from a wide range of products that comply with recognized quality and safety requirements.

Also, the use of standards creates the conditions for the free movement of products and services, in accordance with the provisions of the Agreements negotiated within the World Trade Organization (WTO), regarding technical barriers to trade.

The free movement of goods is based on the prevention of new barriers to trade, mutual recognition of the results of conformity assessment procedures in the regulated field and technical harmonization, access to technologies and good management practices.

Companies should be interested in projects that ensure the development or adaptation of standards as well as their subsequent implementation; these actions would result in the optimization of their own production processes, along with cost reduction and profit growth. (<https://www.standardsboostbusiness.org/organizations.aspx>)

The best results can be obtained by promoting those norms or standards that follow the level of quality throughout the supply chain, as it offers a certain flexibility in monitoring compliance with the specified requirements. Quality management of the supply chain can result in a reduction of the time to market and easier access to foreign markets. The adoption and application of standards ensures companies reduce risks in research and development activity, thanks to experiences based on already verified technical elements, which can result in a substantial reduction in costs. (<https://www.standardsboostbusiness.org/organizations.aspx>)

The own standards define how that company acts, which, in turn, builds trust in its brand. For example, they can be guidelines that describe quality, performance, safety, terminology, testing, or management systems. Another gain consists in the fact that they can comply with authoritative agencies or professional organizations and be enforceable by law, such as required for financial planners (<https://www.thehartford.com/business-insurance/strategy/accelerate-growth/empowering-employees>)

The updated international standards of management systems, which have incorporated the high-level structure of the management system, provide an opportunity for organizations to use management systems to achieve better business performance (Roncea, 2018).

The organizations that will reap the most important fruits from certification in accordance with the new standards ISO 9001:2015, ISO 14001:2015, ISO 27001:2013 and ISO 45001:2016 are those that have a Leadership that thinks constructively, that sees changes as a way to gain a competitive advantage. By recognizing the potential of the new standards, leaders access a powerful tool that supports not only the improvement in the field of management systems but also the general success of their business. The shift from management responsibility to leadership and commitment is probably the most significant and far-reaching change contained in the new standards, although the actual impact will depend greatly on the type and level of management existing in each organization (Roncea, 2018).

## 3. Research methodology

The current work is mostly based on the observation of the way of reporting to standards in the entrepreneurial behavior of companies. The research methodology is mainly qualitative; this paper looks at the various modalities in which different types of companies act in the field of quality assurance using like reference elements standards and practicing methods that are commonly used in the field, for the benefit of the consumers.

The research also presented an important documentary component that concerned the series of standards issued by ISO.

#### 4. Findings

Standards are in fact documents that stipulate, with a recommendation character, requirements and norms that target the personnel, processes or products of an organizational entity. ([https://www.unido.org/sites/default/files/2009-04/Role\\_of\\_standards\\_0.pdf](https://www.unido.org/sites/default/files/2009-04/Role_of_standards_0.pdf))

We can mention as essential goals of standardization: compliant use; interchangeability; variety reduction; compatibility; protecting against factors affecting the health and safety of consumers; environment protection; better use of resources; better communication and understanding; technology transfer and removal of trade barriers.

The importance of standards in the management activity is perceived differently depending on the situations in which the different beneficiaries find themselves, thus:

- for producers: rationalization, reduction of waste and costs;
- for customers: the price-quality ratio;
- for merchants: streamlining of orders, better negotiation conditions;
- technologists: improvement of research and development activities.

(<https://www.standardsboostbusiness.org/organizations.aspx>)

Traditionally, the standards refer to products, inspection and control activities, but lately some have been developed that have as their object management aspects, such as the management of stocks, information, distribution or those of the system, such as management systems of quality (ISO 9000 series) or environmental management systems (ISO 14000 series).

Each business has these characteristics and they are referred to as company standards which define how the company acts and, in turn, builds trust in the brand. These standards can comply with authoritative agencies or professional organizations and be enforceable by law, or they can be voluntary rules established to create confidence among clients.

(<https://www.thehartford.com/business-insurance/strategy/accelerate-growth/empowering-employees>)

The most successful sectors of the U.S. marketplace recognize that standards and conformance are business tools that should be managed right alongside their quality, safety, intellectual property, and environmental policies. In addition, standardization and conformity assessment activities lead to lower costs by reducing redundancy, minimizing errors, and reducing time to market. (<https://www.standardsboostbusiness.org/organizations.aspx>)

In reality, the standard does not guarantee performance, but the assessment of conformity, which represents the company's awareness of the need to adapt to consumer requirements. Thus, the voluntary adoption and application of the recommendations from the standards represents the attention paid to customers and their needs, which can become profitable for the company at the same time (<https://www.standardsboostbusiness.org/consumers.aspx>)

In the opinion of BSI Group (British Standard Institution), the key elements of standards to benefit a business are:

- to maintain fundamentals, speaking about the 9000's ISO series, the recommended one to use is BS EN ISO 9001
- to secure supply chains and keep business going- (BS) ISO 28000
- to protect data and keep vital information safe with (BS) EN ISO/IEC 27001
- to nurture and inspire employees and staff with (BS) EN ISO 45001 for health and safety, and (BS) ISO 45003 for psychological wellbeing
- to prioritize responsible business -(BS) EN ISO 26000
- to outline a sustainability framework/- (BS) EN ISO 14001.

(<https://knowledge.bsigroup.com/articles/the-benefits-of-using-standards>)

If at the beginning the standards aimed at the application of management systems were mainly used to manage the control of non-compliant products, over time, they began to address the processes related to the manufacture of products and especially the prevention and identification of deviations, as aspects as important as inspection the product. Currently, the management system considered good has a much more comprehensive approach to the organization and the interested



parties. These aspects require a different approach and the inclusion of leadership within management systems.

Maximizing the benefits of the new standards will require the existence of leadership at the level of the entire organization.

Successful organizations make use of standardization as a strategic tool to ensure the marketability of their products. Standards thereby have a positive impact on the productivity of the organizations.

## 5. Conclusions

In the current economic context, there is an opportunity to modernize the management systems and to integrate them into the business systems of the companies in order to obtain a better performance of the business, an opportunity that should not be wasted.

There is no improvement without change. Changes will be necessary for these new, different and vast approaches to be applied. But at the same time there will be fear of change and significant opposition.

Thus, we can say that there are three types of advantages offered by the use of standards by a company, regardless of the category in which it falls: improving the level of productivity and performance, supporting research and development activities and facilitating contractual relations.

Anyway, understanding the context of the organization is used to establish, implement, maintain and continuously improve the management system.

Also, it is recognized that regarding the application of quality standards, leadership is crucial because management systems have evolved in such a way that they play an increasingly important role in corporate structures and beyond.

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# The Impact of Economic Drivers on Food Loss Management

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## Abstract

*Food loss, a critical issue in the world, is especially used to describe the lost agricultural production. Primary agricultural production is inherently risky, being exposed to numerous pressures from weather and diseases. According to the Food and Agriculture Organization (FAO) about 1.3 billion tons of the food obtained for human consumption go uneaten yearly (nearly \$2,6 trillion annually as a cost). The benefits of food loss reducing on farms are incontestable. This paper examines the food loss from an economic perspective by summarizing the economic drivers of food loss on the farm-level (costs and availability of workforce, consumers standards and preferences, price volatility, supply chain factors). The reducing of food loss is economically useful not only in terms of intervention costs, but also in terms of alternative means of achieving food security and environmental equilibrium.*

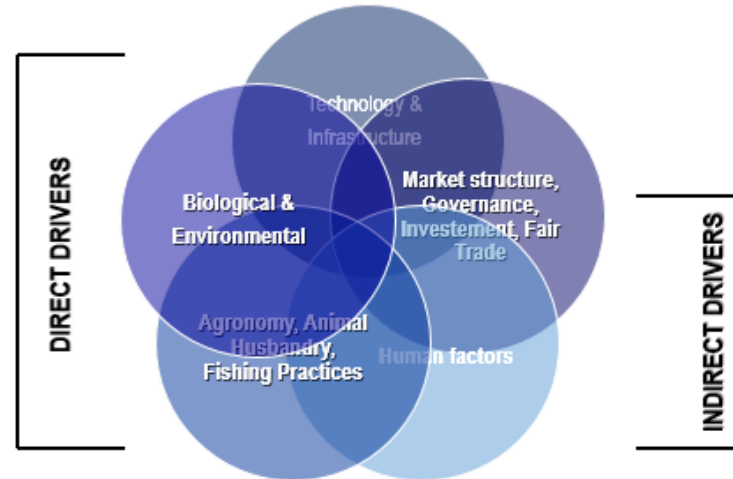
**Key words:** agricultural production, food loss, price volatility, consumers' preferences, management.

**J.E.L. classification:** E30, J43, L66, M11, N50, O13, O15, Q13, Q17

## 1. Introduction

Billion tonnes of agricultural primary products across the world are lost even before leave the farm, never entering in the food supply chain (FSC) because of a variety of reasons (Franke *et al*, 2016, p.18; Ruiz, 2021). The food loss (FL) on farms represent an overlooked issue in Europe and numerous developed countries, which have a great attention on food waste (food lost in the final stages of the FSC, such as retail, household consumer and HoReCa services) (Ruiz, 2021). FL on the farm-level occur not only in non-industrialized countries (improper infrastructure, inadequate agricultural practices, inadequate storage facilities), as previously thought, more than half of the food lost on the farm occurs in countries with medium and high industrialization (rigorous aesthetic standards for agricultural products, farm labour, agricultural overproduction and market saturation, which lower prices and create an issues that sustains the food lost) (Nicastro and Carillo, 2021, p.3; Nicastro and Carillo, 2021, p.5; Ruiz, 2021). Numerous direct, as well as indirect drivers can influence the FL on farms, as illustrated in Figure 1.

Figure no. 1. Direct and indirect drivers of food loss on farm-level



Source: (WWF-UK, 2021)

While direct drivers can be: (i) biological and environmental (pests, diseases, insects, water availability extreme weather, natural disasters), (ii) technological and those related to infrastructure (poor infrastructure, inadequate technologies for harvest and post-harvest, inadequate storage of perishable crops), (iii) agronomic (inadequate harvesting and handling, harvesting time), indirect drivers are about market conditions and human factors (WWF-UK, 2021). The main economic drivers that influence FL at the primary agricultural production refers to market conditions and human factors, consisting of: labor costs and availability, price volatility, standards and consumer expectations, and FSC factors (Minor *et al*, 2020, p.5). Whereas many studies have examined FL caused by direct drivers, few have looked into the economic ones on farm-level. Economic drivers behind FL in the primary production stage should be thoroughly investigated to support the prevention and minimizing of FL, one of the priorities of the European Green Deal (especially F2F - the Farm-to-Fork Strategy). This paper explores the economic drivers, which indirectly impact of food loss on the farm-level, contributing to a growing area of inquiry.

## 2. Theoretical background

Any uneaten food, failure to use nutrients for human purposes, as well food preparation residues from houses or business establishments are considered FL and food waste (FW) (Alexander *et al*, 2013, p.472; Melikoglu *et al*, 2013, p.157). FL and FW have become a key issue, the food systems (FS) around the world being exposed to immense pressure due to population growth, accelerated urbanization, changing nutrition and lifestyle and also increasing living standards. It is estimated that the world's population will increase from 7 billion to nearly 10 billion by 2050 (Akerle *et al*, 2017, p.26; Alexander *et al*, 2017, p.190; Babbitt *et al*, 2021, p.317; FAO, 2017; Heng and Houseb, 2022, p.198; The Economist, 2011; WWF, 2017).

The population in a constantly growing is putting pressure on the global FS by generating conflicts regarding demanded food delivery, about a third of food being wasted or lost from production to consumption. Activities associated with the primary agricultural production affect the effectiveness of FS in creating agricultural biomass and using it for human nutritional needs. To achieve the purpose of these activities, could be considered some aspects related to changes in primary production systems and the role of nutrition and minimizing of FLW in developed and developing countries (Alexander *et al*, 2017, p.190; Alexander *et al*, 2017, p.191). The FL phenomenon is frequently used to describe a reducing in the quality or quantity of edible food weight because of errors, mismanagement and various inefficiencies in the agricultural primary production and industrial sectors because of some factors (improper agricultural practices and infrastructure, unpredictable weather events, natural disasters, pests, diseases, poor handling, inadequate storage facilities, etc.) and, by contrast, the FW phenomenon also refers to minimizing regarding quality and

quantity of edible food weight by either carelessness or a deliberate decision to reject food which is often generated at consumer level and HoReCa services (Chauhan *et al*, 2021, p.2; Dumitru *et al*, 2021, p.280; Ishangulyyev *et al*, 2019, p.297; Jungowska *et al*, 2021, p.976; Lipinska *et al*, 2019, p.2046; Ojha *et al*, 2020, p.601; Santeramo, 2021, p.1; Socas-Rodríguez *et al*, 2021, p.134; WWF-UK, 2021).

From agricultural production to final household consumption, food is lost or wasted throughout the FSC. In the earlier stages of the FSC the wasted food is called FL, while near the end of the FSC the lost amount of food is called FW (FAO, 2011). The most crucial point for FL is during the production phase, especially during product processing. In low-income (non-industrialized) nations, FL takes place during the primary production phase of FSC due to the lack of adequate infrastructure, but in high-income (industrialized) nations, FW occurs during final consumption, caused by a variety of socio-demographic factors, such as: household type and size, status of employment, education, gender, age, level of income (Nicastro and Carillo, 2021, p.3; Nicastro and Carillo, 2021, p.5; Przezbórska-Skobiej and Wiza, 2021, p.3601). The developing world is facing a major concern, being significantly exposed to the food insecurity (many people are still starving). FL affects food security especially of the poor people, and by reducing it, food security, as well as eliminating hunger and increasing incomes in the world's poorest countries can be improved (FAO, 2011).

### 3. Research methodology

The method used consisted of an exploratory research, which was performed by examining the current literature. The information was gathered from a variety of sources, including ScienceDirect, Web of Science, Scopus and specialized platforms or webpages like FAO, The Economist, etc. The analysis of literature served to clarify FL phenomenon around the world and to emphasize the economic drivers of FL on the farm-level.

### 4. Findings

#### 4.1. Economic drivers behind FL on farms

The main economic drivers behind FL on farm-level include labor costs and availability, price volatility, standards and consumer expectations, and supply-chain factors (Minor *et al*, 2020, p.5) (as illustrated in Figure 2).

Figure no. 2. The main economic drivers of food loss on farms



Source: (Minor et al, 2020)

### **Costs and availability of workforce**

Workforce, especially harvesting workforce, accounts for a significant portion of the cost of cultivating and marketing fresh products. The price of harvesting a field is increasing when wages are rising and labor availability is limited, causing growers to abandon some products in the field before harvest and take into consideration various production and marketing decisions that lead to FL. Moreover, when the expected harvest is quite limited, growers consider whether the additional money from future harvest will cover the associated expenditures and it is possible to leave a part of products in the field. Depending on the types of various crops that are growing to maturity in a given area, labor demand may rise during the season (e.g. peppers and tomatoes can be picked from 6 to 8 times each season). However, fresh produce harvesting is expensive and depends on the manual labor availability (Minor *et al*, 2020, p.10; Minor *et al*, 2020, p.11). The cost of inputs and labor availability are also mentioned in the literature as key factors determining FL (Astill and Minor, 2020, p.188; Baker *et al*, 2020, p.134; Hsu-Flanders *et al*, 2020, p. 175). Many fresh produce items are, in fact, gathered entirely by hand (Astill and Minor, 2020, p.189). An increase in workforce costs change the cost-benefit analysis of harvesting decisions, causing FL to rise indirectly (Zahniser *et al*, 2018, p.2). Much of the additional cost of recovery for fresh products is connected to the harvesting process itself, leaving growers exposed to variable labor costs. In addition to the steadily increase in workforce costs, FL can occur due to labor shortages at important times which can force growers to postpone harvesting (Baker *et al*, 2020, p.136; Dunning *et al*, 2019, p.3; Spang *et al*, 2019, p.126; Zahniser *et al*, 2018, p.2). Growers require work throughout the production process, but especially during harvest period, they have a constant, time-sensitive, and frequently larger demand for labor. The field can be leaved unharvested if workforce is not easily available or its cost is too high in relation to the harvest return. Like the increase in workforce costs and possible non-coverage of the expected harvest, when its limited, by the additional money coming from future harvest, growers can also abandon fields sometimes due to labor shortages, which can lead to a FL that lasts for years. From time to time, growers will sacrifice a piece of their field in order to ensure that the greatest quality produce reaches the market (Minor *et al*, 2020, p.11). Workers are well-trained to ensure that the product satisfies buyer standards, making it appealing to retail customers. But workers are not expressly educated to reduce product loss as a primary outcome. This means that the purpose of harvesting isn't to collect all of the edible products that can survive shipping and storage, because this isn't what purchasers and, ultimately, consumers are looking for (Astill and Minor, 2020, p.192).

### **Consumers standards and preferences**

At any point along the FSC, products that does not fulfill aesthetic or other specifications are likely to be refused, either by purchasers or by ultimate customers. Farmers, shippers and retailers make culling decisions based on perceived customers preferences. If any of these supply chain actors believes their food will not be accepted by a buyer, the product will not be gathered or moved through the FSC (Minor *et al*, 2020). A product's look and other attributes of its are described exactly by retail specifications (e.g. grading standards). Purchasers have quality criteria, such as consumers' standards or food safety, and will refuse a deficient load. This results in a lost income and tarnished reputation (Calvin *et al*, 2001, p.1). These standards are intended to offer a consistent language for manufacturers and purchasers to communicate aspects regarding quality and to improve procurement and marketing efficiency. Grades, as well as standards, may help reduce expenses associated with unsaleable products by halting it as soon as possible in the FSC. Cosmetic flaws, that are obvious in the field, may increase over time, making the product unsaleable after it has been transported through the supply chain. While somewhat decaying or moldy product is technically edible, it has the potential to contaminate a neighboring product that satisfies requirements, making it unsellable. These situations lead to additional workforce, transportation and storage costs because of moving unsaleable products forward through FSC. Farmers tend to leave the product in the field because of the these costs, exacerbating FL. On the other hand, grades and customer standards and preferences, preclude some food products that are edible to progress through the FSC because they are regarded as unmarketable. Particularly, if consumers are averse to buy an "ugly fruit", stores are unlikely to take products that falls below certain cosmetic criteria that include the undesired trait. Thus, whether the products are cultivated under contract for a restaurant or they are intended for sale at farmers markets, FL can occur due to impossibility for a fresh product to meet aesthetic requirements (Minor

*et al*, 2020, p.14; Minor *et al*, 2020, p.15). Moreover, in-field FL is attributed to quality levels derived from strict consumers preferences, as well from rigorous retailer interpretations. Growers will not harvest food if they anticipate purchasers will not buy certain products because of failure to meet a specific standard. For example, retailers and consumers are familiarized with fruits and vegetables that are uniform and nearly flawless. This sometimes leads cosmetically deformed or too small or too large products that are abandoned in the field, although they may be nutritionally the same as most fruits and vegetables that are uniform. The result is leaving behind edible and satisfactory food for buyers who do not expect absolute uniformity in their product (Baker *et al*, 2020, p.140).

### **Price volatility**

Fresh products prices are volatile. The current market price in relation to costs is a major market component that contributes to FL. The quantity of good available on the market is determined by the price of them. Because demand for fresh produce is inelastic (price changes rarely have a significant impact on a consumer's purchasing decision), fluctuations in availability cause prices to fluctuate fast. Because of the daily prices fluctuation, the production is no longer economically viable when the value of an edible product goes below the marginal cost of production. In particular, at the moment that prices fall below the cost of bringing additional products to market, growers are unable to advance products through the FSC because it is no longer profitable. By contrast, when prices are going up growers may be enticed to harvest more intensively (either by hiring more personnel or lowering product thresholds) and to bring lower-cosmetic-quality products to market, which can lead to significant loss further down the FSC. The harvesting workforce significantly contributes to the cost of cultivating and distributing fresh produce. Farmers abandon crops in the field before harvest and make a variety of other production and marketing decisions that directly affect crop losses or the produce can be wasted at a packing shed, or dumped off the back of a truck due to increased harvesting costs determined by labor availability, wage growth and the time and place when price fluctuations occur. Prices differ not just from year to year, but also from growing season to growing season. Some price changes are more predictable than others. For example, prices normally rise later in the season when total supply begins to drop, though there are exceptions, while other fluctuations of prices are more sporadic, making them more difficult to forecast (Minor *et al*, 2020, p.6; Minor *et al*, 2020, p.9; Segrè *et al*, 2014, p.55).

### **Supply chain factors**

While workforce availability, price volatility, costs of inputs, as well as consumers standards are frequently identified as the primary drivers of FL, supply chain rigidities and market infrastructure also play a role (Kitinoja *et al*, 2018, p.7). Infrastructure investments in produce commodities (e.g. adequate logistics, refrigerated storage facilities) are significant, providing benefits for numerous growers. But for a single grower, incurring these costs for yield that would otherwise be thrown and often sold at lower prices is generally unprofitable (Minor *et al*, 2020, p.14). Regarding food production infrastructure, the differences between high-income countries and low-income ones are significant. Early research revealed that losses around the farm stage in high-income countries are quite minor (FAO, 2011). Therefore, FL in developed countries is at a lower level owing to modern and larger infrastructures, ultramodern technologies, agronomic proficiency that lead to higher yields, while in non-industrialized countries, FL occurs due to the lack of understanding of the most effective ways for properly agricultural operations, inadequate infrastructure, storage facilities and logistics (Nicastro and Carillo, 2021, p.5; Stoica *et al*, 2022, p.16). Following harvest, processes like shipping and packing can have a significant impact on whether or not food is left behind or removed from the market (Astill and Minor, 2020, p.194). Sustaining proper temperature, CO<sub>2</sub> levels, and humidity levels during the shipping process is critical to maintaining quality. When the products are shipped, quality might be lost due to bruising, mold development or other forms of deterioration. Particularly, the products near the bottom of a container can suffer damages or be destroyed by the products weight piled on top of them. To avoid these types of damages during shipping, growers can pick under-ripe products. In order to gather the more-ripe products, the transportation mechanism would have to be modified, which would certainly necessitate a significant investment in infrastructure (Baker *et al*, 2020, p.143). Growers are careful to select products that are well-suited for the long distance shipping because the risk of the lost products fall back to the farmer and not the

shipper in many times. Unfortunately, the issue of quality loss during transit can occur in large part due to poor product selection (Hsu-Flanders *et al*, 2020, p.179). In order to prevent post-harvest loss because of sensitive nature and acute perishability of many commodities, the fresh products industry has spent considerably on packaging processes. A lot of goods are freshly packed from the field and placed in vacuum cooling or in other climate-controlled storage within hours (Astill and Minor, 2020, p.195). There are also goods that are not field packed, but are rather stored in big open-air bins proper for truck transport. Upon delivery, retailers inspect the products and discard the damaged ones. Farmers and purchasers make frequent judgments on procedures that may reduce the risk of loss throughout the FSC by receiving periodic assessments and feedback from quality supervisors via several reports sent daily, weekly and monthly (Minor *et al*, 2020, p.13). Nonetheless, there is some loss. From the point of harvest to the end customer, the cold chain is essential for ensuring quality. Cold chains disruptions, such as power outages or defective equipment, cause quality to rapidly deteriorate and lead to FL. Cooling systems are used by many large growers located in significant production areas to provide fast cooling to products. Any lateness in entering the cold chain diminishes marketability. As a result, cooling facilities must be positioned next to central growing zones, if not on the farm itself (Hsu-Flanders *et al*, 2020, p. 181).

#### **4.2. The FL management in achieving economic growth, food security, environmental equilibrium**

By taking into consideration that the world's population is expected to reach over 10 billion by 2050, necessitating a 70 percent increase in food production, a major concern consists of preventing or lowering FLW (FAO, 2009, 2019). Individuals, as well as society as a whole, benefit from preventing or minimizing FLW. Thus, society can benefit from diminishing FL in three ways: an increasing in productivity and, as a result, economic growth, food security improvement, a decrease of environmental effects. Production of food that is subsequently lost leads to an economic impact, which can be linked to the costs of production. The resources used for commodities producing determine these costs and the price of products on the market, which are related to the products utility (Nicastro and Carillo, 2021, p.8). FL diminishing provides advantages for both farmers and consumers. Therefore, while producers can lower disposal costs by having fewer products to dispose of because they can sell more from the same resources amount, consumers could purchase cheaper food because of a potential falling in market prices (Garske *et al*, 2020, p.12; FAO, 2019). Farmers and consumers are not always capable to take steps for achieving certain benefits for themselves due to their unawareness regarding FL produced and its potential implications.

Although producers are frequently unsure of the true benefits of implementing recommended methods to reduce FL (e.g. modern harvesting equipment and storage, as well as processing infrastructure, better transport conditions, new packaging technologies, etc.), investing in this phenomenon reduction has a high economic return. This is emphasized by a study conducted in 17 countries, which revealed that for every dollar (or other cash) invested in FL diminishing, half of the commercial locations received a return of 14 dollars. Moreover, in some regions of Africa the techniques implemented to lower FL resulted in an increase in farmers supply (Nicastro and Carillo, 2021, p.11; Nicastro and Carillo, 2021, p.12). If farmers increase supply, consumers can spend less money on food (FAO, 2019).

Besides buying food cheaper, consumers must also have food security. Food security means a condition to physical, economic and social access to enough, balanced and safe food for all people, at all times. Increased levels of FL are jeopardizing the overall food system's equilibrium and affecting food supply regarding quality, quantity and prices. Food security can be improved by diminishing these amounts of FL, resulting in an enlarged food availability (FAO, 2011). In addition, a lower level of FL leads to a rise in accessibility of food owing to an increasing in supply and, as a result, higher income of those who sell a bigger quantity of certain products. FL reduction has effects on price changes. A larger part of the population will have access to food if prices fall, but growers will find a drop in their income.

Cheaper costs and increased supplies could be determined by a 20% reduction in FL in non-industrialized countries over 10 years, according to a study that looked how lowering FLW levels impacts the market (Nicastro and Carillo, 2021, p.8). To support economic growth, as well as food

security, FLW reduction contributes to maintaining the balance of the environment by improving the use of its resources. A significant depletion of environmental and economic resources and also a decrease in the amount of available products are highly related to uneaten food produced or FL during production processes, in an unfavorable context where the expanding population is predicted to cause the demand for food to nearly double by 2050 (Cattaneo *et al*, 2021, p.2; FAO, 2013).

There are 3 generally quantifiable indicators that need to be taken into account, each food produce might having a different influence on natural resources. These indicators stand for footprints regarding carbon (greenhouse gas emissions coming from operations like production, processing, transport of food), land (area needed to grow a particular food) and water (the quantity of freshwater needed to make a food).

A decrease in FL results in a huge potential for environmental improvement. For instance, if FL is reduced, farmers will still utilize the same amount of resources, but more commodities will be produced. It is crucial to know the goal when using interventions to reduce FLW since stages in the food chain where the food is produced, different types of food products and production methods have variable effects on carbon, soil, and water footprints. In the primary production phase, the most obvious are land and, especially, water footprints. It is possible that food processing will require a lot of water.

The type of product determines how much of an impact is made on certain natural resources. For instance, animal products and meat have a significant influence on the land footprint (exceeding 50% of the total production of other foods through land use), while pulses and cereals are responsible for approximately 90% of the water footprint (from the total production of other foods through water use). The steps required to lower FLW's negative environmental effects should be adapted according to food product type, production method and in which stage of the FSC it is produces (Nicastro and Carillo, 2021, p.10; FAO, 2013).

## 5. Conclusions

Numerous drivers (biological and environmental, technological and those related to infrastructure, market conditions, agricultural and human factors) influence the food loss at farm-level. Among them, the labor costs and availability, price volatility, standards and consumer expectations, and supply-chain factors are the main economic drivers behind food loss on farms. It is evident that the minimizing of food losses in the agricultural production is one of the priorities of the European Green Deal to improve food security and reducing the related economic and environmental repercussions. This paper highlighted the economic drivers of food loss at the primary agricultural production. As pointed out in the paper, the economic drivers (labor costs and availability, price volatility, standards and consumer expectations, supply-chain factors) were explored. Properly monitored and managed, these drivers will no longer be at high risk of food loss on farms. However, food loss reduction strategies should focus on all factors that generate food loss throughout the food supply chain, food loss occurring along the food supply chain, not just on the farms. In addition, there are various opportunities that can both mitigate food loss and improve farmers' incomes, as evidenced by consumers' interest in imperfect agricultural products.

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## Decoding the Lean Enterprise

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### Abstract

*Several factors, such as the rapid adoption of new and disruptive technologies, the COVID-19 pandemic, worldwide expansion of globalization, rising inflation, climate change, demographic shifts, geopolitical instability, and military conflicts, have deeply influenced the economic and business landscape at a global level. The appearance and development of lean philosophy, principles, and practices have proved to represent a turning point in the evolution of the business world and a possible solution for enterprises to cope with these challenges. The paper aims to define and briefly characterize the concept of lean enterprise. To attain the goals of the paper, the authors used a qualitative research method based on a desk research investigation. The paper contributes to a better understanding of the concept of lean, in general, and lean enterprise, in particular. Also, it briefly analyses some of the key characteristics of lean enterprises that lead to their business success.*

**Key words:** lean enterprise, lean, business organization, enterprise, business

**J.E.L. classification:** L2, M00

### 1. Introduction

The last decades have testified the emergence of a highly competitive global market environment. Several factors, such as the rapid adoption of new and disruptive technologies, the COVID-19 pandemic, worldwide expansion of globalization, rising inflation, climate change, demographic shifts, geopolitical instability, and military conflicts, have deeply influenced the economic and business landscape at a global level (Giles *et al*, 2022; World Bank, 2022; World Economic Forum, 2022). Therefore, business organizations, irrespective of their size and industry, have to cope with numerous challenges and face serious threats all over the world (Săseanu *et al*, 2014; Toma *et al*, 2016). They are born, live and, eventually, die, being in close relationship with their capacity to provide ongoing value for their customers. In this respect, their top management has to think not only in a strategic manner (Toma *et al*, 2015) but also in an innovative and entrepreneurial one (Grădinaru *et al*, 2017; Marinescu *et al*, 2017; Toma *et al*, 2018a).

The appearance and development of lean philosophy, principles, and practices have proved to represent a turning point in the evolution of the business world. During the time, it has been proved that enterprises following a Lean path, irrespective of their size and industry, obtained long term improvements (Sayer *et al*, 2007). Consequently, “Going Lean” has become a mantra for any business organization that seeks to achieve business excellence. It shows how these organizations that provide products and/or services have abandoned the old way of doing things and embraced lean philosophy (Ruffa, 2008).

The paper aims to define and briefly characterize the concept of lean enterprise. The structure of the paper is as follows. The second section reviews the scientific literature. The research methodology is illustrated in the third section of the paper. The findings of the paper are shown in the fourth section. The last section displays the conclusions.

## 2. Literature review

During the past decades, characterised by hyper-competition and high uncertainty all over the world (Toma, 2013), various methods, tools and techniques have been designed, implemented, and updated in the business processes and activities of enterprises in order to obtain and preserve their competitive advantage. In this respect, quality management (Toma *et al.*, 2009), Six Sigma (Toma, 2008), marketing mix (Catană *et al.*, 2021a; Catană *et al.*, 2021b), corporate social responsibility (Toma *et al.*, 2011), balanced scorecard (Toma *et al.*, 2010), organizational learning (Toma, 2012; Marinescu *et al.*, 2013), and lean management (Marinescu *et al.*, 2008) are only some valuable examples. Moreover, today’s Fourth Industrial Revolution requires enterprises to rapidly implement lean manufacturing (Wiegand, 2016; Buer, 2021), digitalization and the Internet of Things (Tohănean *et al.*, 2018; Toma *et al.*, 2018b), and adopt green business models (Toma *et al.*, 2019).

There is a plethora of scientific research in the literature related to the lean concept, in general, and the lean enterprise, in particular. Lean means “not using a lot of something” or “not wasteful” (The Britannica Dictionary, 2022, p.1) and is a „business management practice aiming to deliver greater value for customers with fewer resources” (David *et al.*, 2016, p.1) that seeks to change the basic systems of a company to better satisfy the changing customer needs (Johnson, 2014).

As a managerial system that blends methods with culture (Hinds, 2017), lean management constitutes a “style of management, where few managers are employed, allowing decisions to be taken rapidly” (Collin, 2006, p.229) whereas lean production represents a methodology focused on waste reduction (e.g., overproduction) in order to allow a business organization to become more competitive (The Chartered Management Institute, 2004). It is worthwhile to emphasize that lean production systems can reduce overall costs at the same time as preserving quality standards (Jackson *et al.*, 1996). Despite the inexistence of an agreed definition, the lean enterprise is considered as:

- „a group of individuals, functions, and legally separate but operationally synchronized companies” (Womack *et al.*, 1994, p.93).
- a sum among lean development, lean procurement, lean manufacturing, and lean distribution (Karlsson *et al.*, 1996).
- „a sociotechnological construct since it is based on the combination of human and technological subsystem” (Paez *et al.*, 2004, p.304).
- an organization that not only does not waste money but does not have too many employees in relationship with its works (Brookes, 2011).
- “a business entity in which the internal organization and operations are always in synchronization with the needs of the market and geared to creating sustainable value for all stakeholders while eliminating waste in all activities” (Tsigkas, 2013, p.1).
- “primarily a human system” as “it is common for people to focus on specific practices and tools that lean and agile teams use, such as Kanban board, stand-up meetings, pair programming, and so forth” (Humble *et al.*, 2015, p.9).
- a business organization that applies lean thinking methodologies in its production processes (Caldwell, 2020).
- a company that is concentrating on value creation while eradicating waste (Hayes, 2021).

In the last decades, more and more business organizations have become lean enterprises in order to boost their performances (MacInnes, 2002).

## 3. Research methodology

To attain the goals of the paper, the authors used a qualitative research method based on a desk research investigation. The desk research was based on the study of secondary sources of data (Hague, 2022). In the beginning, the authors detected and gathered various secondary data by deploying a wide literature review. Then, they revised numerous articles and books identified in several Romanian libraries (e.g., the Central University Library Carol I of Bucharest ) and electronic databases (e.g., SAGE, Taylor & Francis). In the end, the authors classified, analyzed, and synthesized the information and, devised their paper.

#### 4. Findings

A comprehensive literature review allowed the authors to reach several interesting and valuable results. They identified the following main characteristics of the lean enterprise:

- The roots of lean enterprises are to be found in Japan. After the end of the Second World War, the Japanese automotive industry succeeded in becoming one of the most successful in the world largely due to the emergence and development of the Toyota Production System (TPS). During the time, the TPS was transplanted abroad by the Japanese automakers and parts makers. The 1980s witnessed the appearance of numerous elements of TPS in the United States of America and Europe: „slimmed-down inventories, smaller processing lots and shortened changeover times, bar-coded kanban cards, „idiot-proof” features on equipment, lighted andon display panels above factory workplaces to indicate where problems were occurring, and sequenced withdrawal of parts and materials in accordance with the „pull” precepts of just-in-time manufacturing” (Shimokawa *et al*, 2009, p.xv). This is why some of the practices of lean are originated from the TPS such as (David *et al*, 2016):
  - total quality management (TQM);
  - Just-in-Time (JIT);
  - reduce stock waste;
  - reduce in-process travel etc.
- Lean thinking is at the core of lean enterprises. It can be encapsulated in five major principles (Table no. 1). The creation of lean enterprises imposes a new way to think about the relationships between companies, principles regarding their behaviors, and greater transparency (Womack *et al*, 2003).

Table no. 1. The five principles of lean thinking

Principle	Content
1	Precisely specify value by specific product. Value can only be defined by the ultimate customer.
2	Identify the value stream for each product.
3	Make value flow without interruptions
4	Let the customer pull value from the producer.
5	Pursue perfection.

Source: (Womack *et al*, 2003, p.10,16)

- A lean enterprise is primarily a business organization. It is focused on a plethora of specific elements as follows:
  - quality increasing;
  - waste elimination;
  - delays reduction;
  - total costs reduction;
  - unnecessary bureaucracy elimination;
  - continuous improvement;
  - JIT delivery;
  - lead times reduction;
  - customer-focused and driven;
  - unused warehouse spaces elimination;
  - efficient response to market demands etc.
- Lean enterprises are fundamentally human and learning organizations. They cultivate and nourish an organizational culture that welcomes well-trained, motivated and conscious employees who fully understand the importance of lean philosophy, principles and practices. This is why their commitment to lean values is essential. It is basically a culture of „trust and empowerment, rather than command and control” (Jones *et al*, 1999, p.15). Through the continuous improvement of their skills, employees can take action to find solutions to operational problems and, therefore, contribute to the business success of the enterprise. The best lean professionals have to continuously learn by reading articles and books, taking

classes and putting theory into practice. In other words, lean means learning continuously (Graban, 2016).

- A lean enterprise encompasses several lean processes and activities such as lean procurement, lean manufacturing, and lean distribution. All of them are parts of a lean system in which products and services are not only created but also delivered in the right quantities, to the right destinations, in the right moment, and in the proper conditions (MacInnes, 2002, p.1). For example, lean manufacturing highly contributes to delivering the needed products and/or services and a higher value to the customers at the highest possible quality using the least amount of resources of the enterprise.
- As business organizations, lean enterprises establish their specific goals. In this respect, the following purposes are essential:
  - „- Improve quality.
  - Eliminate waste.
  - Reduce lead time.
  - Reduce total costs.” (MacInnes, 2002, pp.3-4)

These characteristics show that lean enterprises have succeeded in becoming successful business organizations in a hyper-competitive global business world.

## 5. Conclusions

The topic of lean has become a subject of interest for numerous researchers and practitioners worldwide, mostly in the last decades. Lean refers not only to principles and values but also to practice. As a consequence lean enterprises have appeared and expanded in all sectors all over the world.

The paper contributes to a better understanding of the concept of lean, in general, and lean enterprise, in particular. Also, it briefly analyses some of the key characteristics of lean enterprises that lead to their business success.

This study may be broadened by future researches that can take into consideration the identification and analysis of other characteristics of lean enterprises.

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## Taylorism and Ambidexterity – A Systemic Perspective on Integrating Exploration and Exploitation in Organizations

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### Abstract

*In this article we aim to depict a manner in which modern organizations could and should integrate their exploration and exploitation activities, the two different sides of ambidexterity, into new organizational settings that can provide them the necessary flexibility for viability in a changing socio-economic context. For this purpose and from a systemic point of view, we have proposed a model for reconfiguring some organizational structures in contrast to the Taylorist approach and we have highlighted some implications and consequences drawn from the comparison advanced.*

**Key words:** ambidexterity, organizational structure, R&D, innovation, production

**J.E.L. classification:** D20, D29, D83, L23, M10, M19, O32

### 1. Introduction

Although it is a concept that has been explored in detail over the past two decades, ambidexterity has rarely been accompanied by somewhat straightforward prescriptions for the structural organization of companies that are concerned with simultaneous research, innovation and production activities (Hughes, 2018). In general, managers are familiar with classical models of organization and division of labor, such as the Taylorist model. It is less clear, however, how these managers would adapt a rigid structure – admittedly revolutionary at the time of its emergence – to the challenges of the modern economy.

Innovation, as a major component of ambidexterity, is a promise for achieving success today. But it is neither easy nor cheap, and there are no guarantees that it will lead to the desired results. Moreover, the issue is its integration as far as possible into all the organization's activities, at least in terms of incremental innovations such as continuous improvements along the entire value chain. Yet, this is the modern model of the so-called “Toyotist” organization (Dohse, Jürgens and Nialsch, 1985), based on the distinctive Japanese mentality. However, it is precisely this Japanese mindset, which is almost entirely different from the Western one, which prevents the successful Japanese model from being “copied” in countries with different cultural profiles. Under these circumstances, how can Western managers, and not only them, “reconcile” the two totally different facets of ambidexterity, exploration – which includes innovation, novelty, change – and exploitation – which includes standardized production, tradition, inertia? Through what organizational restructuring can they “shorten” the arduous path from mechanical, Taylorist organization to organic, modern organization? To solve this dilemma, at least from a structural standpoint, we propose a model for designing organizational structures in such a way as to ensure the flexibility needed for companies to “move” quickly, at the accelerated pace demanded by today's markets.

## 2. Literature review

The Taylorist model, followed by Fordism, which underpinned the industrial revolution (Uddin and Hossain, 2015), is increasingly less used in business organizations nowadays given the accelerated growth in the adoption of information technology which brings with it new ways of organizing work. In this context, ambidexterity, a concept that in fact covers the whole range of human work-related activities (Zoltan and Vancea, 2020a), brings new challenges for organizations in terms of how to separate or integrate the completely different activities involved in exploitation and exploration (Levinthal and March, 1993), the two sides of ambidexterity. This dilemma remains an issue for any organization that wants to survive or grow in a highly dynamic and complex market.

The concept of ambidexterity in organizational studies emerged in the 1990s from a relatively simple assumption: in order to survive and succeed, firms must strike a balance between two distinct types of competing activities, namely, exploration and exploitation (Hughes, 2018). In subsequent years until now, research examining ambidexterity and the exploration-exploitation balance has gained momentum, but the results of this research have created more confusion as "research into organisational ambidexterity is beset with problems to do with definition, conceptualisation, measurement and testing" (Hughes, 2018).

However, the most common definitions include:

- ✓ in exploration activities like: generation of new ideas (March, 1991), creativity (Pelagio Rodriguez and Hechanova, 2014), the use of new solutions (Fang, Lee and Schilling, 2010), innovation and the gathering of new knowledge (Lee et al., 2020);
- ✓ in exploitation activities like: implementation of ideas (Revilla and Rodríguez-Prado, 2018), production (Anderson, Potočnik and Zhou, 2014), systematization (Pelagio Rodriguez and Hechanova, 2014), the use of known solutions (Fang, Lee and Schilling, 2010).

Another distinction concerns the type of knowledge specific to exploration and exploitation respectively. Hence, explorative knowledge involves experimenting with new ideas and identifying opportunities for the future, while exploitative knowledge improves efficiency, production and marketing. (Kang and Lee, 2017).

In other words, exploration represents „the new”, the novelty, and exploitation represents „the old”, „the well-trodden” path, and the literature is abundant in highlighting the idea of incompatibility between these two. Thus, Hughes has made substantial efforts to systematize work on organizational ambidexterity, highlighting the tensions between exploration and exploitation in the form of trade-offs presented in the literature since the definition of ambidexterity in the organizational framework (Hughes, 2018). Theoretically, these trade-offs mainly refer to the competition between exploration and exploitation for scarce resources (March, 1991, He and Wong, 2004), but also to the different attention paid by the management to the strategic prioritization of one over the other (Knight and Cuganesan, 2020).

And yet, there are works that propose in one way or another the integration of exploration and exploitation as they represent "two phenomena that have clear overlaps" (Revilla and Rodríguez-Prado, 2018) and "going beyond the separation thesis, and move toward integrating rigid dualities into flexible polarities" (Papachroni, Heracleous and Paroutis, 2015) is both necessary and constructive. Beyond the ambiguity about the purpose of ambidexterity, that is, whether ambidexterity is a mean, an instrument for organizational objectives or a goal in itself (Zoltan and Vancea, 2020a), there is also the question of "how a firm can organise" ambidexterity (Hughes, 2018). We attempt to provide a possible answer to this question in the following sections.

## 3. Research methodology

As research methods, logical inference and comparative analysis constitute the main methodological support for this paper, along with a critical review of the literature, mainly that addressing ambidextrous organization and/or organizational ambidexterity on the one hand and Taylorism on the other. Modelling and graphical representation were also used as research tools. We have thus defined and analyzed ambidexterity in an organizational context and have refined the terminology used.

Also, we have described and graphically represented the essence of Taylorism in terms of separating research from production in time and space and highlighted the challenges it raises in the current context. Finally, we have proposed and explained a model for reconfiguring organizational structures of R&D and production in order to overcome the limitations imposed by the Taylorist model. Conclusions and future research directions are outlined at the end of the paper.

## 4. Findings

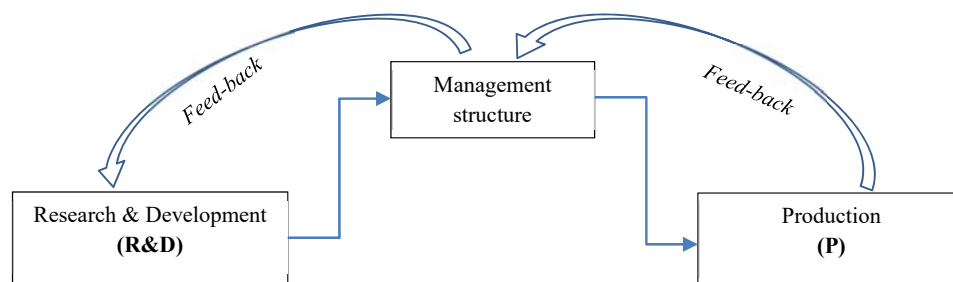
### 4.1. Moving beyond Taylorist organizational structure

In order to avoid conceptual confusion, we will first make a distinction not often made in the literature (because in English „organization” covers several meanings), namely:

- *ambidextrous organization*, as a type of organization, company, structure as a whole, with structural R&D departments/units;
- *organizational ambidexterity*, as an organization’s ability to carry out and integrate both exploration and exploitation activities beyond or regardless of the boundaries of a functional, Taylorist organizational structure.

This distinction is crucial in order to perceive the difference between organizational structures, which cannot be easily changed, on one hand, and organizational capabilities and skills (individual and collective), which can be identified and used to overcome structural boundaries when needed (for example, time-limited projects), on the other hand. Thus, strictly terminologically, we can say that ambidextrous organizations are also firms structured according to Taylorist principles (Figure no. 1), which means that they carry out both exploration and exploitation activities, which are strictly delimited on the principle of “specialization of function” (Witzel and Warner, 2015) with decisions belonging in every respect to management structures (Vancea, 2007), but this does not indicate their efficiency or success on the market. Therefore, what organizations now need has to do with varied skills, a well-articulated vision and flexible processes that allow them to adapt to dramatic changes in the external environment. In other words, and to keep the analogy with the human ability to be ambidextrous, organizations need to be able to “switch hands”, which means to successively perform separations and integrations of exploration and exploitation activities, as we suggest in Figure no. 2.

Figure no 1. Taylorist model with permanently disconnected unites



Source: Authors’ contribution

Because structure must follow strategy (Burciu et al., 2008, p. 268), companies must design their organizational structures in such a way as to ensure both that they have the necessary human resources, more specifically diversified skills, and that they have a clear vision of the links between activities and/or the various units that constitute the organization. This also applies to a Taylorist organization. But the Taylorist segmentation between R&D and production (figure no. 1), or what we now call exploration and exploitation, hinders both innovation and its propagation, and employee satisfaction, whereas strict discipline and routine are basic Taylorist principles which, however, can lead to lower performance and demotivation (Lykourentzou, Lionel and Barlatier, 2021).

Indeed, in order to achieve their objectives, organizations need to create structures that are self-contained and have specific tasks, but at the same time they need to ensure that there is sufficient flexibility to adapt to internal dynamics and, above all, to external fluctuations. To achieve this flexibility, organizations must design their activities so that their structures are as integrated as

possible, that is, the strict boundaries assumed by Taylorism must be diffuse, permeable to the flow of information between different organizational groups (Fang, Lee and Schilling, 2010). Flexibility can also be ensured through the versatility of organizational structures, through overlapping roles and functions, or departments and occupations (Sorge and Streeck, 2016). For this, identifying “linking pin” and “boundary spanner” roles prove to be of real use and sometimes even indispensable, as we will see in the next section.

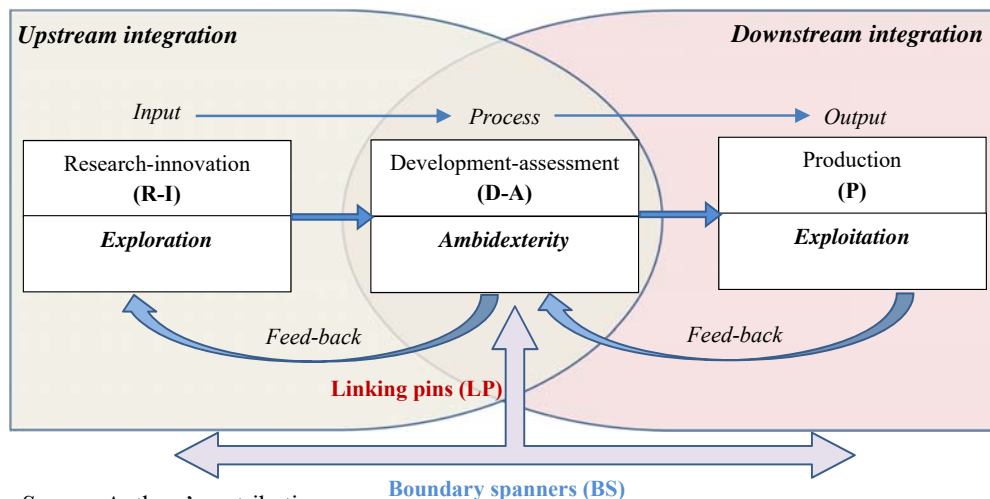
#### 4.2. An integration model of exploration and exploitation

The systemic view of the organization has a well-defined place in the theory of the firm (Burciu et al., 2008, p. 42) and generally implies that the firm is an open system, which means that it has multiple links and exchanges with its external environment, with reciprocal influence. However, the systems perspective also offers the opportunity to understand the dynamics of the firm’s internal processes, either at the level of units, departments or divisions, or at the level of the firm as a whole, or further at the level of a multinational company with numerous subsidiaries and branches.

In line with the view that exploration and exploitation are complementary, rather than substitutable, modalities oriented towards the same goal, i.e. the survival and prosperity of the system (Blaschke and Schoeneborn, 2006), we propose a model of the separation and integration of exploration and exploitation activities from a systemic perspective. Hence, separation means reconfiguring classic R&D (Research & Development) to meet the requirements of integrating exploration and exploitation. Figure no. 2 shows a purely conceptual Input-Process-Output (IPO) model in order to illustrate how highly diverse activities such as research and production can be integrated in such a way that the well documented tensions between them ((Lavie, Stettner and Tushman, 2010, O’Reilly III and Tushman, 2004) are, if not eliminated, then significantly reduced.

Thus, exploration activities constitute the inputs (for instance, a new product idea), ambidexterity, the transformation processes (the evaluation of the new product idea and development of a prototype), and exploitation, the outputs (the launch into production of the new product). There are two feedback loops since, following the same example, P may consider that the prototype developed by D-A requires modifications to be mass produced and/or D-A may consider that the idea (project) developed by R-I also requires improvements (for example, it is too expensive to produce or requires too many changes to the production line).

Figure no. 2. Integrating exploration and exploitation from a systemic perspective



Source: Authors’ contribution

Further, the conditions necessary for such a flow as the one proposed in Figure no. 2 mainly concerns who handles the circulation of information as well as the necessary resources between R-I, D-A and P on one hand, and how strict are the boundaries between these activities, on the other.

To answer the first requirement, a solution was suggested since the 1960s by Rensis Likert who proposed the term "linking pin" (Likert, 1967). "Linking pins" (LP) are people who maintain connections between different structural units because they belong simultaneously to several groups positioned in hierarchical proximity; in other words, LP have a group where they come from, but they also belong to the immediately above hierarchical group (Zoltan, 2012).

The concept of LP has meaning and usefulness in the configuration proposed by Likert, specifically, an organizational structure consisting of partially overlapping and integrated units, horizontally coordinated (Likert, 1967, p.160). As such, LP will seek to satisfy the interests of both hierarchical groups to which they belong, therefore enabling leadership support and harmonization of divergent interests on the basis of communication and interpersonal connections with members of both groups (Zoltan, 2012).

With regard to organizational boundaries, the literature describes so-called "boundary spanners" (BS); a "boundary spanner" is the "contact man" who mediates "the paradox caused by external forces demanding flexibility and internal ones requiring orderliness and efficiency" (Dollinger, 1984). BS play an important role in connecting the organization with its environment and they need to address non-routine problems to generate creative and innovative results in addition to considering routine problems (Wang, Liu and Liu, 2019), in other words, they need to have both explorative and exploitative knowledge (Kang and Lee, 2017).

Although, to the best of our knowledge, the distinction between LP and BS is not mentioned in the literature, we note that LP will mainly ascertain that the internal tensions inherent in any organization do not exceed reasonable limits, so that the system (organization) is not undermined. As for the BS roles, they are more concerned with the firm's relationship with its external environment, but, in the same idea of partial overlapping of functional structures, the BS can also act internally. In reality, organizations have human resources with the role of LP or BS – although they do not hold an official status and are not labelled as such – who act informally to facilitate internal negotiations and information dissemination between the various functional units of the organization.

The fundamental idea that we are trying to emphasize is that of a reconfiguration of the rigid boundaries of the classical, Taylorist model of structural organization inasmuch as "Taylorism is very adaptable" and abandoning it altogether "requires a lot of energy" (Pruijt, 2000). Considering the huge volume of information and of influencing factors that characterize today's socio-economic environment, it is no longer possible that only managers or people invested with various forms of authority to be responsible for the integration and coordination, instead BS and LP are also needed for the proper functioning of organizations. By exercising their functional authority as well as their counselling and servicing roles (Vancea, 2015), both LP and BS bring the "vital fluidity" to the organizational processes by simplifying organizational structure and shortening communication channels, which means saving resources (human, financial and time), that is, efficiency. In this way, decentralized communication inherent in "permeable" structures that enable organizational ambidexterity will lead to increased employee satisfaction (Zoltan and Vancea, 2018) in contrast to the centralized communication networks specific to the Taylorist model. Finally, the collaboration and complexity of the tasks to be performed by integrating exploration and exploitation either downstream or upstream (Figure no. 2) can be a strong intrinsic motivator (Zoltan and Vancea, 2020b) for the employees involved, and primarily for LP and BS.

Additionally, in any current organizational settings, the basic and common tools for achieving intra- and inter-organizational communication goals are those provided by or related to the Internet. These tools tremendously facilitate the circulation of information, ideas and knowledge, making possible the integration of exploration and exploitation at a level impossible before the existence of the Internet. This mention is important because the LP and BS attributions today are hard to imagine as possible in a world before the Internet and information technology.

## 5. Conclusions

The Taylorist model, which requires a very clear delineation of the firm's activities and an equally precise separation of organizational structures, remains an "unbeatable" model for any firm producing mass goods and services (Pruijt, 2000). However, although productivity and the fragmentation of workload through strict specialization are Taylorist principles that remain the

foundation for repetitive, standardized, routinised activities (Ndaguba et al., 2018), they are undergoing changes as market dynamics require companies to adapt rapidly to customer requirements and competitors’ strategies.

Even if there is no consensus in the literature on exactly how exploration and exploitation should be integrated or even what types of activities each includes, it is certain that any organization needs an overview of the whole process of production or service delivery, as well as an understanding of the interconnections between activities in order to survive and eventually grow in the current economic context. Thus, whether it creates separate units with people or teams that are linked together (Likert, 1967, pp.156–188), or find its own formula for designing its activities, any organization needs to bear in mind that the Taylorist model, with its particular stringency, was and remains a great step forward in terms of organizing productive activities. But on Taylorist model processes need to be reconfigured and competences reorganized to ensure the organization’s continuous adaptation to frequent changes coming from both its external and internal environment.

Furthermore, the use of LP and BS brings into focus other topics widely debated in the literature, namely autonomy, informality and decentralization. These, in turn, may raise other issues, but nevertheless one thing remains certain: without them a firm can hardly evolve and adapt to the turbulence in the external environment. In any case, future research will be able to deepen these concepts and better clarify the roles of the two categories, including the use of teams to fulfil these roles. It would also be interesting to investigate the extent to which LP and BS resort to explicit and implicit knowledge, since we live *de facto* in a knowledge economy (Zoltan and Vancea, 2011) where the “stock” of knowledge held by organizations is an important source of competitive advantage (Burciu and Kicsi, 2015).

Conceptual skills and abstract thinking are more important today than ever before, so the model proposed in this paper may prove useful in identifying the multiple links between various structures and activities within an organization. Ambidexterity should for this reason be seen as an organization’s ability to create value and can be addressed from a systemic perspective along the exploration-exploitation continuum (Lavie, Stettner and Tushman, 2010) as a process of transforming abstract ideas (exploration) into tangible products (exploitation).

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## **Section V**

### **Finance and Accounting**

# Research Regarding the Integration of the Sustainable Development's Requirements Within the Accounting Model at a Microeconomic Level

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## Abstract

*As a follow up to the increased interest regarding the concept of sustainable development, the Romanian economic entities are exposed to a series of challenges regarding the accounting model.*

*This paper presents an empirical research based on questionnaires, made with the sole purpose of in-depth knowledge of the practitioners' and the specialists' opinion regarding the relationship between the sustainable development's requirements and their integration within the accounting model. The sample is made up of economic entities which develop their activity in various domains at a national level, which have a number of over 500 employees at the date of the balance sheet. The research has as result the fact that a part of the sustainable development's requirements is integrated within the accounting model at a microeconomic level.*

**Key words:** sustainable development, accounting model, non-financial information, integrated reporting

**J.E.L. classification:** M14, M40, M41

## 1. Introduction

The sustainable development represents an indispensable element within the activity of economic entities while taking into account the normalizing organisms. The latter came into the support of those interested which have organized, with time, important events on the topic of sustainable development which remained in history.

The topic of sustainable development brought on with time intense debates due to the increased interest of environmental, social and personnel principles. The information sources on this subject are mainly within the category of conferences, congresses and events which take place, as well as within the scientific research which approaches this topic in diverse variants in association with different elements. With time, a growing accession of the sustainable development's principles within the economic entities, investors, clients, the local community, and the organisms of regulation to elements specific to sustainable development, took place. All of these place the subject of sustainable development in a leading position in debates made globally. A set of universally available norms and basic principles which are unanimously recognized by any interested party has been associated to sustainable development. Adopting the principles of sustainable development constitutes an advantage through the fact that it confers credibility to the economic entity as well as a reference point regarding the promotion of pylons specific to the sustainable development (environment, social and personnel).

Nowadays, growing the complexity of the international business environment and implicitly the national one, the introduction of new regulations regarding the reporting of the sustainable development's pylons was necessary. This led to the growth of the information volume the economic entities provide, offering at the same time details and information with a high level of expertise. Even though the awareness of the entities' responsibilities is growing, demonstrations regarding their utility and opportunity of sustainable development practices (GRI, 2022) are offered. The reporting

of the sustainable development's requirements is an essential way the economic entities communicate to the third parties the responsible method of action and the administration of sustainable resources.

With time new ideas have been proposed regarding methods of reporting that the economic entities should adopt so that they keep up with the development of the economic reality in order to respond to the needs of an as large as possible public. The information transmission process from within the entity has a very important role because it must cover a wide range of subjects, to be of interest for investors, to be compliant for the decision factors, to correspond to standards for authorities and to be easy to understand for unspecialized individuals (2014/95/EU Directive).

The quickness that the changes happen with within the business environment make it difficult for the economic entities to establish a model of integrated reporting (financial and non-financial reporting) to benefit the entity's business model and to be compliant to the legislative requirements in place. This approach starts from the idea that by covering a wider range of the public with new elements, it does not mean that an entity will produce different reports but that it will improve its existing ones. Therefore, the entities adopted the integrated reporting which is composed of financial information as well as aspects of sustainable development, to watch out for the needs of the interested large public (2014/95/EU Directive). The interconnection between financial information and the environmental, social and personnel information is more and more recognized and demonstrates the effort of responding to the needs of the interested parties voluntarily or in the situation where the legislative regulations impose it.

Due to the fact that the sustainable development of an entity assumes taking into consideration the performance, balance, risk factors and the rentability of its activity in time, the accounting system is responsible to offer the infrastructure necessary for all of that. With that in mind, the major pursued interest at a European level is headed towards economic entities of high dimensions which fall under the incidence of imposed regulations regarding the practices of sustainable development.

## **2. Literature review**

Regarding the microeconomic dimension of the sustainable development, the efforts of the economic entities to align themselves with the requirements of sustainable development and the integration of its aspects within their accounting model are appreciated. The sustainable development can be looked at from the perspective of environmental costs of the managerial accounting. At a microeconomic level, the entities' trial of implementation of social, environmental and personnel aspects within their activities is considered a commendable approach, especially when considering the context in which they are not covered from a legislative point of view (Bonila-Priego, Font, Rosario Pacheco-Olivares, 2014). The voluntary manner of highlighting the interest for the community can develop within any economic entity no matter the activity it develops and no matter the impact it has on the endangerment of future generations (Frias-Aceituno, Rodríguez-Ariza, García-Sánchez, 2013 and the 2014/95/EU Directive).

Research from the specialty literature about reporting aspects of sustainable development highlight the advantages of reporting environmental, social and personnel situations together with the financial situations. Introducing the elements of sustainable development within the classical approach of financial situations represents a common practice of multiple economic entities which have evolved with time (García-Sánchez, Rodríguez-Ariza, Frías-Aceituno, 2013).

The challenge in the process of sustainable development is given by the integration of the sustainable development's requirements within the accounting model. Through the accounting system, macroeconomic entities are classified and analysed from an analytical as well as synthetic manner. Transposing the macroeconomic indicators in the European and national space is conditioned to aspects regarding a better governance as well as economic prosperity. By implementing the indicators it is considered that the barriers of correspondence between diverse domains which have as common point institutional sustainable development have been surpassed (Dima, Popa, Farcane, 2015).

### 3. Research methodology

The questionnaire represents an interactive type of instrument specific to the method of investigation, promoting direct information circulation between the research and the subjects. The data and information regarding certain phenomena are grouped in questions which allow diverse ways of answering according to the researched problem.

The method of questionnaire sampling has been based on the Romanian economic entities which registered over 500 employees at the date of the last balance sheet (from 2019). Consulting the list of economic entities in Romania, it has been noticed that there is a number of 185 economic entities for which the questionnaire is available, and from which contact data has been collected. The transmission method consisted of e-mail, and the Google Forms application. From the total of 185 economic entities that received the questionnaires, 154 economic entities have responded but a part of these could not be validated due to the incomplete responses. There were 132 complete responses that could be validated. The target group, composed of 132 responders are economic entities with different domains of activity, the sample that the questionnaire was applied on being representative.

The questionnaire dimension represents one of the main problems, so much so that the whole content of a questionnaire could be separated in dimensions which generate multiple questions. From what was said, it results the relation (1):

$$p_1, p_2 \dots p_k, \text{ each of them generating } q \text{ questions} \quad (1)$$

where: p= approached problems; k= dimensions; q=questions.

To all this, we introduce (r) complex factors A,B,C..., necessary to explain p, or factors which present interest for the research. All these factors have (s) dimensions and present (t) indicators.

To the research questions are added identification questions (v), these being personal variables represented through age, occupation, studies etc. Considering what was presented, we obtain the following relation (2):

$$n = (k \cdot q) + (r \cdot s \cdot t) + v \quad (2)$$

where: n= number of questions; s= complex factor dimension; k= dimensions; t= indicators; q=questions; v= identification questions; r=complex factors;

The questionnaire was shared between the 01.06.2019-01.07.2019 time frame, the answers were received between the 02.07.2019-01.02.2020 time frame and processing the data took approximatively two weeks. The answers were processed, centralized, and interpreted via Microsoft Excel, where a database was created.

The response rate of the economic entities represents in the first stage an element from which one can denote the seriousness of the targeted economic entities, the information provided from a first stage of the investigation being calculated using the formula (3):

$$R_s = C_v / n \quad (3)$$

where:  $R_s$ = response rate;  $C_v$ = number of valid questionnaires; n= total number of sent questionnaires.

In the case of our questionnaire, the response rate was of 71,35%, detailed as seen in table 1.

Table no. 1 Obtained result of the response rate calculation

Element description	Results
Total number of questionnaires sent out to economic entities	185
Number of valid responses from economic entities	132
Response rate	71,35 %

Source: Author's projection

Through the calculated response rate, it has been proven that the obtained percentage is good for the results to be exploited. The response rate was influenced by the message transmitted in the questionnaire's subject, containing a short description of the research intent, as well as the author's identification data, including the name, field of study and the affiliation with the university. These aspects were appreciated and contributed to offering a growing number of responses. To all of that it is added the time period given to the responders to get through the questionnaire's questions.

In structuring the questionnaire, the abstract and real have been approached, starting from general to particular, from easy to difficult. Closed questions were mainly chosen considering their relevant to the research and the demographic questions have been placed in the first part of the questionnaire.

Through the received responses, it is offered a pertinent solution regarding the validation of the research's hypotheses. The questionnaire is structured in three parts and contains open questions, closed questions with single or multiple responses, as well as questions of control and filter, so that the received answers are as complete as possible and so that they can be valued further on.

### **3. Research objective and hypothesis**

The reason for initiating this research was the identification of certain characteristics and phenomena of reality for predictions to be emitted, to establish relationships between characteristics. The central aspect of the research is the impact of integrating the sustainable development's requirements within the entities' accounting model, and for this a hypothesis that is due for validation or invalidation has been emitted.

The purpose of this research targets finding out the point of view of practitioners regarding the application of practices of sustainable development within the accounting model.

The research objective refers to the knowledge of the measure in which practitioners in the domain know, analyse, and report the information resulted from the integration of the sustainable development's exigencies within the accounting model.

Within this paper the following research hypothesis has been emitted for validation or invalidation: *At a microeconomic level, the sustainable development's requirements have an impact on the accounting model.*

The questionnaire is structured in three parts: the first part contains questions whose answers general information about the interviewed individual as well as the economic entity the individual activates in. The second part contains questions whose answers offer information about the measure in which the practitioners know the definition, particularities and exigencies of the sustainable development concept. The third part has the higher weight and contains answers which offer necessary information for appreciating whether at the entity's level the exigencies of sustainable development have or do not have impact on the accounting model.

### **4. Centralization and interpretation of results**

**The first part of the questionnaire** presents questions regarding the responders' profile and their identification within the economic entity.

The responders were assured that the data would only be processed statistically, and any information such as the economic entity's name and its dimension is necessary to be confirmed within the sample.

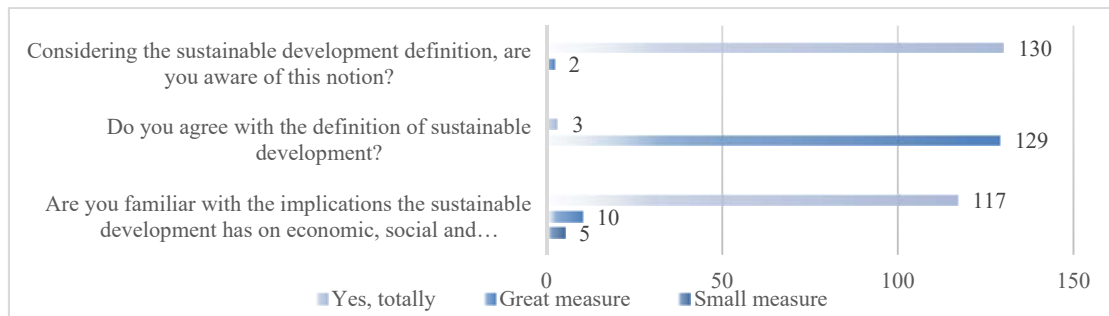
The responding entities have confirmed the fact that they have not registered at their last balance sheet over 500 employees, the branch and activity sector of the entities being a diverse one. According to the centralized data from the responses, we have within the responders, entities dispersed in sectors such as industry (65 entities), services (60 entities), construction (4 entities) and commerce (3 entities). Most of the responding entities are part of the industry and services sector, representing 94.65% of the total entities, fact explained by considering that these domains of activity involve a numerous workforce.

Another important element within this section is the indication of the position within the entity of the individual which drafted the responses to the questionnaire, according to question 4. Therefore, it has been noticed that the responders were part of the hired personnel within the economic department in percentage of 15.15% and part of the entity's managers in percentage of 84.85%,

31.06% of them being males and the rest of 68.94% of them being females, with ages between 20 and 65 years of age. The higher percentage of women that participated in the questionnaire can be due to the fact that within an economic entity they prevail within the administrative personnel. We suppose that the responders are familiarized with the notions of sustainable development, integrated reporting and non-financial information, given the wide range of age they cover. Within the sample, all those that participated to the questionnaire have completed a form of higher education.

**The second part of the research** revolved around the term of sustainable development. The responders were asked, starting from the given definition, to express the measure in which they are aware of the notion, how much they agree with it and whether they are familiar with the implications the sustainable development has on environmental, social and economic elements. Therefore, the received answers are given in figure 1.

Figure no. 1. Response regarding the knowledge of the notion of sustainable development

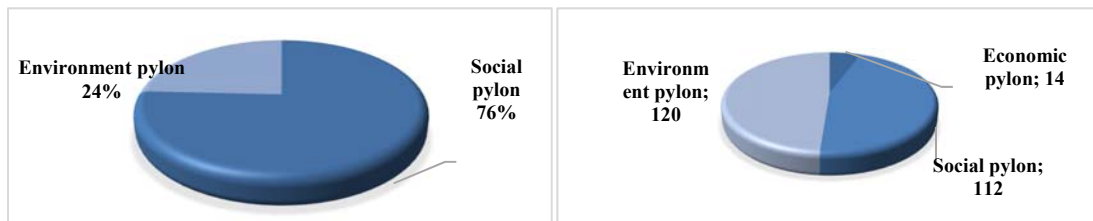


Source: Author's projection

As a follow-up to the received responses, it is appreciated the fact that all responders partially or totally know the definition given to sustainable development. The implications the sustainable development has, registered favourable responses, considering a percentage of 97.73% have answered in great deal. The familiarization in totality or in great measure of the implications of the sustainable development represents a percentage of 96.21% from the responses and a percentage of 3.79% of the responders are familiar in a small measure with the implications of the sustainable development.

The sample composed of those 132 responders, was asked whether it agrees with these exigencies. From a percentage point of view, 99% of responders agree with these exigencies and would not bring additions to them. Though, there are responders who consider that new exigencies could be introduced, and they frame them within the social pylon in percentage of 24% and within the environmental pylon in percentage of 76% according to figure 2.

Figure no. 3. Guiding the economic entities towards the sustainable development's pylons



Source: Author's projection

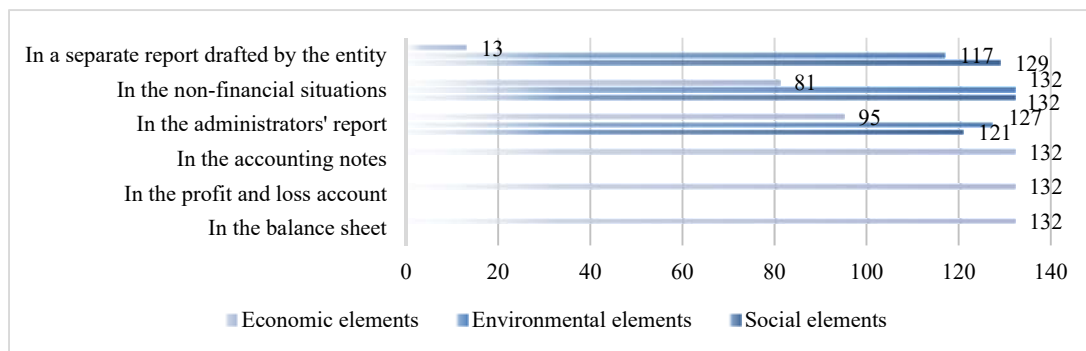
In continuing the questionnaire, the responders were asked whether in the activity developed by their entity are found component elements of the sustainable development's pylons. 90.91% of responders have stated that these elements have priority within the environmental pylon and 84.95% of responders have stated to have priority within the social one. Having the possibility of multiple

response, the following results were registered according to figure 3. It results the fact that the economic entities prefer the social and environmental pylons when it is about implementing the elements specific to the sustainable development. Through the responses received in the questionnaire, it results that within the accounting model of an economic entity one can easily introduce the environmental pylon followed by the social one. We appreciate that the options of the responders are the result of the actions that could be developed for the environment (antipollution measures or waste management) or in the social domain (community support or donations).

**The third part of the questionnaire** targets the appreciation of the level in which the economic entities have integrated within their accounting model elements which would respond to the sustainable development's requirements.

Through multiple response, the responders have mentioned the place in which the social, environmental and economic requirements of the sustainable development are found within the accounting model of the responders. The information provided by this question is given through multiple response, represented graphically in figure 4.

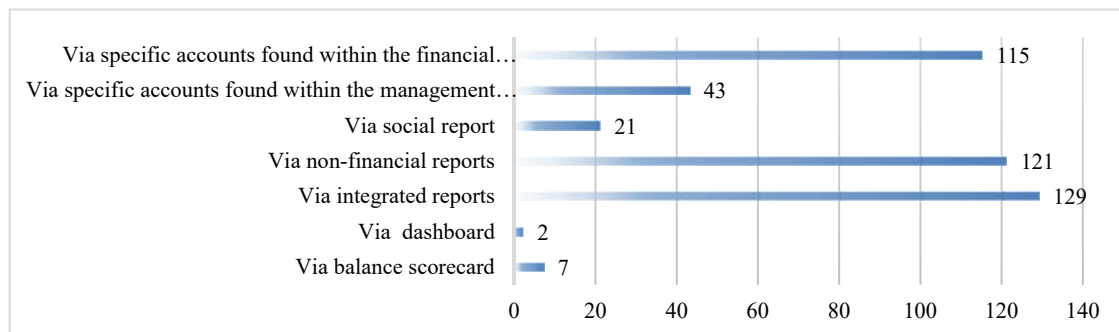
Figure no. 4. Recognizing the social, environmental and economic components of sustainable development within the entity's accounting model



Source: Author's projection

According to figure 4, the economic elements are found within the traditional instruments of reporting (balance sheet, profit and loss account, accounting notes) in percentage of 100%. The requirements specific to sustainable development through elements of environment and social are found separately through a report drafted by the entity (88.64% environment, 97.73% social, 9.85% economic), respectively in non-financial situations (100% environment and social, 61.36% economic) or in the administrators' report (91.67 % social and 96.21% environment, 71.97% economic).

Figure no. 5. Exposing the environmental, social and economic elements of sustainable development



Source: Author's projection

Next up within the questionnaire, the responders have been asked what is the method of giving the environmental, social and economic information specific to sustainable development. The graphical representation of figure 5 is given by the multiple responses of the responders.

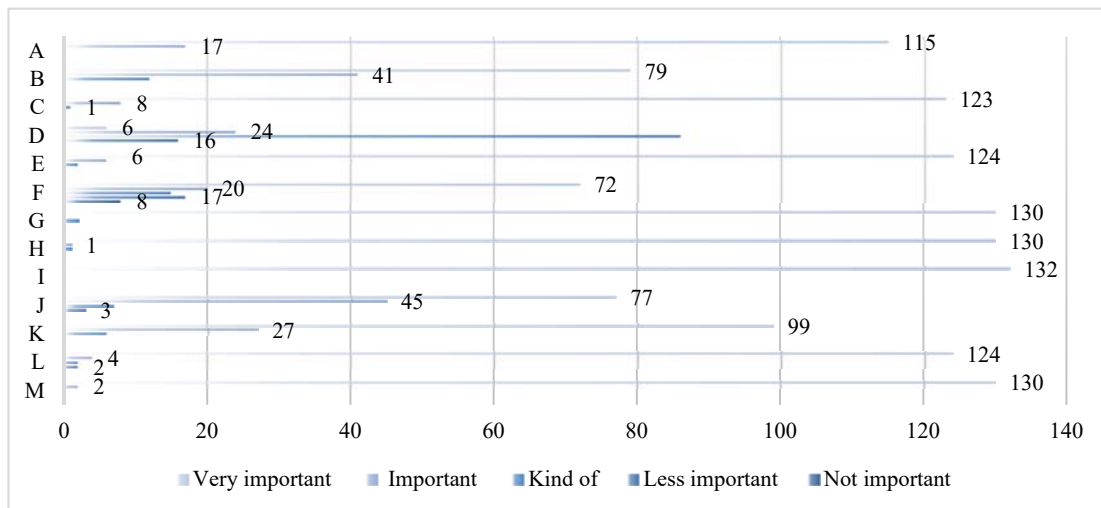
We remark that through the responses given, the tendency of using non-financial reports is in percentage of 91.67% and the integrated reports in percentage of 97.73%, found as self-sufficient instruments. The entities also use accounts from the financial accounting (87.12%) for exposing environmental, social and economic elements of sustainable development. Also, answers such as utilizing the accounts found in the management accounting in percentage of 32.58% and the given social, environmental and economic information through the balance sheet in percentage of 15.91% are also checked. The least number of answers were registered in the case of the dashboard, where the two responders represent a percentage of 1.52% and in the case of the balance scorecard, where the seven responders represent 5.30% of the total.

Tightly related to the anterior question, the responders were asked to give an open answer to the requirements from within the economic, social and environmental pylons found within the accounting model. The economic entities have responded within the social pylon that they are headed in percentage of 72% towards sponsorships and in percentage of 28% towards donations. Within the environmental pylon the highest percentage of responses was towards actions of recycling of 64%, followed by actions of protecting the environment in percentage of 25% as well as forestation in percentage of 11%. We appreciate the fact that the actions developed by the economic entity come in the community's support and contribute on the long term to the sustainable development, accomplishing the principles imposed by it.

In order for actions of sustainable development to be developed, there is a need of drafting a plan, given the entity's strategy. Starting from these considerations within the questionnaire, the responders have been asked whether they have implemented within their activity a strategy regarding the adoption of sustainable development. From the received responses one could note the intention of the economic entities to include within their strategy exigencies of sustainable development. The fact that a percentage of 87.12% of economic entities have implemented a strategy regarding the exigencies of sustainable development only partially and a percentage of 12.88% are totally implemented within the entity using strategy is to be noted. The integration measure in totality of the sustainable development's requirements within the entity's strategy is a requirement imposed by the reporting practice at a European and international level.

Through one of the questions, we wanted to find out the opinion of the responders regarding the association of the sustainable development with a series of terms, noted in an order of given importance. Therefore, in figure 6, the associations between responses are represented graphically.

Figure no. 6. The association of the sustainable development with a series of terms, noted in an order of given importance



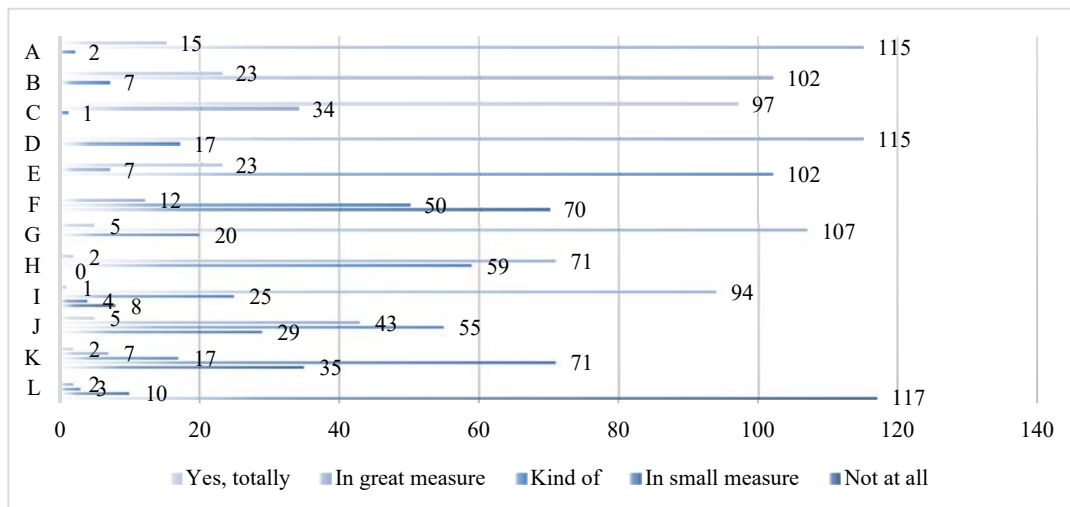
Source: Author's projection



Out of the registered responses, choosing the option *very important* regarding the association of sustainable development results: a percentage of 100% for I. (the positive effects obtained on the long term), a percentage of 98.48% for G. (care for the third parties), H. (correct practices) and M. (improving environmental quality), and the percentage of 93.94% is allocated for the E. response (improving the entity’s image in external relationships) and L. (eliminating fraudulent situations). In the C. case (the responsibility towards the environment) it is considered *very important* in a percentage of 93.18% followed by A. (economic responsibility) in percentage of 87.12%. Under 100 responders have considered K. to be *very important* (strengthening the market position) having a percentage of 75%, and B. (social responsibility), F. (marketing practice) and J. (competitive advantage) have represented percentages between 59.85% and 55.55 % from the total of responders to the *very important* section.

In the international context, the sustainable development involves reporting requirements specific to the European Union, where the responders are asked to express their *approval* or *disapproval* regarding the asked questions, their answers being represented graphically through figure 7.

Figure no. 7. The implications of sustainable development in reporting requirements specific to the European Union



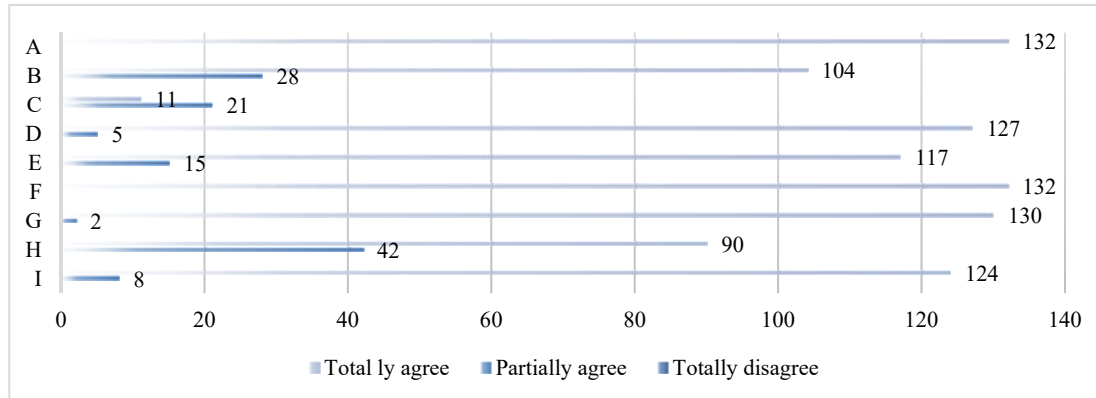
Source: Author’s projection

As a follow up to the received responses, one can appreciate the fact that the entities offer a positive response regarding the impact the requirement of the European sustainable development has on the accounting models. Therefore, mostly affirmative answers were received in which the responders were *agreeing* in great measure, the percentage of responses being between 87.12% and 77.27% for questions such as: A. (do you consider that the aspects of the environmental pylon are the most relevant within the accounting model implemented within the economic entity?), B. (do you consider that the aspects of the social pylon are the most relevant within the accounting model implemented within the economic entity?), D. (do you consider that the modification of the accounting model by introducing the elements of sustainable development’s elements is exclusively the management’s choice?) and G. (do you consider that the introduction within the accounting model of elements specific to the sustainable development influence in a positive manner the future of the economic entity?).

Moreover, one appreciates the responding entities’ opinion regarding the fact that there cannot exist any negative effects on the accounting model as a follow up to implementing the sustainable development’s exigencies, response offered through L. (do you consider that the adaptation of the existent accounting model to the sustainable development’s exigencies could have negative effects on the economic entity?) to which 88.64% responded as *not at all*. Considering the fact that within the content of the questionnaire only aspects regarding sustainable development were presented, one cannot neglect the part within the accounting model which refers to financial information. Therefore,

through the questionnaire, we want to find out the responders' opinion regarding the *agreement* or *disagreement* regarding the financial information from annual reports given by figure 8.

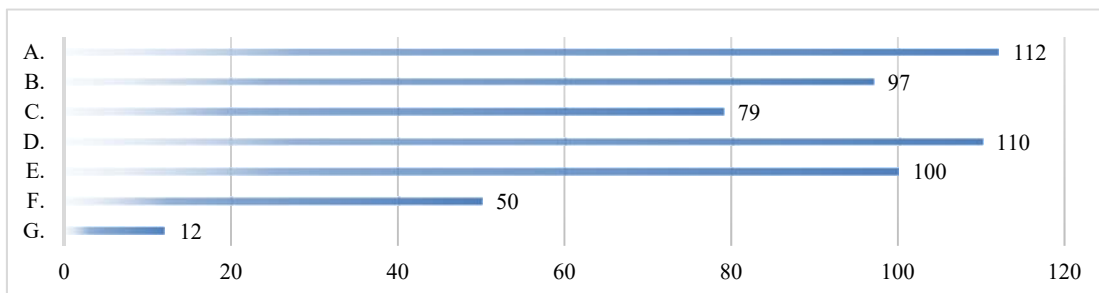
Figure no. 8. The alignment of reports according to the national legislative requirements and the regulations of the European Directives



Source: Author's projection

Judging by the received and synthesized responses in figure 8, it results that the financial information is the main instrument for supplying the economic entities. One can remark for statement E. (an incomplete presentation of the economic entity's performance), 88.64% of responders were in total agreement, fact which signifies the awareness that measuring the performance of the economic entity is not only made through financial information. We mention that the information that the economic entities draft must be adapted and improved in concordance with the national legislative requirements and the European Directive regulations. Through the questionnaire we wanted to find out the obstacles the economic entities encounter on the subject of non-financial information reporting. These are given according to the graphical representation of figure 9.

Figure no. 9. Aspects which prevent non-financial information integration within the accounting model

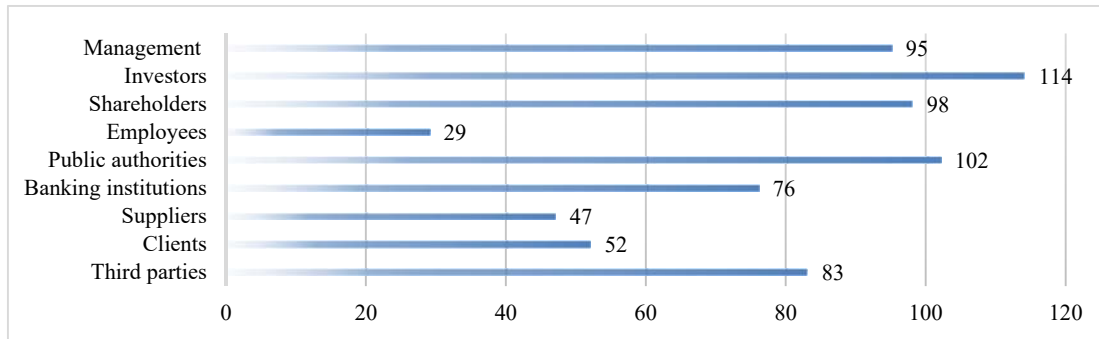


Source: Author's projection

Judging by the responses, one remarks obstacles such as A. (insufficient information) in percentage of 84.85%, D. (lack of good management) in percentage of 83.33% and E. (obstacles of legislative nature) 75.76%. In the background there is B. (lack of financial resources) in percentage of 73.48% and C. (lack of hired personnel trained in this sense) in percentage of 59.85%. The lowest percentage was registered for F. (lack of time due to the fact that adopting principles does not represent a priority) of 37.88% and G. (there are no obstacles) in percentage of 9.09%.

Another question from the questionnaire refers to the users of information from integrated reports, the responders having the possibility of multiple-choice answers, the responses being centralized and graphically represented in figure 10.

Figure no. 10. The users of information from integrated reporting



Source: Author's projection

One remarks answers for each option, for the most frequent of which being clear that non-financial information is addressed to investors in percentage of 86.26% and the public authorities in percentage of 90.91%. Tightly related to these are the shareholders with a percentage of 74.24%, the management in percentage of 91.97%, the third parties in percentage of 62.88% and the banking institutions in percentage of 57.58%. The last percentages are attributed to clients (39.39%), suppliers (35.61%) and employees (21.97%).

## 5. Discussions and conclusions

By offering responses, the questionnaire results could be interpreted because information was received about the level of integration of the sustainable development's requirements within the accounting model at a microeconomic level. Through the identified characteristics their interconnection could be formed and the emitted hypothesis could be verified in order for an opinion to be established. Therefore, the hypothesis: *At a microeconomic level, the requirements of sustainable development have an impact on the accounting model*, holds true. The economic entities which have adopted the sustainable development's requirements have observed modifications at the accounting model's level, these modifications being reflected through the reporting method. Offering non-financial information through integrated reporting supposes an effort for the economic entity regarding the resources it must allocate for reporting. The novelty element of the sustainable development's pylons is the one that puts the economic entity's accounting model in difficulty, which must distinctly highlight the social, environmental and economic aspects. The integrated reports drafted by the economic entities are mostly influenced by the specific of the activity they develop. Through the questionnaire, it has been noticed the fact that even though at the level of the accounting model there are changes regarding the traditional reporting system, these changes have a positive effect on the long term and bring benefits to the economic activity.

The limits of the identified empirical research refer to the category of entities for which the questionnaire is addressed to, their choice being conditioned by the number of employees. Given the fact that at Romania's level most economic entities are part of the category of small and medium entities, this study cannot be applied to them because they are not obligated to adopt practices of sustainable development and to draft integrated reports, so the questionnaire's results would not be relevant. To overcome these limits, this questionnaire can be sent out to economic entities which have implemented the sustainable development's exigencies and draft integrated reports voluntarily. Moreover, the limits of the national borders could be surpassed, and the questionnaire can be applied to economic entities within the European space which are part of the regulations of the European Directives, or which respect the principles of the international framework of integrated reporting.

From the research it results the accomplishment of the objective proposed at the beginning stage. Therefore, through the questionnaire we could find out how the practitioners perceive the exigencies of the sustainable development and how much importance is given to them at the economic entity's level. We have brought to the attention the reasons that stay at the base of implementing elements of sustainable development within the accounting model, as well as the stage in which the entities in Romania are in the process of implementing the practices of sustainable development. We conclude

that in this situation, in our sample, the entities which should publish elements specific to sustainable development have integrated within the accounting model the requirements of European reporting, and their integration method is specific to each economic entity. Self-establishment of this procedure is currently suggested by the authorities, considering the non-existence of a form or a predetermined material offered to complete this information.

We consider that the study’s results can be valued from a point of view of continuing the process of research by surpassing the created limits, as well as by using the results from a statistical point of view or with informative purpose for the masses.

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## Fiscal Optimization Through the Acquisition of Intra Group Services

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### Abstract

*This empirical study addresses the fiscal optimization of the profit tax by purchasing intragroup services for planning, respectively preparing the financial statements and adjusting the income and profit tax, with an impact on the deduction of value added tax. The study focuses on the economic relations regarding the procurement of services between a Romanian company and a cross-border one in affiliation relations. The study concludes that by applying fiscal policies and interpreting the legislation in the field of tax-accounting, certain transactions between related parties lead to fiscal optimization of taxes and fees, which have a negative impact on the consolidated state budget and the Romanian economy.*

**Key words:** fiscal result, taxation, accounting, taxes, consolidated budget

**J.E.L. classification:** M21, M41, E62, E63

### 1. Introduction

The need to prepare the Transfer Pricing File is when transactions take place between affiliates, to reflect the fair price charged on the market.

It should clarify that the prices charged in intragroup transactions are the same as for transactions with an unaffiliated entity.

In most cases, the prices applied intragroup in transactions with goods or services are below market value, or depending on the situation, they are well above market value.

This empirical study addresses the fiscal optimization of the profit tax by purchasing intragroup services for planning, respectively

The optimization, by underestimating the tax base, consists mainly in intentionally altering the supporting documents or concealing the financial and accounting records, in order to either overestimate the expenses or underestimate the income.

By presenting and avoiding methods by underestimating the tax base, to which people prone to these phenomena have resorted and are resorting to non-payment of taxes or fees to the budget, or to justify the origin of goods from illicit sources, or smuggling, or from clandestine domestic production, fraud has been reported.

### 2. Literature review

Bayer and Sutter (2004, p. 27) identify two main reasons why people do not avoid paying taxes: loss aversion and moral constraints, and moral constraints can effectively discourage tax avoidance.

Panayi (2017), quoted by Radu, Dumiter and Jimon (2017), highlights the high costs of business succession and explicitly the reduction of profits associated with cross-border transactions.

Perroux Fr. (1969, pp. 49) considers economic growth as an increase in the size of the national economy, expressed in the total goods and services obtained over a period of time, including depreciation.

### **3. Findings. SSB Group case study**

Within the SSB Group, certain management services are provided which include management support, marketing support and services related to the improvement of the production process or quality issues whose costs are allocated between the local entities. These services are billed to the beneficiary companies by the SSB Group headquarters, based on an hourly rate plus a 5% surcharge.

The techniques for optimizing the company's results are presented in the manner and accounting instructions recommended by international accounting standards.

The presence of several - options - acceptable in the accounting field, according to some accounting options, or an estimation independence in the situation of presenting the consolidated financial statements, can mark/distort the result/performance of the company.

We cite as an example one of the accounting/optimization engineering and its influence on the company's results.

#### **3.1. Regarding the services provided by the affiliated entities in the period 2016 - 2020:**

Applicable legislation is defined in art. 19 para. (5) of "Law no. 227/2015", which stipulates:

As art. 7 and art. 11 para. (2) of "Law no. 227/2015" on the Fiscal Code, that between the affiliated persons, the costs of administration, management, control, consulting or similar functions are deducted at the central level through the parent company, on behalf of the group as a whole. Expenditure of this kind can be deducted only if it provides additional services to the affiliated persons or if the price of the goods and the value of the services provided are also taken into account for the services or administrative costs.

Article 19 para. (6) of Law no. 227/2015 provides: Transactions between affiliates are carried out according to the principle of market value. When establishing the fiscal result of the affiliated persons, the regulations regarding the transfer prices, provided by the Fiscal Procedure Code, are taken into account.

Following the analysis of the transactions carried out by SSB SRL with the affiliated persons and the analysis of the Transfer Pricing File presented by the Company, as a result, it was concluded that SSB SRL performs functions and risks that exceed the manufacturer's functional profile based on contract or order, as defined in the Transfer Pricing File, regulated by Order no. 442/2016.

Certain expenses with the strategic functions/risks, respectively, strategic development research and marketing expenses fulfilled by the affiliated company, are invoiced based on some allocation keys with a profit margin of 5% to SSB SRL.

Thus, during this period, the functional profile for which it was compensated/remunerated, Societatea SSB SRL, is that of a manufacturer based on contract/order. Comparable companies on the basis of which the comparability analysis was established are companies with the same functional profile.

Consequently, the profit margin, respectively the revenues registered in Romania by the company SSB SRL is related to a manufacturer based on a contract that performs routine functions and risks.

Routine functions are functions of SSB SRL, while strategic functions are functions of SSB Luxembourg.

Each affiliate assigns its profits and operating margin according to the general business model, respectively contract-based manufacturer/entrepreneur.

### 3.2. Developer research costs

However, SSB Luxembourg charges SSB SRL: Basic research and development costs in the amount of:

- 5,250,999 lei for 2016;
  - 6,885,095 lei for the year 2017;
  - 7,322,850 lei for the year 2018;
  - 7,625,900 lei for 2019;
  - 8,222,888 lei for the year 2020.
- Total: 35,307,732 lei

Expenditure on generic research - basic development research are the expenses of the entrepreneur, of a company with full functions and risks and not the expenses that a manufacturer should incur on the basis of a contract with routine functions, as long as his operating margin, respectively the revenues recorded by the manufacturer on a contract basis, independently, are not revenues to cover these costs, respectively generic research costs.

As we have shown, in fact, these functions are functions of the affiliate company.

These basic development research expenditures do not always materialize as completely new products or innovations resulting from the development research activities and do not include maintenance or improvement of continuous operations.

Concluding the above: the functional profile for which it was compensated/remunerated, SSB SRL is that of a manufacturer on a contract basis.

Comparable companies on the basis of which the comparability analysis was established are companies with the same functional profile.

As a consequence, the profit margin, respectively the revenues registered in Romania by SSB SRL are related to a manufacturer based on a contract that does not fulfill strategic functions and risks.

The OECD Guideline states that in comparing the functions performed, it may be relevant and useful to take into account the risks assumed by those parties. In an open market that is prone to high risks, it will be offset.

In view of the above, in our opinion, it is considered that these basic development research expenses are non-deductible in the calculation of the taxable profit and the profit tax related to each fiscal period.

The legislation is not met the conditions of deductible expenses provided by art. 19 par. (1) and 25 para. (1) of Law 227/2015.

In our opinion, the company unjustifiably diminished its profit tax calculation base, treating as tax deductible a series of expenses representing basic development research expenses, expenses in the total amount of 35,307,732 lei, representing non-deductible expenses for profit calculation taxable income and profit tax for the period 2016-2020, replenishing the taxable base for each fiscal period.

### 3.3. Marketing expenses

SSB Luxemburg also invoices SSB SRL for marketing expenses for the period 2016 - 2020, as follows:

- 175,160 lei for the year 2016;
  - 220,915 lei for the year 2017;
  - 255,100 lei for the year 2018;
  - 439,795 lei for the year 2019;
  - 515,999 lei for the year 2020.
- Total: 1,606,969

Marketing, advertising and promotion Within the SSB Group, marketing activities include operational advertising activities, as well as market analysis and market development, or strategic decisions on issues such as the introduction of new products or product changes.

Those activities are generally either performed by each local entity individually, or some services may be provided centrally.

In addition, the projects are usually initiated on the basis of a request, so that the marketing activities are not relevant for SSB SRL, which is a manufacturer for the Group's clients.

SSB SRL does not perform marketing, advertising and market promotion functions, as well as risks associated with these functions, given the functional profile of SSB SRL, described in the Transfer Pricing File.

SSB SRL uses the Group's customer base, for which it pays the licenses provided in the concluded License Agreements, and the concluded contracts are in the name of SSB Luxembourg. Marketing costs are not the costs of a contract-based manufacturer whose activities are usually provided to the OEM for use in the production process.

As already mentioned, the functional profile for which it is compensated/remunerated, the society SSB SRL, is that of a manufacturer on a contract basis. Comparable companies on the basis of which the comparability analysis was established are companies with the same functional profile.

As a consequence, the profit margin, respectively the revenues registered in Romania by Societatea SSB SRL are related to a manufacturer based on a contract that does not have strategic functions and risks.

In view of the above, it is considered that these basic development research expenses are non-deductible when calculating the taxable profit and the profit tax for each fiscal period.

The expenses thus registered does not meet the legislation of deductible expenses provided by art. 19 para. (1) and 25 para. (1) of Law no. 227/2015.

In our opinion, the company unjustifiably diminished its profit tax calculation base, treating as tax deductible a series of expenses representing marketing expenses, expenses in the total amount of 1,606,969 lei, representing non-deductible expenses when calculating taxable profit and income tax for the period 2016-2020, replenishing the tax base for each fiscal period.

#### **4. Conclusions**

Following this study we will reveal the following conclusions:

In view of those presented in the case study, it is considered that these basic development research expenditures are non-deductible in calculating the taxable profit and the profit tax for each fiscal period.

As a consequence, the profit margin, respectively the revenues registered in Romania by the company SSB SRL are related to a manufacturer based on a contract that does not depend on strategic functions and risks.

In our opinion, the expenses in the total amount of 36,914,701 lei, representing the basic development research and marketing expenses represent non-deductible expenses for the calculation of the taxable profit and the profit tax for the period 2016-2020, reuniting the related taxable base. each fiscal period.

Analyzing these services, it results that they are not clear and determinable, and from a fiscal point of view they diminish the reported profit in Romania of the company SSB SRL, explicitly the profit tax.

Routine functions are functions of SSB SRL, while strategic functions are functions of SSB Luxembourg.

Each affiliate assigns its profits and operating margin according to the general business model, respectively contract-based manufacturer/contractor.

By applying/interpreting the fiscal policies in the fiscal-accounting field, certain transactions carried out between affiliated parties lead to the fiscal optimization regarding the taxes and fees, which has a negative impact on the consolidated state budget, respectively of the Romanian economy.

The independence given by the legislation in force, as an option of the accounting policies by the management of the companies, to an increase or reduction of the fiscal effect, represents in our opinion one of the most important informative thresholds of the profit and loss account.



Usually, the people who process the accounting records, take advantage of this possibility to apply permissive accounting policies, which most of the time are within the limits of the law.

At this time, inaccurate tax legislation, which creates instability between different areas of activity or contains many legislative inaccuracies, is important for authorized decision makers in Romania to develop measures in the future by reducing the effects and uncertainties on the legislation, by clear definitions, leading to an interpretation, respectively, a correct application of the financial accounting legislation by all taxpayers.

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## **Funding Public Health Action Programs: Allocations, Budget Execution and Post-Audit Results at the Level of the First Pandemic Year**

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### **Abstract**

*The 2020 budget year was strongly marked by the Covid-19 pandemic, which brought out the worst in the entire world’s economy - a major recession which has profoundly impacted the health and social protection systems, societies as a whole, etc. In this context, we draw upon the analysis of the funding of the Romanian action programs in this field, in terms of allocations, budget execution and post-audit results at the level of the first pandemic year. Our analysis, as expected, reveals some relatively unfavorable aspects. Obviously, the situation has been consistent with what has happened in all the European Union’s Member States. However, even if the economic and budgetary context of the financial allocations needed for carrying out public health action programs has been marked by the Excessive Deficit Procedure action, launched by the European Commission, it has not entirely justified the fact that the audit on the use of public financial resources allocated for the year 2020 found non-compliance of such magnitude as those we dwell on in our paper.*

**Key words:** public health; budget allocations; compliance of Ministry of Health’s expenditure; public audit; financial statements

**J.E.L. classification:** H11; H51; H70; I15; I18; M48

### **1. Introduction**

The central authority in Romania authorized to carry out public health action programs is the Ministry of Health (MoH). Having, among other objectives, the achievement of a modern and efficient health system adapted to the needs of the population (compatible with that of European Union’s Member States), the continuous improvement of the health status of the population and the equitable access to health services for all the segments of the population, but also the development of the medical act quality system and of the safety of the patient, MoH fulfills major responsibilities, such as (Romanian Government, 2010):

- it develops public health policies, strategies and action programs and it supervises their implementation;
- it assesses and monitors the health status of the population, it takes measures in order to improve it and it informs the Government with regard to health indicators, development trends and the measures which are required;
- it monitors, supervises and evaluates the activity of health institutions and it takes measures so as to improve the quality of health care;
- it contributes to limiting the effects generated by disasters, calamities and epidemics in its area of expertise;
- it develops, implements, and coordinates national health programs, etc.

More recently, the Ministry of Health has become the reform and investment coordinator in the field of health, which would monitor the stage of fulfillment for each milestone / target in Romania's National Recovery and Resilience Plan (Council of the European Union, 2021).

## **2. Theoretical background**

As a result of the mentioned developments, other normative acts were also issued (Romanian Government, 2022), given that there were no structures with such responsibilities within this ministry, after the onset of the SARS-CoV-2 crisis, leading to the modification of the respective organizational chart, especially due to the need to fight against the effects of the COVID-19 pandemic. Thus, the creation of several organizational structures was necessary (Romanian Government, 2020a, 2020b): the Human Resources for Health Policies Department, the Legal Department through the reorganization of the Legislation, Litigation and Corporate Governance Department, the Project Implementation and Monitoring General Department; the Financial and Accounting Service was set up to take over the staff and responsibilities of the Financial Department - Financial Accounting Service relating to specific financial accounting activities in the field of projects and programs with non-reimbursable external financing.

Moreover, among others, the following were established (as a result of the reorganization): the Procurement, Heritage and Health Infrastructure Department, the External Relations and European Affairs Service, the Public Policy Division, the General Directorate of Public Health and Health Programs, the General Directorate of Healthcare, the Personnel Employment and Healthcare Facilities Department, the Salary Rights Office, etc. In the following we will refer to the way of accomplishing the funding of the public health action programs, as well as to the size of the allocations and the budget execution in the case of Romania, at the level of the first pandemic year (2020). However, the issues have been extremely complex, from those faced by specialists, testing, diagnosis, treatment, etc. (Santini et al., 2021; Gopinath et al., 2022), to the pressure on the government factor which was supposed to ensure a level of budget allocation which was not predictable/anticipated in the financial planning phase (Onofrei et al., 2021).

In fact, the difficulties in ensuring the financial resources, which raise problems in terms of guaranteeing the efficiency / quality of the public health system, arose long before the pandemic crisis, many researchers addressing this topic in various papers (Miron, 2020; Tamba et al., 2016; Popa et al., 2017; Drugus et al., 2015 a, 2015b; Drugus et al., 2016). Even some of the authors of this paper have focused a part of their own research on aspects related to funding public health action programs (Bostan, 2016; Hurjui and Bostan, 2014, 2015; Hurjui and Bostan, 2016a, 2016b). At the same time, this paper reveals some post-audit results - internal and external public audit (the one performed by the Court of Accounts), which allow the observation of the strengths and weaknesses of the analyzed system (Ministry of Health, 2021; Romanian Court of Accounts, 2020).

## **3. Research methodology**

The approach to this topic, created by us on a current topic "Funding public health action programs: Allocations, budget execution and post-audit results at the level of the first pandemic year" is based on the investigation of valuable works from the specialized literature, highlighting various elements specific to the descriptive method.

In order to convey full credibility to the aspects presented by us in this paper, we refer to the reports of certain prestigious institutions, which contain relevant and valuable data in support of those presented here. We have in mind, in particular, the documents issued by the Romanian Court of Accounts, some Ministry of Finance reports (MoF), but also explanatory memoranda or statement of reasons regarding some draft normative acts drafted by Romanian legislator forums, which focused on the budget year of the year we studied.

Last but not least, we base our research on the normative framework in force, applicable to the funding of public health action programs.

## 4. Findings

### 4.1. The economic and budgetary context of the financial allocations required for the implementation of the public health action programs

In the year 2020, due to the significant challenges posed by the COVID-19 pandemic and the urgency of implementing measures that required budgetary efforts to fight against the social and economic effects caused by the onset of the COVID-19 crisis, government funding needs increased.

They were determined by the level of the consolidated general budget deficit and the volume of public debt refinancing, mainly caused by the increase in the budget deficit as a result of the three budget corrections / rectifications, from 3.6% of GDP – the initial target approved by the State Budget Law no. 5/2020, to 9.14% of GDP - established following the third budget rectification from November and approved by GEO no. 201/2020 on the rectification of the state budget for the year 2020. According to the preliminary execution, the budget deficit for the year 2020 stood at 9.79% of GDP.

#### Romania in the context of the Excessive Deficit Procedure action (EDP)

Even before the pandemic period, after over four years of budgetary indiscipline (2016-2019), Romania faced EDP (Excessive Deficit Procedure), launched by the European Commission (EC) following the decision of the EU Council (Bostan, 2021). We are recalling the fact that in 2019 the budget deficit reached 4.6% of GDP in cash terms (4.4% in ESA / European System of Accounts terms). This happened in the context in which the European norm requires that the budget deficit, calculated according to ESA methodology, should not exceed 3% of GDP.

The respective norm is Protocol no. 12 on the Excessive Deficit Procedure (annexed to the TFEU) and it stipulates that the structural deficit should not exceed 1% of GDP (MTO / Medium-Term Budgetary Objective) or it should be on a path of convergence to the EC-approved MTO. Initially, the EC proposed to Romania the year 2015 as the limit for reaching the MTO, an objective assumed by Romania, as an EU member state, through the Convergence Programme. However, not even one year from then and up to the end of 2021, there were no structural deficits of at most -1% of GDP, as it had been agreed.

Almost constantly, the annual structural balance of the public administration tended towards 3%. Any Member State who is subject to EDP implementation must apply the recommendations made by the EU institutions aimed at correcting the budget deviation and, implicitly, fulfilling the MTO. Being in this situation since 2017, Romania, even if it did not face the challenge of the health crisis, has not given any significant sign that it is approaching the coordinates of the convergence trajectory agreed with the EC (Bostan, 2021). However, at the end of 2020, the mentioned crisis caused Romania to record a cash budget deficit of 9.79% of GDP (ESA deficit - 9.10% of GDP; structural deficit - 7.76% of GDP, see Table no. 1).

Table no. 1. Results on the main budgetary components (2020, million lei)

Budget	Income (mill. lei)	Expenditure (mill. lei)	Surplus (mill. lei)	Deficit (% GDP)
Consolidated general budget	322,518.1	424,434.8	-101,916.7	-9.79
State budget	141,023.3	246,929.9	-105,906.6	-10.15
Social security budget	80,766.5	82,360.1	-1,593.6	-0.15
National health fund	44,776.3	45,219.0	-442.7	-0.04
Local budgets	92,855.1	95,614.6	-2,759.5	-0.27
Budgets of public institutions	34,699.8	33,074.6	+1,625.1	+0.16

Source: Ministry of Finance, 2021

According to the mentioned source, the income of the consolidated general budget amounted to 322,52 billion lei in 2020, 0.4% above the level collected in the previous year. Expressed as a share in the estimated GDP, budget income recorded an increase by 0.7 percentage points/pp, mainly due to the favorable dynamics of income from European funds (+0.8 pp). On the other hand, current income decreased by 2.4% (year-on-year), amid the contraction of non-tax revenues, VAT and

income tax. However, the evolution in December shows an improvement in the dynamics of insurance contributions (+ 9.3%, year-on-year) and tax revenues (+4.6%, year-on-year).

The explanation of the Ministry of Finance was that the situation was generated by the decrease in budget revenues and by taking some financial measures in support of the employees and economic operators, which we will not discuss here. Although the EC recommended to Romania, within the EDP (following the analysis of the 2019 budget year), to return, by 2022, to a deficit of under 3%, the reasons derived from the need to fight against the effects of the COVID-19 pandemic led to an unexpected measure on the part of EU. Specifically, on March 20, 2020, the EC, with the approval of the European Council, came up with a derogation from the restrictions imposed by the SGP/Stability and Growth Pact (the corrective arm). We are referring to the adoption of the GDC (General Derogation Clause), according to which temporary and orderly deviations from the existing tax regime are allowed. According to the GDC, the respective deviations concern fiscal-budgetary rules “both at European and at national level, for all the Member States in a situation of widespread crisis caused by a severe economic slowdown in the Euro area or in the EU, as a whole” (Romanian Parliament, 2021). Thus, it can be inferred that GDC also facilitates a different treatment for COVID-19 pandemic-generated expenditure, under the EDP.

**The planification of the allocation of financial resources from the state budget so as to cover the budget policies and programs needs for the year 2020**

The beneficiary (or owner) of such resources for the mentioned purpose is the Ministry of Health, which has the mission to develop policies, strategies, and action programs in the field of public health, while also coordinating and supervizing their implementation at national, regional, and local level and being responsible for carrying out the healthcare reform process (Romanian Parliament, 2020).

The Ministry of Health is also the ministry which organizes, coordinates, guides the activities for ensuring the health of the population and it acts to prevent and fight against practices which are harmful to health. Regarding the medium-term strategic priorities of the Ministry of Health, we note that the interventions in the field of health aim to ensure quality health services and a superior accessibility for all citizens.

According to the mentioned source, “increasing the quality of medical services involves optimizing all the components related to them, from infrastructure and equipment to the actual medical act, from management and information systems to the respect for patients’ rights”. This is also where we remember the general objective (“A health system that supports and provides the opportunity for citizens to achieve the best possible health and that contributes to increasing their quality of life”), which implies “a series of reforms in the public healthcare system, essential for improving the health of the population, increasing the quality and efficiency of health services and improving the access of the population to healthcare”. Policies will be managed in such a way as to lead to “increasing life expectancy, reducing the burden of illness, disability and premature death and, implicitly, increasing the quality of life” (Romanian Parliament, 2020).

In this sense, it was necessary for Romania to establish its strategic development areas for the health sector in the short, medium, and long term (Table no. 2).

*Table no. 2. Measures related to strategic development areas for the health sector*

A. Public health	B. Health services	C. Transversal measures
<ul style="list-style-type: none"> <li>• Improving the health and nutrition of women and children, including for disadvantaged and vulnerable groups; family planning services;</li> <li>• Development, financing, implementation of prophylactic programs for children in all therapeutic areas, by introducing mandatory consultations for children aged 5-9;</li> </ul>	<ul style="list-style-type: none"> <li>• Increasing the degree of interconnection of medical service providers in order to facilitate the exchange of information useful to patients;</li> <li>• Improving the statistical reporting system in the medical field and developing an early epidemiological alert system;</li> <li>• Strengthening the network of community healthcare services for vulnerable groups;</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthening the forecasting capacity to provide medical services to the population through the development by the Ministry of Health of computer analysis systems for the strategic areas of the system;</li> <li>• Strengthening the administrative capacity at national, regional and local level;</li> </ul>

<ul style="list-style-type: none"> <li>• Increasing the neonatal screening capacity for the detection of birth defects, genetic risk, inborn errors of metabolism, sensory deficits, and cystic fibrosis;</li> <li>• Reducing the incidence of noncommunicable diseases through measures such as: risk assessment and active surveillance of the population through prevention services, screening during the early stages of the disease and organized screening interventions, expansion and diversification of services that can be offered at the level of family and specialised medicine;</li> <li>• Reducing the mortality and morbidity caused by communicable diseases, their impact on the individual and the society, and significantly reducing their incidence in the long run;</li> <li>• Drafting of the Prevention Law through which the population would be informed about the harmful effects of certain foods, products or eating or behavioral habits;</li> <li>• Adoption of the Vaccination Law, which would include the obligation to vaccinate the population, but also the obligation of the authorities, first of all the Ministry of Health, to carry out information campaigns, to ensure the supply of vaccines, to guarantee the quality and safety of vaccination according to European standards;</li> <li>• Increasing the screening capacity for communicable infectious diseases: hepatitis, HIV, tuberculosis;</li> <li>• Mental health - improving the quality of life for people with mental disorders by ensuring their access to medical and psychological therapies.</li> </ul>	<ul style="list-style-type: none"> <li>• Increasing the effectiveness and diversification of primary healthcare services, including increasing the share of prevention services, monitoring of chronic patients in the community;</li> <li>• Consolidation of the quality and efficiency of the services provided in the specialized outpatient clinic;</li> <li>• Introducing the obligation of all healthcare providers to create waiting lists for chronic patients based on clear and transparent criteria, differentiated by types of pathologies;</li> <li>• Increasing the degree of safety of the population by consolidating the integrated emergency system and ensuring accessibility to adequate emergency healthcare in an equitable manner;</li> <li>• Extension of the telemedicine system between pre-hospital and hospital, as well as between emergency units and compartments, to which permanence centers can be added;</li> <li>• Regionalization / concentration of hospital healthcare and creation of regional reference networks with hospitals and laboratories of different degrees of competence interconnected with the healthcare sector;</li> <li>• Placing in the center of the hospital network the regional emergency hospitals with a high performance level.</li> </ul>	<ul style="list-style-type: none"> <li>• Implementing a sustainable policy for ensuring human resources in the health field; Residency will be the subject of an analysis in order to start a real reform, by correlating the places and positions put up for competition with a projection of the shortages in specialties for at least 5 years and their geographical distribution;</li> <li>• Implementing a sustainable policy for ensuring financial resources in healthcare, ensuring cost control and the financial protection of the population;</li> <li>• Implementing strategic measures to prevent fraud and corruption in the administration and services of the health system;</li> <li>• Developing and implementing a medicine policy that ensures equitable and sustainable access to evidence-based medication for the population, including by increasing the budget allocated to medicines, which would lead to the reduction of the time needed to introduce new, innovative therapies, as well as stopping the withdrawal from Romania of generic medicine essential for the treatment of many diseases;</li> <li>• Promoting health research and innovation;</li> <li>• Intersectoral collaboration for a better health of the population.</li> </ul>
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Source: Romanian Parliament, 2020

Properly implemented, the policies and measures of the type shown are meant to lead to a health system that permanently provides safe and efficient health services, the patient benefiting from the necessary medical services.

At the same time, they would ensure the quality of the medical services, reduce the risks and increase patient safety, creating premises according to which “public policies, from those on resource allocation at the national level, to those on methods of diagnosis and treatment will be based on the best existing scientific and technological knowledge” (Romanian Parliament, 2020).

When drafting the budget of the Ministry of Health for 2020, the synthesis of budgetary policies and programs financed by the state budget was presented according to Table no. 3.

Table no. 3. A synthesis of the budgetary policies and programs financed by the state budget  
- thousand lei -

Budget chapter financed by the draft budget / budget programs Code	Code	I. Commitment appropriations II. Budget appropriations	Preliminary execution 2019	2020 proposals
<b>Funded budget chapters - total</b>		I	9,350,592	9,383,320
		II	9,278,721	8,978,682
Chapter 1	66.01	I	8,273,642	9,305,200
		II	9,201,771	8,900,582
Chapter 2	66.10	I	76,950	78,100
		II	76,950	78,100
<b>Budget Chapter 1, of which:</b>	66.01	I	9,273,642	9,305,700
		II	9,201,771	8,900,582
Prevention and control of diseases with major impact on the health of the population	574	I	1,443,254	1,404,920
		II	1,442,288	1,404,920
Ensuring the quality of medical services	648	I	1,102,168	1,014,638
		II	1,031,263	610,000
Ensuring the development of the institutional capacity of the health system	649	I	6,728,220	6,885,662
		II	6,728,220	6,885,662
<b>Budget Chapter 2, of which:</b>	66.10	I	76,950	78,100
		II	76,950	78,100
Prevention and control of diseases with major impact on the health of the pop.	574	I	-	-
		II	-	-
Ensuring the quality of medical services	648	I	13,050	14,200
		II	13,050	14,200
Ensuring the development of the institutional capacity of the health system	649	I	63,900	63,900
		II	63,900	63,900

Source: <http://www.cdep.ro/pdfs/buget/2020/anexa3/Ministerul%20Sanatatii.pdf>

The budget execution for the year we have analyzed (2020, budget execution rate - 94.1%), after three corrections took place, showed that the budget of the Ministry of Health, by funding sources, compared to 2019 and to the approved program, is as presented in Table no. 4.

Table no. 4. Budget of the Ministry of Health, by funding sources, in 2020 (million lei)

	2019 Achievements	2020 Updated program	2020 Execution
<b>Total budget, of which:</b>	<b>14,642.7</b>	<b>20,406.4</b>	<b>19,708.7</b>
<b>Health expenses</b>	<b>14,642.7</b>	<b>20,406.4</b>	<b>19,708.7</b>
State budget	9,199.6	11,250.6	10,583.6
Own income	45.8	78.1	49.0
Non-reimbursable external funds	2.6	16.8	15.2
<b>Other expenditure chapters financed from the state budget, of which:</b>			
Transfers to CNAS/National Health Insurance House to cover the FNUASS/Unique National Health Insurance Fund budget deficit	<b>5,394.7</b>	<b>9,060.9</b>	<b>9,060.9</b>

Source: <https://www.ms.ro/wp-content/uploads/2021/09/Raport-de-activitate-pentru-anul-2020.pdf>

Considering the recent budget allocations for health (under 6% of GDP), the expenditure satisfaction on this destination per capita in Romania is low, exceeding by little 1,300 Euro / year, not even half the average of the the EU Member States (Romanian Court of Accounts, 2022a).

### **Highlights in the use of financial resources from the state budget in the year 2020**

Analyzing the financial reporting documents of the Ministry of Health, by chapters and titles, we find that from the state budget, the following were financed (Ministry of Health, 2021):

- Chapter 56.01 “General transfers between different levels of the administration”, including transfers from the state budget to the FNUASS budget for balance and those to the budget of the Unique National Health Insurance Fund to cover the deficit resulting from the application of the legal provisions on medical leave payment;

- Chapter 66.01 “Health”, covering: Title 10 “Personnel expenses”, more precisely the personnel expenses related to the units subordinated to the Ministry of Health, fully financed from the state budget, Title 20 “Services and goods”, Title 51 “Transfers between units of the public administration”, Title 55 “Other transfers highlighting the contributions and levies to International Bodies”, Title 56 “Projects from External Non-Reimbursable Funds”, Title 58 “Projects financed from external non-reimbursable funds related to the financial framework 2014-2020”, Title 59 “Other expenses financing the amounts related to non-employed persons with disabilities”, Title 65 “Reimbursable financing programs carried out by the Ministry of Health with the World Bank” and Title 70 “Capital expenditures”.

Through the latter, investments, building consolidations, independent facilities, capital repairs to the healthcare units subordinated to the of Health are financed, entirely from the state budget, as well as the related projects and feasibility studies.

As shown in Table no. 4, within the total expenditure made by the Ministry of Health, a massive share (which tends towards 2/3) is held by the transfers to other public institutions that carry out specific activities in the field of health. At the level of 2020, they amounted to 10 billion lei, covering those types of expenses found in the second column of the table above.

Beyond the allocation figures, which show certain underfunding, to some extent caused by managerial factors, health infrastructure remains significantly below the European Union’s standards.

### **4.2. The control / audit of the use of public financial resources for the year 2020**

In the analyzed year, the activity of the authorizing officer for the budget appropriations was the subject of an audit - internal and external, by the Internal Public Audit Office within the Ministry of Health and the Romanian Court of Accounts.

#### **Internal public audit**

The Internal Public Audit Office (13 positions held in the list of positions of the Ministry of Health), which operates under Law no. 672/2002 regarding the internal public audit, of G.D. no. 1086/2013 for the approval of the General Norms regarding the exercise of the internal public audit activity, Order of the MoH no. 683/2014 for the approval of the Specific Methodological Norms regarding the exercise of the internal public audit and of the Internal Audit Charter within the Ministry of Health, performs multiple audit missions annually.

In 2020, the performance of the missions revealed some dysfunctions, the audit identifying the causes that generated them, the consequences / risks that arise due to the non-compliance with the legal framework, while also formulating recommendations for improving the activity.

The conclusion in this regard is that “The approval of the audit reports by the management of the institution and the notification of the audited staff on the obligation to establish plans and timetables for implementing the recommendations, led to remedying the existing problems and preventing the recurrence of dysfunctions” (Ministry of Health, 2021).

#### **External public audit**

At the level of the Ministry of Health, the Court of Accounts of Romania, on the occasion of the annual audit mission of the financial statements drawn up and reported by the Ministry of Health (2020) found several deviations from legality and regularity, with a direct impact on the reality and conformity of the financial statements and on the patrimonial result.

Among them is the following, “against the background of the health crisis generated by the COVID-19 pandemic, the budget of the Ministry of Health was supplemented from the Budgetary



Reserve Fund at the disposal of the Government with the amount of 1,836,405 thousand lei, through a series of normative acts. Related to this supplementation, MoH did not properly use the amounts allocated from this fund, immobilizing the amount of 749,383 thousand lei, which means a degree of utilization of 40.80%” (Romanian Court of Accounts, 2022b). Other findings recorded in the respective report:

- The annual centralized financial statements were distorted by reporting inventories that did not reflect reality (an inventory surplus in the case of protective masks, an inventory deficit in terms of Comirnaty Vaccine doses);
- Receivables related to projects with non-reimbursable external financing not recorded in the accounts, in a context in which the Ministry of Health was the leader of the respective projects, and for these receivables there were enforceable titles, as a result of establishing financial corrections;
- Significant receivables reported in the centralized financial statements were not clarified, even though they were more than three years old (subject to prescription);
- The erroneous reporting in the centralized financial statements of the value of the goods belonging to the public domain, by including real estate even though the right to their administration had been lost in court.

Following the findings, the Court of Accounts of Romania, at the level of the Ministry of Health, formulated a qualified opinion (with a paragraph highlighting some aspects) on the financial statements drawn up and reported by the mentioned authorizing officer for the year 2020. On the other hand, the most important recommendation was “The request for the amounts from the Budgetary Reserve Fund at the disposal of the Government to be correlated with the real needs, to be well-founded, and the allocated amounts to be used in strict accordance with the destination and objective established in the normative acts; the specialized departments within the Ministry of Health to carry out monthly analyses on the appropriateness of maintaining budget appropriations in order to take measures to cancel or withdraw unused budget appropriations” (Romanian Court of Accounts, 2022b).

The need to formulate this recommendation, respectively for its implementation, was generated mainly by the fact that in the context of the Covid-19 pandemic, the Ministry of Health “did not properly use the amounts allocated in the year 2020 from the Budgetary Reserve Fund at the disposal of the Government, immobilizing 749,383 thousand lei (40.80% of the total amount allocated). Of the amounts allocated to the Ministry of Health from the Budgetary Reserve Fund at the disposal of the Government, the amount of 53,905 thousand lei was not used according to the destinations provided in the specific normative acts” (Romanian Court of Accounts, 2022a). Moreover, the same Report also records that: “Irregularities were identified in the performance of the contract, amounting to 78,166 thousand lei, concluded by the Ministry of Health for the purchase of surgical masks for disadvantaged families and individuals. The delivery of the surgical masks purchased for the disadvantaged families and persons within this contract was made after the deadline had passed, the performance guarantee in the amount of 1,970 thousand lei not being submitted within the legal term, respectively within maximum five working days from the conclusion of the subsequent contract. Although the Ministry of Health had the possibility to terminate the contract with the supplier for non-compliance with the contractual clauses and to select the runner-up in the procurement procedure, it continued the implementation of the contract” (Romanian Court of Accounts, 2022a).

Obviously, the implementation of the recommendation we have referred to above concerns those requests for amounts - from the Budgetary Reserve Fund at the disposal of the Government - which followed the moment of receiving the financial audit report, i.e., towards the end of 2021.

## 5. Conclusions

Our study, which focused heavily on the 2020 budget year, has shown that the funding of Romanian public health action programs, in terms of allocations, budget execution and post-audit results in the first pandemic year, has suffered greatly. Obviously, the cause was the Covid-19 Pandemic, which has brought out the worst in the entire world’s economy - a major recession which has profoundly impacted the health and social protection systems, as well as societies as a whole.

The analysis of the financing of the Romanian action programs in this field, at the level of the first pandemic year (2020), in terms of allocations, budget execution and post-audit results, shows some relatively unfavorable aspects. The situation was confirmed by the fact that, following the findings, the Romanian Court of Accounts, at the level of the Ministry of Health, formulated a qualified opinion (with a paragraph highlighting some aspects) on the financial statements drawn up and reported by the authorizing officer of this ministry for the year 2020.

Regarding the limits of the research, we have shown that these are generated by the fact that the time interval studied is the first year of the Covid-119 pandemic (2020), although the pandemic manifested itself massively over two years. The explanation is that for the years 2021 and 2022 (partially) we do not have all the necessary data. In fact, for these years, the financial audit actions have not been completed either.

As a result, future research will certainly aim to conduct a full-scale analysis of the funding of public health action programs (allocations, budget execution and post-audit results) throughout the pandemic period.

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## Approaching the Risk of Fraud in the Audit of European Projects

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### Abstract

*Audit reports provide a support for management authorities to ensure that the non-reimbursable European funds provided to beneficiaries in EU Member States are used in their intended manner and that irregularities and frauds do not affect the EU's financial interests.*

*Approaching the risk of fraud by financial auditors during their engagements is treated by the International Standard on Auditing 240 which explains the auditors' responsibilities regarding fraud in an audit of financial statements. Auditors must identify and assess the risk of material misstatements due to fraud and respond accordingly through the audit procedures they perform and the audit opinion they issue.*

*ISA 240 specifically refers to the audit of historical financial statements and is mainly applied in the audit of statutory annual financial statements of companies. In this paper, we have researched how the actions prescribed by ISA 240 can be applied in the missions regarding the audit of EU-funded projects.*

**Key words:** financial audit, fraud risk, EU-funded projects

**J.E.L. classification:** M40, M41, M42

### 1. Introduction

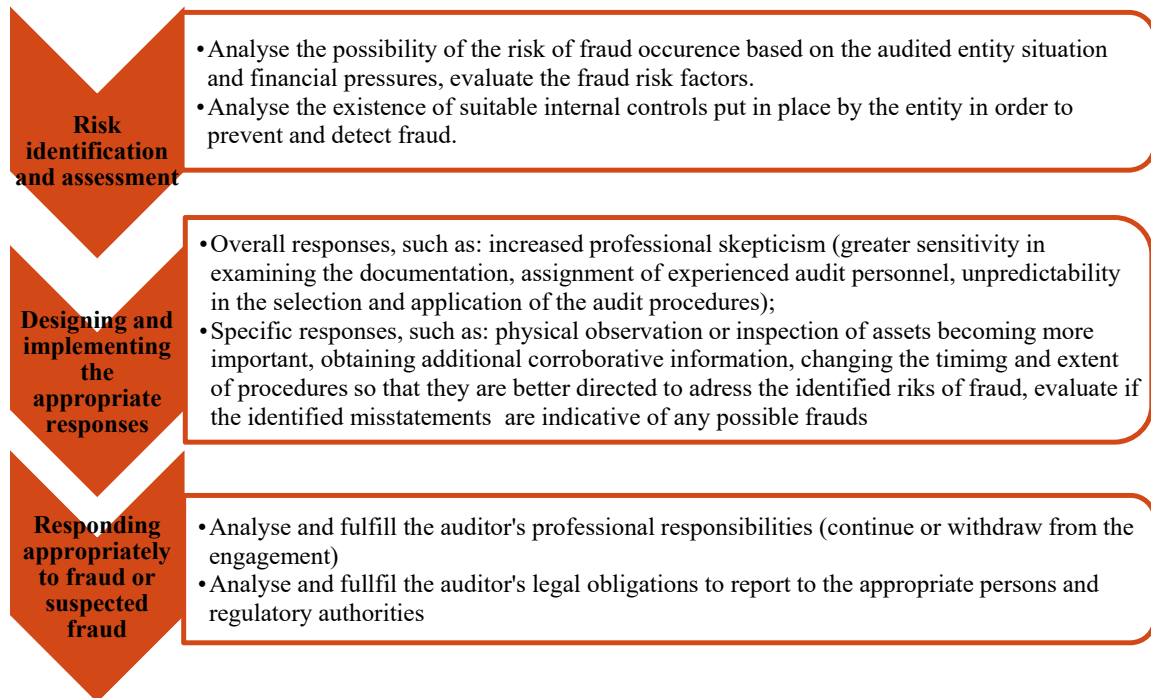
Based on the international standards on auditing (ISA), financial auditors have the responsibility to plan and to perform their audit engagements so as they will obtain audit evidence regarding the presence or the absence of material misstatements in the financial statements caused by frauds or errors. According to the scientific literature on how frauds are dealt with by financial auditors (Briciu *et al.*, 2010, pp.25), the standards on auditing do not make any distinction between the auditors' responsibility regarding the detection of errors and the detection of frauds. The auditors have the responsibility to respect the audit standards and not to discover all the misstatements in the financial statements. They are supposed to obtain a reasonable assurance that the materiality limits as they were set have not been exceeded.

The term “fraud” refers to intentional actions undertaken for own profit by persons among entities' management, those charged with governance, personnel or third parties. The measures the auditors are required to take in order to check the possibility of frauds having taken place are prescribed by *ISA 240 The auditor's responsibilities relating to fraud in an audit of financial statements*. Having in view that ISA 240 is specifically oriented to approaching the risk of fraud in the audit of the annual financial statements of companies, we have made a study concerning how the indications of ISA 240 can be applied in the circumstances of auditing EU-funded projects.

## 2. Theoretical background

The approach followed by financial auditors in dealing with the risk of fraud in their audit engagements are laid down in *ISA 240 The auditor’s responsibilities relating to fraud in an audit of financial statements*. After reviewing the explanations available in this international standard on auditing, we have made a summarization of the main steps and actions as presented below.

Figure no. 1. Description of financial auditors’ approach in relation to the risk of fraud



Source: own representation based on the analysis of ISA 240 (IAASB, 2018, pp. 162-205)

The characteristics of fraud as described by ISA 240 comprise an incentive or pressure to commit fraud, a perceived opportunity to do such actions and some rationalisation of the deeds (IAASB, 2018, pp. 174-175).

Frauds may lead to two specific types of misstatements (Briciu *et al.*, 2010, pp. 24-25):

- Misstatements arising from fraudulent financial reporting, usually for presenting a better profit to investors;
- Misstatements arising from misappropriation of assets, in case of different categories of assets’ theft and trying to disguise the stolen assets by fraudulent financial reporting.

## 3. Research methodology

In order to illustrate how the indications of ISA 240 can be applied in the financial audit of European projects, we have used as an example the implementation of an EU-funded project that is financed through PNDR 2014-2020, the measure *SM 6.2 – Support for the set up of non-agricultural activities in the rural areas*.

We have analyzed the way in which the in-depth guidance of ISA 240 can be applied by financial auditors in an engagement to audit such a project, from the perspective of identifying and responding to the risk of fraud and to the identified suspicions of fraud in the utilization of the European funds received by the project beneficiary.

We have researched the areas of the project implementation process in which the risks of fraud can manifest and the audit procedures that should be employed by financial auditors in order to detect the instances in which frauds may have occurred and the way suspicions of frauds must be dealt with.

#### 4. Findings

In the current programming period of European funds received by Romania as a Member State of the European Union, the Agency for Rural Investment Financing (AFIR) within the Ministry of Agriculture and Rural Development is the management authority responsible for the implementation of the National Rural Development Program (PNDR) 2014-2020.

Within the measure *SM 6.2 – Support for the set up of non-agricultural activities in the rural areas* of PNDR, in the session 2021, projects have been selected based on the financing requests submitted by eligible applicants together with business plans for their proposed non-agricultural activities to be newly set up in the rural areas across the counties of Romania, for the economic and social development of these areas.

The Applicant’s Guide issued by AFIR for the measure *SM 6.2*, session 2021 lays down the technical and financial details regarding the projects to be selected and financed. According to this document, selected projects are financed in a percentage of 100% with maximum lump-sums of 50.000 EUR for services and 70.000 EUR for production activities (Applicant’s Guide, 2021, pp. 20). The lump-sums are payable by AFIR to the project beneficiaries in two instalments, as follows (Applicant’s Guide, 2021, pp. 31-32):

- the first instalment at the very beginning of the project, representing 70% of the non-reimbursable funds is paid immediately after the signing of the financing contract;
- the second instalment at the end of the project, amounting to 30% of the non-reimbursable funds, is paid after and only if all the projects’ objectives as set in the business plans have been met, but not later than three years after the signing of the financing contract and without exceeding the deadline of 31 December 2025.

We have researched the financing contracts signed between AFIR and projects beneficiaries within the measure *SM 6.2 – Support for the set up of non-agricultural activities in the rural areas*, session 2021 and we have identified that the beneficiaries have the following obligations related to the project implementation and reporting:

*Table no. 1 – The obligations of beneficiaries of projects financed through PNDR 2014-2020, SM 6.2*

<b>General obligations regarding the Project implementation</b>	<b>Obligations regarding specific aspects of the Project implementation</b>	<b>Obligations regarding the Technical and Financial Reporting</b>
To execute the project according to its description included in the approved Finance Request	Deadline for beginning the project activities: The beneficiary must begin the implementation activities in a maximum term of 6 months after signing the Financing Contract.	To submit an Execution Report upon requesting the second instalment of the financing, showing the realisation of the project objectives and declaring that the other obligations have been respected: -all the project operations have been recorded separately in the beneficiary’s accounting records -all the actions taken are in conformity with the approved Finance Request and Business Plan -the project’s publicity has been realized as requested by the Financing Contract.
To ensure the correct implementation of the project’s objectives as established in the Business Plan, with the maximum level of professionalism,	Financial target: to obtain revenues from own products selling or services rendered amounting to at least 30% of the first instalment of financial support received, in a maximum term of 33	To submit a Statement of Revenues obtained from own products selling or services rendered within the project. The statement of revenues describes each selling document, the customer and the receipt document (number, date, amount). The revenues obtained must amount to at least

efficiency and vigilance, following the best practices in the respective field and according to the Financing Contract.	months. Otherwise, the second instalment of finance will not be received.	30% of the first instalment received.
All the project activities included in the approved Business Plan become mandatory conditions for maintaining the financial support throughout the Financing Contract duration.	Obligations related to ensuring the publicity of the project financed through European funds.  Obligations during the monitoring period of 3 years after the last payment made by AFIR: not to modify the projects' objectives, not to dispose of the investment and not to terminate the agricultural activity as member of an agricultural household.	To submit a Statement of Expenses incurred according to the Business Plan. The statement of expenses describes the type of expenses, each purchasing document (invoice, contract), the supplier, the payment document (number, date, amount) and the bank statement. The expenses incurred must correspond to the approved Business Plan and must respect the eligibility rules and the public acquisitions legislation.

*Source:* Own processing based on a model of financing contract (AFIR financing contract, 2021)

Upon analysing the beneficiary's obligations, we deduct that EU-funded projects are facing very rigorous time constraints, technical and financial constraints and these may pose difficult challenges to beneficiaries in order to fulfil them. The sanctions are very high in case of not fulfilling the contract's obligations: the financing contract will be terminated and the funds paid by the management authority will be recovered from beneficiaries, together with corresponding interest and penalties.

In the financial audit of such a project, the auditor has to verify the documents that are to be submitted by the beneficiary to the management authority (Execution Report, Statement of Revenues, Statement of Expenses) and the underlying documents with the objective to provide audit assurance/factual findings about the project transactions being real, correctly recorded and reported and in accordance with the financing contract and the applicable legislation.

The application of the steps established by ISA 240 for approaching the risk of fraud can be made in the following way by financial auditors in an engagement to audit projects in this category:

#### **1. Risk identification and assessment**

The fraud risk factors can be identified based on the conditions that are generally present when fraud exists:

- an incentive or pressure to commit fraud: we consider that there is a pressure for beneficiaries to execute the project within very strict conditions and also to fulfil the financial target (revenues to be obtained from providing goods/services by the beneficiary, in the time horizon as established);
- a perceived opportunity to commit fraud: such an opportunity exists because of the lack of controls from the part of the management authority during the duration of the financing contract (usually, there is just one visit of the management authority representatives on the site of the project, which takes place at the end of the contract)
- an ability to rationalize the fraudulent action: such attitudes may appear, based on the fact that the targets are set too high by the financer, that the European funds are "freely" available and they are intended for the welfare of European citizens, therefore the beneficiary is entitled to get and use them for his/her personal wealth.

Based on the above analysis, in our view the implementation of EU-funded projects of this category is exposed to a high level of fraud risk.

Assessment of the risk of fraud:

- Fraudulent financial reporting may appear in the process of reporting the accomplishment of the projects financial targets to the management authority (overstatement of revenues, in order to achieve the revenues target established as mandatory, for example revenues invoices can be issued to individuals/companies without the services being rendered, acquisitions procedures may not be respected in case of the declared expenses);

- Misappropriation of assets may appear in the process of the execution of the project activities as reported through the Execution Report (theft of projects assets for the beneficiary’s personal use, second-hand goods can be purchased instead of new ones in order to make a profit from the price difference between the two, product substitution).

## **2. Designing and implementing the appropriate responses**

We have analysed the specific procedures orientated for detecting possible frauds by reference to *ISA 240-The auditor’s responsibilities relating to fraud in an audit of financial statements* and, out of lists with examples of possible audit procedures, we have selected the procedures that are the most relevant and should be employed by financial auditors in the context of European projects.

They can be applied in several distinct areas of audit work, as follows:

- Overall response: maintain a high level of professional skepticism throughout the audit because of the possible high level of fraud risk, evaluate if the identified errors are indicative of any possible frauds, check the original documents of the project and the correlation between the contracting, invoicing and reception documents. Financial auditors should also refer to the Government Resolution no. 875/2011, which presents in Annex 1 a wide range of fraud risk factors and fraud mechanisms that may appear in the usage of European funds in the categories of contracting and public acquisition practices, including corruption and conflicts of interest, frauds related to the reimbursement of the cost of workforce and the cost of consultancy services and be alert to the possibility of their occurrence in the audited project.
- Visit the location of the project as early as possible and evaluate if is appropriate for the investment, according to the approved Business Plan and Finance Request.
- Physical observation or inspection of assets and equipment acquired through the project must be performed by auditors as soon as the acquisition takes place and again during the project phases in order to make sure that the assets and equipment are located and functioning at the project implementation place and that assets substitution has not taken place.
- Inspection of inventory - the timing and extent of procedures can be changed so that they are performed on an unannounced basis, for example in case of inventory counts.
- Corroborating evidence from multiple sources: this can be achieved by obtaining external confirmations related to the revenues and acquisitions of the project. Revenues declared in the Statement of Revenues should be tested by sending confirmations requests to customers in order to confirm the amounts and values of the goods or services received from the beneficiary. Expenses declared in the Statement of Expenses should be tested by sending confirmations requests to suppliers in order to confirm the amounts and the description of the goods provided.
- Checking the accounting records for unusual recordings of documents or fictive journal entries.
- Perform analytical procedures using monthly accounting information in order to discover if revenues and certain expenses, for example workforce cost, have been recorded evenly in each month or if adjustments have been made at unexpected times in order to accomplish the revenues and expenses targets as set in Business Plan.
- Checking the tax records related to the project’s implementation, for example check the fiscal registration of assets and employees at the project’s location jurisdiction, based on tax declarations and official fiscal documents issued by the fiscal administration (AMPOR Instruction no. 190/23.11.2021, Annex B, pp. 2).

## **3. Responding appropriately to fraud or suspected fraud**

In connection to the auditor's professional responsibilities, unlike the statutory audit of the annual financial statements, we consider that auditors do not have the option to withdraw from the engagement in case they identify frauds or suspicions of frauds.

This is justified by the fact that the audit contracts are usually financed out of the European funds and they are requiring the auditors to provide an audit report intended for the management authority that is providing the financing. In the audit reports, the auditors must present their findings related to the project and the information will be further used by the management authorities in order to take the necessary measures.

Regarding the legal obligations to report to the appropriate regulatory authorities, in case financial auditors identify any frauds or suspicions of fraud having taken place, we consider that they must immediately communicate the information to the management authority and to the Fight Against Fraud Department - DLAF by submitting a suspicion of fraud alert, so that the appropriate



measures of fraud investigation will be taken by these as competent institutions in this field.

In case money laundering is suspected to take place within the EU-funded project activities, financial auditors have the obligation, as reporting entities, to inform the National Office for Prevention and Control of Money Laundering.

## 5. Conclusions

The implementation of EU-funded projects may be exposed to high levels of fraud risk because there is a high possibility that the fraud conditions may be present and the risk factors be identified. Fraud in the EU-funded projects context can manifest both through fraudulent financial reporting and misappropriation of assets, in a direct connection to the projects implementation activities and the technical and financial reporting due to be submitted to the management authorities.

ISA 240 offers plenty of guidance on approaching the risk of fraud that can be applicable in the financial audits of European projects. Based on our research, audit procedures employed by financial auditors for tackling fraud risk in European projects should be strongly directed to the following actions:

1. performing more site visits to observe the projects' location, usage of assets and functioning of the equipment acquired for performing the projects' planned activities;
2. obtaining external confirmations from third parties regarding the revenues obtained from products sold or services rendered and the acquisitions financed by the non-reimbursable funds;
3. checking the accounting records for unusual entries and unexpected monthly trends;
4. inspecting the original documents and the tax administration records related to the project.

Financial audit services are usually contracted at the end of the projects implementation, when the audit reports are required to be submitted to the management authority. In order for the auditors to perform more verifications on site throughout the duration of the project, it is essential that the acquisition of the financial audit services be made at the beginning of the financing contract and not at later stages of the project implementation. In this way, auditors may be able to monitor the projects activities as they are progressively performed and may bring a better contribution through their audit work.

We consider that the conclusions we have reached based on researching the case of an European project funded through PNDR 2014-2020, measure *SM 6.2 – Support for the set up of non-agricultural activities in the rural areas* can be generalised to the projects financed through other measures and operational programs, as the context and conditions are very similar to all EU-funded projects and the fraud risk factors are very likely to be present during the implementation activities and the utilisation of the European funds.

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## Financial Inclusion in Romania – A New Perspective

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### Abstract

*Financial inclusion is an important national subject, sustained by the European Union policies. Financial inclusion has an outstanding role in growing the quality of life of citizen, and financial inclusion can be accomplished both through educational programs and through programs which facilitate access to financial products and services.*

*The financial inclusion score, a very useful instrument, can be influenced by many factors in order to decrease the major gap between the urban and rural environment.*

*In this paper, we analyze the level of financial education and inclusion of Romanians, the barriers that are encountered and giving solutions to enhance the level of financial inclusion in Romania.*

*The low levels of financial inclusion can be improved by the government through public policies mainly, but also in partnership with banks or other non-governmental institutions, regarding digitalization, financial education and fiscal and non-fiscal policies.*

**Key words:** financial inclusion, education, behavioral finance, economic growth, government policies

**J.E.L. classification:** I22, A22, G40, Q56, I38

### 1. Introduction

Financial inclusion can be defined as a process that helps people and businesses to access various financial services such as those offered by banks or credit institutions in a low-cost and transparent way. For this reason we have chosen to link the digitization of the banking system to the notion of financial inclusion.

This can be achieved by running financial education programs regardless of demographic criteria, which can be carried out in schools, colleges or in rural areas through partnerships with financial institutions and public administration institutions.

Finance has always been considered as one of the important drivers of growth for any economy, activity and at the same time, financial inclusion can be an enabler of creating growth opportunities for Romania's weaker counties and cities. However, Romania is still ranked at the bottom of the European Union's ranking of financial intermediaries with a percentage of 26%.

Financial inclusion is a multi-dimensional system through which a country can generate inclusive economic growth by connecting stronger economic regions/cities with the country's weaker or rural population. Harmony between regions is quite high in Romania, thus general inclusion challenges are encountered. When it comes to financial inclusion, the most important role at the population level is played by physical and technological dimensions.

### 2. Theoretical background

Nowadays, financial literacy has become very important. The ability to deal with money and financial problems has long ceased to play a role only for adults, but is relevant even for teenagers,

as they are using smart phones or their own bank accounts and are exposed to financial services from an early age (Rudeloff, 2019).

Financial inclusion can be defined as the theory that both the businesses and the individuals have responsible and sustainable access to financial products and services that are accordingly to their needs such as payments or other transactions, loans and savings.

Financial inclusion is based on several principles, the most important of which are:

- Adopting solutions that are market-specific;
- Inclusion and financial stability are mutually reinforcing;
- All financial services companies must support protection in a way that is appropriate and proportionate to the integrity of consumers and the financial system.

## 2. Research methodology

The research presented in this paper is based on the Financial Inclusion Score, that describes financial inclusion as the ability of the financial system to deliver services in relation to inputs and is a performance measure rather than an output measure. The calculation of the Financial Inclusion Score is made by the World Bank and represents the level of a country's financial system against the best.

With a Financial Inclusion Index score of 1, the system makes the access factor work in the most efficient way possible, setting a standard of efficiency and a model for other countries. An index lower than 1 indicates a less inclusive financial system compared to more developed countries. In both cases some people may still be excluded from financial services.

To calculate the score for a specific dimension of financial inclusion, the results of each indicator are compared with the proposed benchmark and for each indicator the distance to when the benchmark was assessed.

## 3. Findings

### 3.1. Financial inclusion in the European Union

Table no. 1 represents the financial inclusion score of the countries from the European Union (the DEA method was used as a method of calculus) and the FIS ranking. Using the scores, the countries were categorized as following (Korynski & Pytkowska, 2016):

- high performance, where the score is between 1-0.90 ( 8 countries)
- aspiration to performance, where the score is between 0.90-0.70 (in 6 countries)
- delays, where the score is less than 0.70 (in 2 countries)

Table no. 1. Financial Inclusion Score (FIS)

Categories	Country	Rank	FIS score
<b>Leaders</b>	Sweden	1	1,000
	Denmark	2	1,000
	Finland	3	1,000
	Ireland	4	1,000
	France	5	1,000
	Cyprus	6	1,000
	Slovenia	7	1,000
	Germany	8	1,000
	Latvia	9	1,000
	Spain	10	1,000
	Netherlands	11	1,000

<b>High performance</b>	Malta	12	0,999
	Austria	13	0,996
	Belgium	14	0,987
	Estonia	15	0,964
	UK	16	0,962
	Slovakia	17	0,930
	Czech Republic	18	0,921
	Luxemburg	19	0,904
<b>Performance aspiration</b>	Portugal	20	0,876
	Hungary	21	0,841
	Greece	22	0,840
	Italy	23	0,800
	Lithuania	24	0,753
	Poland	25	0,747
<b>Latecomers</b>	Bulgaria	26	0,567
	Romania	27	0,554

*Source:* (Korynski and Pytkowska, 2016)

The EU has a high average score for financial inclusion at 0.91, indicating a high level of overall inclusion. Eleven of the 27 countries, or 41%, had an FIS score of 1, indicating that their financial systems were as inclusive as the available inputs allowed. Of the 11 countries, three (Sweden, Finland, Denmark) scored 1, indicating that they had little difference in financial inclusion outcomes.

Seventy percent of Member States (19 countries) reported high levels of financial inclusion, with an average score of 0.97 for this group. The remaining eight countries have an average score of 0.75, and two countries (Romania and Bulgaria) have significantly lower FIS scores (0.554 and 0.567, respectively), accounting for half of the best results.

The main policy goal that emerges from the information in the table above is that countries need to consider factors such as: education and digitalization , which have a great influence financial inclusion.

According to information from the World Bank, the unbanked population in the European Union over the age of 15 is about 39 million, 7% of the total population. The number of unbanked people is most likely double, given that pensioners and some employees have been forced to open a bank account just to receive their pension and salary, which is fake banking, as the bank account is used only once a month to withdraw these types of income, without the account holder using the adjacent banking products.

This group of the population remains unbanked, in the true sense of the word, without even having a savings account associated with banking relationships. Thus, around 15% of the EU population is unbanked.

### 3.2. Financial inclusion in Romania

Although we live in the 21st century, the era of digitalization and technology, Romania's population has a very low level of understanding of the many changes, especially in banking. Over time, banks have developed trying to be as useful as possible, providing customers with more facilities to achieve an easier process and a freer relationship between bank and customer (Munteanu et al, 2013).

However, Romania still ranks at the bottom of the European Union in terms of the level of financial education and access to some banking services or products, the gap being found in the

differences between rural and urban areas, with access to digital banking services being much more accessible to those in urban areas.

Both at the level of a micro-enterprise and at the level of an individual, in order to increase financial inclusion, programs have been developed that refer to financial education and increase access to banking products and services.

Financial education can be seen as a lifelong process of capacity building, resulting in improved financial literacy and wealth. It has four core principles, namely: understanding - how money works in the world, managing income and expenditure effectively, earning more - spending wisely, saving, investing and understanding financial instruments.

Fourteen years after Romania joined the European Union, it is still the last European country in terms of financial inclusion with a score of around 67% and a financial education level of 22%. Globally, about 1 in 3 citizens have a financial education, compared to Europe where 52% of citizens have had financial education in their lifetime (ARB, 2022).

There is a constitutive link between levels of financial intermediation and inclusion and levels of financial literacy. During the Covid-19 pandemic, an increase in financial inclusion was observed, with two out of three Romanians using all types of banking products and services, following the findings of the survey, Romanians' perception of the digitization of the banking sector, developed by the Romanian Institute for Evaluation and Strategy (IRES).

The low number of financial inclusion is due to the low level of financial education. An Organization for Economic Co-operation and Development (OECD) survey from 2020 states that Romania scores low on financial literacy. The average score for financial literacy in countries participating in the OECD survey is 12.7 in 21 countries and 13 in OECD member countries. The lowest scores belong to adults in Italy, Romania and Colombia (11). Romania has the second lowest score for financial literacy of the population above Italy's score in the same survey. This study concluded that the respondents lack knowledge of basic financial matters such as simple interest calculations, financial risk and time value of money. At the end of the survey, Romania ranked below the average for correct answers with a score of 49% and second in the choice of financial products (ARB, 2022).

In Romania, almost 1 in 4 citizens' lives on the poverty line, the poverty rate in Romania being 23.5% in 2018, the highest in the European Union, where the average at that time was 16.8%.

Romania's GDP per capita stood at 8,780 Euro in 2020, taking into account the downturn in the economy as the COVID-19 pandemic affected worldwide.

One of the structural problems related to financial education concerns the budget allocated to education and the lack of progress in this area. The researches show that more than 40% of school students with an age of 15 years do not have proper skills in reading, mathematics and science, as the EU average is around than 20%, and this circumstances are close to the situation 10 years ago (ARB, 2022).

Our country is one of the pioneers among European countries in promoting and introducing financial education as a compulsory subject. From 2021, financial education has been introduced as a compulsory subject for 8th grade students. Besides Romania, other European countries such as Denmark, the Czech Republic, Portugal and Sweden have introduced financial education as a compulsory subject or have introduced it through other subjects.

At European level, there are about 20 countries that have taken measures to make this subject compulsory, either as a main subject or as a sub-subject. In Romania all students enrolled in university education can benefit from optional financial education courses.

In 2018, the Ministry of Education, the NBR, the Ministry of Finance, the ASF and the Romanian Association of Banks (ARB) decided to enter into a partnership, a collaboration agreement, to support activities in the field of financial education, to increase the level of financial literacy and also to support a national strategy in this regard.

One of these projects is the one through which the National Romanian Bank, Romanian Association of Banks and the Authority of Financial Surveillance, through the Romanian Banking Institute, have accredited to the Ministry of Education and Research the only complete financial education course written to the professors of the compulsory course "Social Education" for eighth grade students. Therefore, the banking industry directly contributes to the training and improvement of financial literacy of the younger generation.

### 3.3. Barriers of financial inclusion in Romania

Romania is one of the European countries with a very low level of financial inclusion and development, which creates a barrier to economic convergence in the European Union. There is a low level of usage for the basic financial services such as: number of bank accounts, saving services such as deposits or loans due to serious constraints such as low financial literacy, distrust in financial institutions and high poverty. Because of these, the need to increase financial inclusion and literacy in Romania has recently been recognized.

As Yoshino & Morgan (2016) classifies: “Barriers to financial inclusion can be categorized as supply-side or demand-side”.

Supply-side barriers reflect constraints in the financial sector's ability or willingness to issue financial services to poor households or SMEs. These fall into three categories: market drivers, regulatory factors and infrastructure constraints.

Market drivers include relatively high cost of micro-deposit and loan services, high cost of financial services in small rural towns.

In addition, the lack of credit data and reliable financial records exacerbates the problem of information asymmetry, preventing banks from lending to poor households and small and medium-sized enterprises.

Regulatory factors, including capital adequacy and prudential rules, can constraint the magnetism for small deposits, loans or other financial services.

Identification and other documentation requirements are important for understanding your customers' requirements and monitoring possible money laundering and terrorist financing activities, but can cause problems for poor families in countries without a common personal identification system.

Regulatory requirements such as foreign ownership limits and inspection requirements need to be calibrated to accommodate systemic regimes, financial risks posed by different financial institutions, and trade-offs between financial stability and greater financial inclusion.

Infrastructure barriers include the inability to use secure and reliable payment and disconnection systems, landline or cellular communications, and easy access to bank branches or ATMs.

Demand-side factors include lack of capital, lack of understanding of financial services or products (eg, financial literacy) and the absence of trust. This lack of trust can be a remarkable problem when the state does not have the necessary functional oversight or regulation of financial institutions or consumer protection programs for proper disclosure, debt collection product regulation, and dispute resolution systems.

The factors that contribute to the low levels of inclusion in Romania are:

- Lack of financial education;
- Lack of confidence in the financial system;
- The quality and degree of adaptation of the offer of financial services to the needs of the population, including rural areas.
- The large share of the informal economy and the low standard of living.

Romania has one of the highest values of poverty risk and social exclusion indicator and all of the factors mentioned above have a negative influence for the financial inclusion index.

### 4. Conclusions

Financial inclusion is worldwide essential in order to stimulate economic growth and lower the poverty rate, by increasing educational and entrepreneurial opportunities. The meaning of financial education and the role in expanding financial inclusion suggests using all educational opportunities to promote, support and facilitate financial inclusion.

Effective financial education leads to positive financial behavior. Such education should tailor the types of financial education to a specific target group, should use only the most effective methodologies in increasing knowledge, skills, attitudes and practices and should combine financial education activity with other reinforcement opportunities of long-term behavior.

The financial inclusion index of 0,554 in Romania, positions the country as a late-comer, as it has the last score out of 27 European countries.

There are several tools for increasing financial inclusion. The most important is the role of national authorities that must identify a balance between risks and yield generated by financial inclusion, to establish the balance between the objectives inclusion and stability policies, as well as to develop the policy framework and financial inclusion regulation. Therefore, government should improve the legislation and financial education, provide business models and innovative services, enhance the access for micro-credits, and encourage the variety of financial and institutions. The study revealed that there is a need to reduce inequality through an appropriate mix of public policies, mainly by the governmental authorities, not only by the private sector such as banks and non-governmental associations.

Further studies can analyze the data regarding bank accounts, number of ATMs or accessibility and usage of bank services such as loans, deposits or transactions, in order to calculate the financial inclusion index.

## 5. Acknowledgement

This paper received financial support through the project entitled: DECIDE - Development through entrepreneurial education and innovative doctoral and postdoctoral research, project code POCU / 380/6/13/125031, project co-financed from the European Social Fund through the Operational Program Human Capital 2014 – 2020”

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## Non-Financial Reporting of Information Within Companies. Case Study OMV Petrom

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### Abstract

*The purpose of this paper is to analyze the main aspects of non-financial reporting in companies. The main objectives considered were the presentation from a theoretical point of view of the concept of non-financial reporting, the need for integrated reporting at international and national level, the sustainability report. We will analyze the case study on non-financial reporting within OMV Petrom.*

**Key words:** sustainability, non-financial reporting, companies

**J.E.L. classification:** M41, Q40, Q56

### 1. Introduction

Under increasing pressure from various factors, more and more entities have been giving increasing importance to environmental issues, although sometimes they can have a significant impact on the performance of the entities, but are of increasing interest to users of financial statements (investors, creditors, suppliers, customers, state institutions and other authorities, employees, the public). The main objective of the paper is to identify the benefits of integrated reporting within companies. A company is not only made up of costs and revenues, but there are aspects that can influence the evaluation of an organization, such as the environment, employees and the relationship with the territory. This explains why, in addition to the traditional form of reporting economic and financial results (financial statements), new external reporting tools are strengthened on their non-financial performance (such as the sustainability report or the non-financial statement). Reporting helps companies protect the environment and improve society, thrive economically by improving governance and stakeholder relationships, builds their reputation and builds trust. "GRI standards are a robust framework, developed with input from many stakeholders and rooted in the public interest. The framework is tailored to meet all sustainability reporting needs, from comprehensive reporting to problem-specific disclosures, and is therefore suitable for use by organizations, regardless of size or industry" (Crisan, 2022).

### 2. Theoretical background

The middle of the last century has seen the development of a new sensitivity among citizens towards ethical and environmental issues, so much so that they have led companies to consider the strategic set of stakeholder relations and urge them to invest some of their resources in the search for transparency and dialogue with all stakeholders on these issues. This phenomenon therefore leads to the birth of social reporting and the development of the first standardized guidelines for social, environmental and sustainability reporting. Reporting on corporate social responsibility has grown in recent years, making it a widespread, global phenomenon. Among the various reasons for companies to report on corporate responsibility, provided this is not required, the following are worth



noting: in the long run, the strategic use of social reporting can prove to be a valid means of corporate promotion, for improving the image and increasing the profit; social reporting is an appropriate response to external expectations for the benefit of stakeholders; contributes to the establishment of a positive climate of dialogue that improves relations with subjects who have resources and skills essential for the management of the company and the achievement of pre-established economic results; it also contributes, through open communication with the outside world, to the protection and improvement of the company's image by strengthening its reputation; reporting is the company's ethical framework, extolling its moral values and ensuring its compliance with the principle of transparency towards all stakeholders. Around 1970, a first social reporting project was born in Germany, where Sozialbilanz-Praxis attached it to the operational one, highlighting three aspects of the company's activity: describing the social objectives and reporting the relative results; determining the added value; analysis of the costs and benefits of social management.

The culture of corporate social responsibility is spreading in Europe, where the Union invites companies to report by taking into account the three key issues: social, environmental and economic. This is in line with the international guidelines and directives of the main organizations dealing with this issue. The same thing is happening on other continents with the introduction, in some states, of social reporting guidelines and obligations. It is worth mentioning the King III Code of Governance Principles (2009) which, in South Africa, obliges companies listed on the Johannesburg Stock Exchange and all other public, private and non-profit bodies to publish a single integrated report containing information on governance, strategy and sustainability, developed in accordance with GRI guidelines.

The Organization for Economic Co-operation and Development (OECD) guidelines for multinational companies are a set of guidelines that aim to affirm and increase their contribution in the context of economic, environmental and social progress. They consist of an ethical part dealing with human rights, employment, industrial relations, the environment, the fight against corruption and bribery, consumer interests, science, technology, competition, taxation, and a second, operational part, which refers to the national bodies responsible for disseminating and monitoring the correct application of the guidelines.

Romania officially applied to join the OECD in April 2004 and November 2012 in previous enlargement activities and has been updated annually since 2016. By Prime Minister's Decision, an Interministerial Committee for the Coordination of Romania's Relations with the OECD was established on September 1. 2016, consisting of representatives of all institutions involved in the activities of the OECD structure or who manage cooperation programs with the organization. The Committee is currently coordinated by the Prime Minister of Romania, and the technical secretariat is provided by the General Secretariat of the Government.

### **3. Research methodology**

The scientific approach is based on information from the national literature, as well as from the practical documentation made through the case study presented. In the elaboration of the paper, we chose to combine quantitative research with qualitative research in order to obtain the expected results. Following the research undertaken, the research tools belong to the two categories of methods, namely: review of the literature, comparison, descriptive analysis, case study method, data interpretation.

In order to support from a practical point of view theoretical aspects presented in the paper, we will present through the case study how to report non-financial information through the sustainability report of OMV Petrom.

## 4. Findings

### 4.1. Integrated reporting at international and national level

Integrated reporting has grown due to the recognition of international bodies dealing with it and recognizing the need to develop the process and prepare sustainability reports aimed at merging into a single document that contains in a way, interconnected, factors and economic performance (of the situations with the environmental and social ones (sustainability reports) in an organizational set of integrating social responsibility in the company’s own strategy. The integrated report highlights the relationship between strategy, governance, economic and financial performance and the socio-ecological context as well as the environment in which the entity operates, providing answers to the need to measure and verify the achievement of strategic business objectives. The first integrated report dates from 2002, prepared by the Danish company Novozymes, which operates in the biotechnology sector, followed, two years later, by that of Novo Nordisk, active in the pharmaceutical sector. Integrated reporting has grown since 2008, spreading among large companies in the United States and the European continent, including: United Technologies Corporation, American Electric Power, AXA, BASF, Philips (Crişan Elena, 2022).

In 2013, IIRC published its guide to the integrated report, the International <IR> Framework, as a tool for companies wishing to create a report that promotes economic and financial stability and sustainable development based on the investment decision-making process based on the creation of long-term value. In short, the framework aims to lead companies to connect economic and financial performance with those of sustainability and to highlight to investors and all stakeholders how the company itself can create value through its business model, strategy and use of capital. In Romania, the preparation of non-financial reports is regulated by the Order of the Ministry of Public Finance no. 1938/2016 (adopting EU Directive 95/2014) and Order no. 3456/2018. „The Romanian legislation stipulates that the non-financial reporting should be done in the form of a non-financial statement that should be included in the administrator's report. There are also some requirements for presenting information related to diversity, especially gender" (Fărcaş, T. V, 2020, p. 339).

In 2018, a new point is introduced in Order no. 1802/2014 (492.6), through Order no. 470/2018, “The presentation of non-financial information takes into account the European Commission Communication on Guidance on non-financial reporting (non-financial reporting methodology) (2017 / C 215/01)”, published in the Official Journal of the European Union, C series, no. 215 of July 5, 2017” (Order no. 470 , Art.13 ( 3)).

Some companies with more than 500 employees whose non-financial reporting obligations first appeared in 2018 were required to provide information for fiscal year 2017. In fact, all Member States set this obligation in the same year, but towards Unlike Romania, they already had a tradition of voluntary reporting on sustainability or corporate social responsibility. In Romania, some listed companies voluntarily submit non-financial reports on social, energy and environmental performance. Non-financial reports help attract new investors, because through them, companies can explain long-term sustainability. Pursuant to art. 1 of Order No. 1938/2016, paragraph 492 ^ 1 ("Non-financial statement") this "non-financial statement" must be sufficiently in-depth to allow a clear understanding of the "development, performance and position of the entity and the impact of its business" (Order no. 1938/2016, Art. 1(2)).

The areas of non-financial reporting relate to the environment, social, personal, respect for human rights, the fight against corruption, and must describe at least: the entrepreneurial model of management and organization of the company's activities; company policies and results; the main risks (generated or suffered) in the context of the company's activities, with reference to products, services and business relationships. Non-financial information should be extended at least to: the use of energy resources (renewable and non-renewable) and water resources; greenhouse gas emissions and other pollutant emissions into the atmosphere; the impact of short- and medium-term corporate policies on the environment, health and safety; social issues related to personnel management; respecting the human rights; anti-corruption methods. Each of these aspects will need to be accompanied by information showing the level of performance in their management (policies and procedures and related results; non-financial risks and how they are managed; non-financial

performance indicators). Through this information, stakeholders will know the impact that the company has on the economy, the environment and society.

#### **4.2. Non-financial reporting**

Social and environmental reporting focuses on non-economic performance reporting to make organizations more accountable, democratic, and transparent to stakeholders. A number of social and environmental reporting tools and guidelines are available. Internationally, there are several states that are leaders in this type of reporting practice. For example, in the Scandinavian countries and the Netherlands there are mandatory requirements for reporting corporate environmental performance. In the United States, companies must submit data on pollutant emissions to the Environmental Protection Authority, which is then released. The United States Securities and Exchange Commission, the Canadian Securities and Exchange Commission, and the British Company Law require the disclosure of social and environmental information that affects current or future financial performance. The Sustainability Reporting Guidelines (GRI, 2002) are a model in which social and environmental performance indicators will be integrated into an extended performance reporting framework. This initiative aims to combine the reporting of financial, environmental and social performance in the same format, enjoying the active support and involvement of international representatives of key constituencies. However, this process has its limitations. For example, reporting on economic performance under the Sustainability Reporting Guidelines remains largely limited to the elements of traditional financial reporting. The provision of information through intellectual capital models, the balanced reporting form, and the social and environmental reporting models is limited and incomplete. Intellectual capital reporting models and the balanced reporting form do not sufficiently address the non-economic performance of an organization. The interest of shareholders and customers is explicitly recognized, but it is considered that not all stakeholders have the automatic right to occupy a position in the reporting form.

Part B of the "Reporting Principles" guidelines is dedicated to principles and practices that promote rigorous reporting and substantiate their application. The content of the report is addressed in Part C and is divided into five sections: vision and strategy, profile, governance structure and management systems, GRI content and performance indicators. The last section is the main contribution of the Global Reporting Initiative in that it is the basis for the notion of sustainability based on the TBL (Triple Bottom Line) approach. The starting point of the sustainability reporting model proposed by GRI is the conceptual framework of the guidelines. The Global Reporting Initiative (GRI) is the most relevant institution in the context of sustainability reporting. Currently, more than 700 rapporteurs from 43 countries publish a sustainability report based on GRI sustainability guidelines. This is the result of a project by the Coalition of Economically Responsible Economies in partnership with the United Nations Environment Program, which published the first guideline for sustainability reporting in June 2000. Immediately afterwards, GRI set up the Measurement and Review Working Groups to help to re-examine these guidelines.

This review process had three main objectives:

- widening the stakeholder base of guidelines;
- improving sustainability reporting;
- increasing utility and credibility.

A second version of the guidelines was published in August 2002 at the start of the Johannesburg Summit. The main objective of this new version of the guidelines was "to assist reporting organizations and their stakeholders in formulating and understanding their contributions to sustainable development" (Cioca, 2015, p.112)

The first problem observed is the lack of an explicit definition or a reference to a definition of sustainable development. Although the guidelines contain a glossary that includes many words and phrases, there is no interpretation of sustainable development or sustainability. An indirect reference and interpretation can be found in the Introduction to the Guidelines when describing trends, which is a measure of progress towards sustainable development. The guidelines accept that sustainable development has been widely adopted as a basis for public policy and organizational strategy. Thus, GRI has taken a new turn towards the strategic behavior of organizations, considering the information on sustainability as a unit of measurement, equal to the financial reporting for economic and financial

resources. Next, the guidelines better explain their interpretation of sustainability - a TBL approach - when it states the following: GRI guidelines organize "sustainability reporting" in terms of economic, environmental and social performance (also known as "triple bottom line" reporting). This structure was chosen because it reflects what is currently the most widely accepted approach to defining sustainability.

## **5. Sustainability report - tool for reporting environmental information**

The sustainability report examines a company's performance in terms of social, environmental and economic impact. Not surprisingly, there is also talk of "triple bottom line" reporting and reporting (Elkington, 2018).

In addition, the values, policies and governance model of the organization are presented in the sustainability reports, highlighting the points of contact between the corporate strategy and the commitment to a sustainable economy. Stakeholders are increasingly demanding on transparency regarding corporate responsibility issues. Honest and credible communication can greatly contribute to the company's reputation and, consequently, to the results of market performance, increasing its overall value. Involvement in drawing up (or publishing) a sustainability report is also a good way to internalize and improve the organisation's commitment to sustainable development, using a tool that can be useful in demonstrating the commitment of both internal and external stakeholders. and external ones. Reporting causes companies to measure the impact produced or suffered, to set goals and to manage change. In order to draw up a regular sustainability report, regular reporting cycles are established: data collection is planned, communication and internal sharing are established.

In this way, the performance of sustainability is constantly monitored and decision-makers are constantly informed so that organizational strategies and policies can be shaped accordingly. To date, the nature of these sustainability reports is voluntary. In recent years, a debate has developed on the usefulness of promoting the legal obligation, on the one hand, and, or on the opportunity to promote a voluntary context, on the other. The combination of voluntary and mandatory approaches proves to be appropriate, as the number of companies preparing a sustainability report increases from year to year. In Europe, the Non-Financial Reporting and Diversity Directive has recently been approved. This is a relevant legislative initiative for the European Economic Area.

It calls on companies to include information on policies, risks and results in their environmental, social, human rights, anti-corruption and diversity management reports. This will give investors and stakeholders a more complete picture of the company's performance.

There is no law that imposes a uniform method, but there are guidelines that we can refer to: the Global Reporting Initiative (GRI), a non-profit group founded in Boston in 1997, which allows companies around the world to analyze sustainability performance and make the results known in a manner similar to the financial report. The sustainability report is a document - the result of a process - by which an organization reports on choices, activities, results and use of resources (Economic-Social-Environment) over a period of time, to allow stakeholders to know, formulate and to return their own judgment on how the organization itself interprets its mission. It is: A document produced and published by an organization, A communication tool for stakeholders, A statement of activities and results over a defined period, A photo of the organization to monitor transparency with stakeholders, A tool of accountability to increase stakeholder confidence and reputation.

"Sustainability reporting is the practice of measuring, disclosing and being accountable to internal and external stakeholders for organizational performance in order to achieve the goal of sustainable development " (European Court of Auditors, 2009).

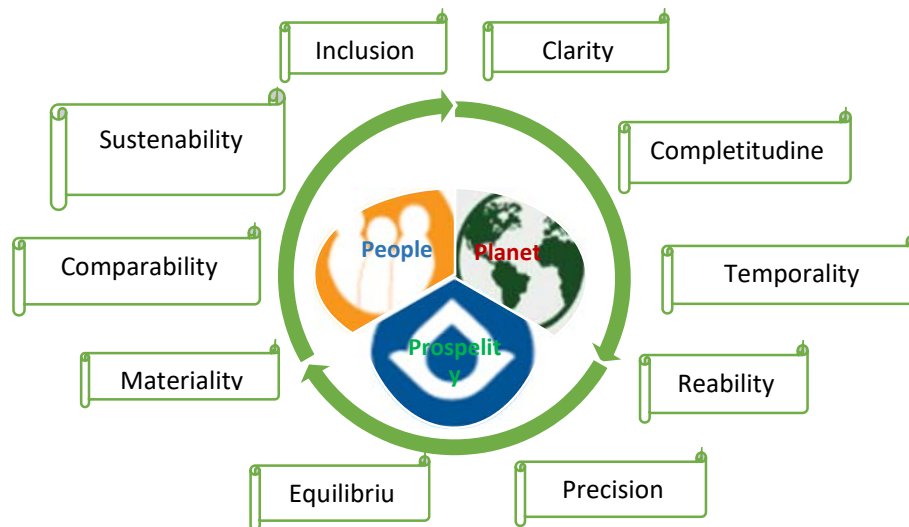
Each sustainability report has its own story and the context of each organization is what guides that planning. Therefore, if, in terms of content, sustainability is different, from a procedural point of view, several common steps can be identified. In the first stage of analysis are: • the internal market scenario, current trends, benchmarks of sustainability strategies developed in the market, best practices, regulatory environment (external analysis), and • contingent issues (depending on the moment, sector, company situation, its strategy) relevant in terms of sustainability, objectives, mission and vision of the company, risks (internal analysis). Based on this analysis, the strategy itself is defined and the pillars, areas or guidelines in which one or more material aspects converge are

established, in line with the strategic objectives, including those of sustainability (short, medium and long term), in line with the calendar of the business plan, through direct involvement.

According to the GRI Sustainability Reporting Guidelines: it is the tool for monitoring, reporting and communicating the responsible management process undertaken by the organization, which tends to make visible the environmental, social and economic performance of the company; In addition, it is a planning and control tool that analyzes the activities and services carried out by the company, evaluating them according to the logic of economic efficiency, environmental protection and social protection.

The principles for defining the content of non-financial statements as well as the principles for defining the quality of the report are defined in GRI 101 (GRI 101, p.7-16). The principles of the content and quality of the sustainability report are illustrated in the figure below:

Figure no. 1 Principles of the content and quality of the sustainability report



Source: author's projection

**The Principle of Materiality.** The information contained in the report relates to topics and indicators that reflect relevant economic, environmental and social impact or that could substantially influence the assessments and decisions of stakeholders. A threshold (materiality) is defined beyond which a certain topic becomes important enough to be included in the report. Principle of Stakeholder Inclusion. The organization identifies its stakeholders and describes how it has responded to and met the expectations arising from their involvement.

**Sustainability Context.** It illustrates the performance of the organization with reference to the theme of sustainability. how it contributes to improving or worsening economic, environmental and social conditions.

**The principle of completeness.** The report shall contain information reflecting the relevant economic, social and environmental impact, so as to enable stakeholders to analyze the performance achieved within the relevant scope and period. The Principle of Balance. It reflects the positive and negative aspects of the organization's performance in order to facilitate a correct and up-to-date interpretation, with the most objective, impartial and unquestionable content possible.

**The principle of clarity.** The available data are presented in a way that is understandable and accessible to the stakeholders who use them.

**Principle of Comparability.** The preparation of the sustainability report facilitates the interpretation by stakeholders of changes in the performance of the organization over time and allows comparative analysis of other organizations and periods.

**Principle of Accuracy.** The information included in the report is sufficiently accurate and detailed to enable stakeholders to make an appropriate qualitative and quantitative assessment of their corporate performance.

**The principle of temporality.** The sustainability report will be prepared on a regular basis and stakeholders will be informed promptly in order to make informed decisions.

**Principle of Reliability.** The information and processes used for the preparation of the report are collected, prepared, recorded, analyzed and communicated in such a way as to determine the quality and relevance of the information.

## 6. The case study on non-financial reporting will be conducted by OMV Petrom



Studies show that organizations that operate sustainably perform better on the stock market. Harvard researchers, using the SASB model, found that organizations with a very good environmental assessment have a better profit than those with lower estimates (Khan, Mozaffar et al, 2016, p.1697).

Publishing information on your corporate sustainability strategy can significantly reduce your environmental impact. If each sector shared the green philosophy, we could reduce emissions by 10 billion tons by 2030 (The Business end of Climate Change, 2016). In addition, the dissemination of company reports and environmental initiatives has negligible costs compared to benefits. Unfortunately, the current situation is negative: many companies publish obscure reports or data that are not useful to investors, public and private.

In Romania, corporate social responsibility is regulated by EU Directive 95/2014, a European standard that requires companies to publish ethical information. Entered into force on 1 January 2017, it provides that companies with more than 500 employees or those of public interest to communicate information on environmental sustainability.

Please note that this company is listed on the Bucharest Stock Exchange and thus all financial and non-financial information is public. The sustainability report can be consulted in its entirety on the company's own website: <https://www.omvpetrom.com/ro>. OMV Petrom is the largest energy company in Southeast Europe. The company is active throughout the energy value chain: from oil and gas exploration and production to fuel refining and distribution, and further to electricity generation and gas and electricity trading. Sustainability for OMV Petrom means focusing on running the business responsibly, efficiently and in an innovative way. We are committed to creating long-term value for the company and its stakeholders, respecting the environment, supporting the communities in which we operate and striving to support the UN goals of sustainable development. The OMV Petrom 2020 Group Sustainability Report, a document published annually (the previous report was published in June 2019), presents the impact of our activities on the economy, the environment and society, as well as how we managed these impacts to strengthen our performance and ensures our long-term sustainable development.

The information included in the report covers 2020 (1 January - 31 December), a challenging year for society and companies due to the COVID-19 pandemic. This report has been prepared in accordance with GRI standards: the Core option, the G4 supplement G4 specific to the oil and gas sector as well as with the Romanian legislation on non-financial reporting - Orders No. 1938/2016 and Nr. 2844/2016 issued by the Ministry of Public Finance. In the process of compiling the report, we also followed industry best practices: IPIECA Guidelines Specific to the Oil and Gas Industry on Voluntary Sustainability Performance Reporting, Accounting Standards for Sustainability for the Oil and Gas Sector issued by the SASB, but also the non-binding EU provisions of the Guide to Non-Financial Reporting. Sustainable business implementation is crucial for OMV Petrom in creating and protecting long-term value, building trustworthy partnerships and attracting customers, as well as the best suppliers, investors and employees.

The 2025 Sustainability Strategy is an integral part of the business strategy and is a sustainable component of OMV Petrom's goals. The strategy defines objectives and targets, incorporated in OMV Petrom's business strategy, in five main areas of interest: Health, Safety, Security and Environment (HSSE); Efficient carbon management; Innovation; Employees; Business Principles and Social Responsibility. For each of these 5 areas: commitments, 2025 objectives, 2020 status, sustainable development objectives supported by 2020 projects.

The strategy includes 15 objectives that are aligned with the production plans, sales and product portfolio established by the Business Strategy and are developed to provide the company with a secure and sustainable energy supply.

Below we present one of the 5 areas of interest Health, Safety, Security and Environment, the other four being found in the sustainability report of OMV Petrom for 2020, available online on the company's website:

*Table no. 1 Area of interest and material topics: Health, Safety, Security and Environment (HSSE)*

Area of interest and material topics: Health, Safety, Security and Environment (HSSE)	
Commitment	Health, safety, security and environmental protection have the highest priority in all activities
	Proactive risk management is essential to achieving the HSSE vision a OMV Petrom on "No Injuries - No Loss".
2025 Objectives	Fatal accidents: Zero fatal accidents following a work accident
	Stabilize the frequency of incidents with lost working time to less than 0.30 (per 1 million hours worked).
	Process safety: Maintaining the leading position for the rate of events related to process safety (2017: 0.18).
Status 2020	0 fatal accidents following a work accident
	0.15 (per 1 million hours worked)
	0.11 Leading position maintained.

Source: OMV Petrom Sustainability Report, 2020, p.12

The future must also be sustainable for business. Consumers are increasingly aware of climate change and choose products with the least impact on the environment. Being green is not limited to free time, but it is an indispensable lifestyle to have a better future for everyone.

## 7. Conclusions

Given the intense process of standardization and standardization in the field of accounting, both internationally and nationally, it is expected that in terms of environmental management and its protection, sustained efforts will be made for a common representation of such activities. , in order to achieve a comparability of methods and to identify good practices applicable to several areas of activity. Romania, like other countries in Europe and the world, is facing serious problems of environmental pollution, as a result of the policy of intensive industrialization practiced for years. Permanently, the environmental factors air, water, soil, have been and are subject to anthropogenic aggression, the progressive worsening of their quality has determined social implications with repercussions on the quality of life. Legislative constraints have played a very important role in increasing the number of reports, making them mandatory due to the Directive on the obligation of large companies to report annually on a number of non-financial and workplace diversity issues, adopted on 15 April 2014. by the European Commission.

The European directive applies to companies with more than 500 employees, and SMEs are also encouraged to make these reports. Five years after the Paris Agreement on Climate Change and the formalization of the 2030 United Nations Agenda, sustainability has taken on an even more central role in the development projects of the European institutions and in the pathways of major companies, with the ambitions and goals of the European Green Pact. We are witnessing this evolution in Romania as well, where non-financial information is becoming more and more important, starting with the mandatory reporting, imposed by Order no. 1938/2016 and Order no. 3456/2018.

The integrated report is not only an analysis tool, but a real channel with which to enter the internal dynamics of management, to assess the strengths and weaknesses, to identify any needs (management training, communication improvement, etc.) and to outline the strategy. development. There are two major reasons for adopting reporting methods: they reflect changing social and cultural values; Integrated reporting is the best model for showing a company's long-term ability to create and sustain value. Companies should learn to think more responsibly about their social and environmental impact. Internationally, the most representative guide to environmental reporting is the GRI

Guidelines, which provides a conceptual framework for reporting environmental information. GRI Guidelines include principles, qualitative characteristics of information and a set of indicators that reflect the environmental performance of the entity. Correlating this guide with the implementation of an ISO14001 environmental audit and management system would increase the relevance and credibility of the information provided.

Another tool for reporting environmental issues is the environmental balance sheet, which collects all the costs and financial benefits with environmental impact within the entity, highlighting the fact that environmental protection can lead to positive contributions to the development of the entity. In relation to these issues, we believe that the accounting profession should also be involved in managing environmental issues, because by determining environmental costs, environmental debt and provisions, the environmental issues that an entity may face could be of interest to it. and managers, and this would lead to a reduction in fines and penalties for non-compliance with the regulations in force on environmental protection, but, most importantly, to a better and more judicious management of the environment.

Companies committed to promoting environmental sustainability must be able to produce environmentally friendly products and services. For example, a company that produces a product, or provides a service, needs to pay special attention to its entire life cycle. From the design to its disposal or to the waste generated during its production or supply, which is to be disposed of. This involves using low-impact raw materials or favoring reuse and recycling chains where possible. In fact, in order to be sustainable, products must be made of materials that can be replaced in the event of damage, possibly with regenerated materials or with a low impact on the environment. This is very important because it is essential to minimize waste generation.

The case study presented within OMV Petrom highlighted the reporting of non-financial information that it does annually. This non-financial and financial information is useful to various users of financial statements, being available both on its own website, given on the website of the Bucharest Stock Exchange, this being a company that trades securities.

OMV Petrom attaches special importance to issues related to Health, Safety, Security and Environment; Efficient carbon management; Innovation; Employees; Business Principles and Social Responsibility. The company's sustainability report describes in detail the commitments, the long-term objectives, the current situation, the sustainable development objectives supported by it.

Our hope is that by carrying out this work we will make a modest contribution to the field studied in the context of the new complex challenges that the accounting profession should face successfully in order to strengthen its image and credibility.

## 8. Acknowledgement

The article is made with financial support from the funds for scientific research of the "1 December 1918" University of Alba Iulia.

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## Budget of Revenues and Expenditures in Public Institutions

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### Abstract

*Regardless of the field in which they operate, public institutions must establish platforms and projects to determine the course of action, the direction in which they must go, what is the pace, what is the effort and what are the effects on the economy, which requires the preparation revenue and expenditure budgets. This means that public institutions can track the distribution of funds as well as consumption by destination.*

*The current economic situation requires the rigorous establishment of the necessary financial funds for public institutions in order to achieve economic and social processes, accurately determine priorities, develop the level of efficiency in the use of budget funds and exclude uneconomical consumption without compromising objectives. Public institutions that receive public, budgetary or extra-budgetary allocations must accurately represent in their budgets the public funds that have been allocated to them and take into account the legal regulations regarding their use.*

**Key words:** revenues, budgets, public institutions, expenditures, financial

**J.E.L. classification:** H52

### 1. Introduction

In this paper I set out to study the accounting of budget expenditures and the budget execution of an educational institution, because this part of the accounting activity of an educational unit is very important, both in relation to the general framework of public accounting legislation and the particular framework of the accounting regulations regarding the educational institutions as units subordinated to the local state administration.

Unlike the accounting of economic entities, which focuses in particular on the profit obtained and the income they generate, all public institutions focus on the expenditure they incur so that they fit into the specifications of the revenue and expenditure budget.

### 2. Theoretical background

In the sense provided by law, the budget is a document by which the revenues and expenditures are provided and approved each year or, as the case may be, only the expenditures, depending on the financing system of the public institutions.

Revenue and expenditure budgets are established for short periods of one year and quarterly, being formed in accordance with the legal regulations in force concerning budget revenues and expenditures that are subsidized from budgetary funds and are approved by its authorities.

Public institutions draw up the revenue and expenditure budget in an orderly manner, in accordance with the activity and the effects which they expect in the year for which they draw it up, on the basis of the financial benchmarks - the budget revenue and expenditure. In order for the necessary budgetary funds on activities and areas of interest to be dimensioned correctly and balanced, as well as to plan the gains from the activities of the institutions, evaluation, calculation and substantiation indicators have been determined based on components characteristic of budgetary activities. their role is to serve as a starting point from which estimates of budget revenues and expenditures are made. From here, the public institutions can rigorously assess their

needs for funds in direct accordance with their duties or responsibilities, thus guaranteeing the material basis for achieving the objectives.

The budget of revenues and expenditures of public institutions aims to represent the debts in lei covered by the inclusion of all the expected gains to be made and the expenses for the performance of the actions and activities of the institution. The preparation of revenue and expenditure budgets will facilitate the introduction of an effective verification procedure that can establish similarities and differences in the forecasting and determine the corrective measures at a given time.

In order to predict financially correctly, a financial forecasting activity is needed, a multilateral phenomenon of evaluation, reasoning and actions that is carried out by the accountant of the public institution, together with other specialists in the economic field and other specialties from the compartments of the institution. They contribute to the analysis, sizing and substantiation of the landmarks that fall within the budget of revenues and expenditures.

The revenue and expenditure budget is the basis for the making of payments and payments made by a public institution. The determination of revenue and expenditure in the budget depends on the specific activity of the institution and the level of subordination of that institution. The revenue and expenditure budget of a public institution is included (as a whole or in the form of a balance) in the state budget or in the local budgets. Thus, "the budgets of the Presidency of Romania, the Government and of other public institutions that do not have hierarchically superior bodies are provided separately in the state budget". The Chamber of Deputies and the Senate, in consultation with the Government, approve their own budgets before the debate on the state budget and submit them to the Government for inclusion in the state budget ”.

The budgets of the various public institutions of local subordination are also included in the local budget.

An institution's budget is divided as follows:

1. Revenue section, in which the revenue is recorded in the order and category / grouping specified in the general framework of the budget classification (by chapters and subchapters) by type. In the case of institutions that obtain both revenues for the state budget and revenues reserved for self-financing, they are included separately in the budget. In the subsidized institutions, in the revenue section, together with the own revenues, the subsidy that is expected to be received from the budget is also registered;

2. the expenditure section, which includes the expenditure of each chapter and subchapter (these show the area in which the institution carries out its activity, type of unit and activity), by titles, articles and aligned, by economic nature.

The budget of a public institution is not characteristic of a true financial report, as parity between revenue and expenditure can only be achieved in self-financing institutions. In the case of public institutions financed entirely from their own revenues, the expenses are made only if they do not exceed the realized revenues, and the annual balances of funds resulting from the execution are taken over as revenues in the following year, usually.

The revenue and expenditure budgets shall be drawn up separately by the budgetary institutions for the subordinate subunits, shall be integrated into the budget of the institution and shall be approved at the same time.

Each institution has the obligation to draw up its own budget for the activity it carries out. Ministries, other central institutions, county directorates, etc. (hierarchically-superior institutions) also draws up a centralized budget which represents all the activities in their area of competence.

The drafting of the revenue and expenditure budget shall be carried out in accordance with the principles of the budget, which are closely related to each other.

Also, the elaboration of the draft budget must take into account the revenues expected for the budget year, the expenses specified by the authorizations contained in specific laws, in their functional and financial organization, the losses or profit of the institution, the legislations characteristic of the budget year.

The elaboration of the budget of the institutions must be in accordance with the elaboration of the state budget. Thus, the institutions record in the draft budget data on preliminary achievements for the current year, recommendations for the plan year and forecasts for the next three years. These projects are centralized and submitted in summary form to the Ministry of Public Finance, and locally, to the

specialized departments of local public administration authorities to use as a means of establishing indicators for the respective sector of activity.

In order to correctly determine public revenues and expenditures, the public institution must use both classical and modern methods based on cost-benefit or cost-effectiveness study.

The classical methods are as follows:

- the automatic or penultimate method: in order to predict the incomes and expenses for the following year ( $t + 1$ ) the incomes and expenses of the previous year ( $t-1$ ) are taken as a foundation, the year of which has ended;
- the method of increase (decrease): the results of the budget years are taken into account for five or more years prior to the one for which the budget is established, according to which the average rates of change of budget revenues and expenditures are calculated;
- direct valuation method: requires calculations for each category of expenditure and source of income in close connection with the evolution of GDP.

Modern methods include:

- the method of planning, programming and budgeting is a method of optimal use of budget expenditures, in the conditions of applying the decisions as efficiently as possible, so that
  - public spending is ranked through programs that are closely linked to government policy objectives;
  - the method of management by objectives is a method of quantifying budget expenditures that highlights the recognition of purposes for each sector of activity, so that each administrator of public money sets goals that will contribute to achieving the proposed objectives;
  - the method called zero budget base involves critical analysis of each type of budget expenditure and evaluation of its usefulness and efficiency, and this requires the existence of a large number of possible programs, to be decided for one of them, depending the possible results that can be achieved at a certain level of budget expenditures; this method involves the constant resumption of the analysis of all budget expenditures, as if starting from scratch for all public expenditures;
  - the method of rationalizing the budgetary options is realized as a closed cybernetic system, between the elements of which there are interdependent connections, so that the failures in one phase affect the others; the novelty of this method and a great privilege of the method is the high capacity for flexibility and reformulation of options.

Modern methods of sizing budget expenditures and making decisions about the short, medium, or long-term use of state resources are based on cost-benefit or cost-effectiveness analysis.

In carrying out expenditure, the institutions must comply with the general rules on implementation of the budget and the principles of budgetary financing.

Expenditure for which there is no legal basis cannot be foreseen in the draft budget.

Revenue and expenditure are allocated in the budget according to the budget classification.

Revenue is organized by chapters and subchapters, and expenditure by parts, chapters, subchapters, titles, articles, and paragraphs, as appropriate.

The revenues of public institutions obtained through the application of taxes, fees or contributions for activities performed to individuals or legal entities are assessed on the basis of physical calculation and consolidation elements and the amount of earnings per indicator (eg number of beneficiaries and earnings per beneficiary ).

One of the estimation attributions of the public institution is the good establishment of the indicators regarding the revenues that are included in the budget of revenues and expenditures and which must show the valorization of all the opportunities that it has, having as final result the diminution of the financial effort. the state for the support and smooth running of public institutions.

The sources of income and their grouping are different, being closely related to the field of activity of the institution, and the establishment of financial indicators on income is based on rules such as the existence of the legal basis of income, preliminary execution for the base year, rectified with the possible influences expected for the future, the comparative study and research of the realized incomes and expenses, the use of calculation and substantiation indicators.

Public institutions may have income:

- entirely from the state budget or from the local budget, depending on the administrative hierarchy;
- from extra-budgetary revenues and from subsidies granted by the state budget or the local budget, depending on the administrative hierarchy;
- only from extra-budgetary revenues;
- other income categories.

Thus, if the public institutions are financed entirely from the state budget or from the local budgets, the revenues are formed from transfers from these budgets. Those public institutions that are partially or fully financed from extra-budgetary revenues, because they have income-generating activities, obtain revenues in correlation with the activity carried out and the field of activity.

If the public institution had in the previous year a surplus of revenues compared to the expenses incurred, to the category of revenues can be added the positive balance between revenues and expenditures of the previous year.

Another form of income may be participation in research programs and for which the institution has received funding from various external sources.

Expenditures are decreases in economic gains or service possibilities in the reporting period, representing outflows or the use of assets or the generation of bonds that result in a decrease in net assets (equity) other than those attributed to owners.

Public expenditures are those expenditures borne by the state budget or local budgets by the public financing authority to meet the needs of goods and services of society.

Public expenditures include socio-economic financial relations that occur between the state and economic representatives, both individuals and legal entities, in the activity of allocating and using the state's funds, in the perspective of accomplishing its tasks.

The determination of public expenditures must take into account the financial policy of the state, the number of employees, the set of public institutions that operate or are to be established in the new budget year, the use of the existing technical base with maximum efficiency, etc. At the same time, the following objectives will be taken into account:

- in the social field - use of state financial resources for education, social protection and insurance, culture, art, youth and sports, environmental protection, etc .;
- in the field of scientific research - supporting priority research programs;
- in the economic field - the realization of some investments and other economic actions of public interest, the granting of subsidies, facilities and other means according to the legal norms, within the limits of the credits approved by the annual budgets;
- ensuring the requirements of defending the country, public order and national security;
- financing the central and local public administration, etc.

Budget expenditures are only a part of public expenditures, which represent only expenditures that are financed from the state budget, while public expenditures comprise all expenditures that can be made from both state budget funds and own funds.

Budgetary expenditure included in the budgets of public institutions must be within the maximum limits and have a clear use.

Therefore, in drawing up the budget of the public institution, the following must be taken into account:

- need,
- preponderance,
- generality of the respective needs,
- consumption should not exceed the contributory capacity of economic agents.

The first phase in approving the revenue and expenditure budget is when the Parliament adopts the state budget and the local councils adopt the local budgets, the budget indicators are distributed to the ministries and other central authorities, then to the local institutions, after which the own budget of each institution is finalized. with the registration of the approved indicators with quarterly proposals.

After the budget is finalized, it is approved by the higher hierarchical body in the case of institutions fully or partially funded from the budget and by the head of the institution, with the approval of the higher hierarchical body, in the case of fully self-financed institutions.

Thus approved, the budget becomes an important tool in the administration, development and execution of economic and financial activity within public institutions.

Budgetary institutions which have subordinated units or carry out self-financed activities shall draw up separate revenue and expenditure budgets for them which shall be included in and approved at the same time as the institution's budget.

In Romania, the type of approval of each category of budget as well as the authorities that have competences in this respect varies depending on the hierarchy occupied in the budgetary system.

Receiving revenue and making payments and expenses means executing the budget.

The approved budget indicators, revenues and expenditures, are divided into quarters, depending on the legal deadlines for revenue collection, the deadlines and capacities to ensure the sources of financing the budget deficit and the period in which it is necessary to make expenditures.

Budget execution is the last stage of the budget process and can be summarized as follows:

- exposes the totality of the measures, methods, means and modalities used by those included in the specific relations regarding the achievement of the public finance indicators expected and approved by the operative financial balances of the state and the administrative-territorial units;
- it is the stage of realizing the budgetary revenues and expenditures by the concrete inclusion with money rights and duties of those provided by the legislation characteristic of the existing budgetary relations;
- reflects the total form of technical approach, starting from the general characteristics of the specific economic relations through which the responsible factors, the state with the specialized institutions and its partners, taxpayers and budgetary credit officers are involved in the process.

Public budgets can be approached both as economic relations of a certain bill (the execution of public budgets presents the materialization of economic relations that determine financial means on the background of the distribution of national income, in two ways, of mobilization and centralized distribution, to and from the state). supporting public policy interests recognized as such) and as operating financial balances.

Budget execution can be approached through: the budget system, respectively the totality of the relations with this significance; the elements of the system by presenting each public budget separately, with the two interpretations; the structure of the financial indicators, diminished to the generic expressions of incomes, respectively of expenses; duties and skills, located at specialized institutions and respectively at taxpayers and consumers of budgetary funds.

Practical experience shows a separation of the activity of executing revenues from that of executing expenses, because each of them uses specific tools and procedures.

The principles, rules, methods, techniques, procedures and operations on the basis of which the execution of the expenditure part of public budgets is carried out are supported by public finance legislation and other normative acts adopted by the legislature or issued by the Government and the Ministry of Public Finance.

The Public Finance Law contains important benchmarks regarding the execution of budget expenditures: the principles that guide them, financing techniques, quarterly distribution, budget appropriations not used by authorizing officers, transfers, non-reimbursable external funds, payment of salaries. In all the above cases, technical elements and concepts such as budget appropriations and budget authorizing officers are reflected in their own specific nature.

With regard to the revenue side, the executive has the obligation to comply with the budget provisions within the minimum limits.

As the types of state revenues are diverse, there are a multitude of operations included in their execution compared to the execution of expenditures. At the same time, the risk of fraud and embezzlement is lower than in the case of expenditure, which makes the separation between authorizing officers and accountants less inflexible.

The next step in making expenditures and collecting revenue for that budget year is to draw up the closing documents for the budget year. The operation is reflected in the budget execution account which expresses the budget surplus or deficit at the end of the budget year. The finality of the budget execution is found in documents that record the achievement of income and expenditure indicators first, to taxpayers (especially through accounting and fiscal balance sheets) as well as authorizing officers (through budget accounting reports, with emphasis on the execution of revenue

and expenditures, as well as budget execution accounts), then to hierarchically superior institutions (centralized budget accounting reports and their budget execution accounts).

The budget execution ends on December 31 of each year, which leads to certain rules regarding the issue of fiscal-budgetary management. Therefore, any uncollected revenue and any expenditure incurred, settled and ordered, within the budgetary provisions, and unpaid, as the case may be, shall be charged to the budget for the following year. Also, budget appropriations not used until the end of the year shall be canceled by right. The following year, the cash from non-reimbursable external funds and those from public funds reserved for the co-financing of the European Community's financial contribution, remaining at the end of the budget year in the accounts of the implementation structures, will also be carried over.

The end of the budget year means a set of operations, measures, procedures and attitudes that, in accordance with public finance legislation, have the role of rigorously outlining the level of achievement of revenue and expenditure indicators for all factors involved in budgetary relations.

The Ministry of Public Finance provides by norms or instructions, for the factors involved in the budgetary relations, a series of measures related to the closing of the budget execution, namely: obtaining total revenues, structure and holders simultaneously with the orientation of fiscal control in this regard; the most efficient and austere use of budgetary funds in austerity regime; carrying out budgetary engineering operations with regard to the end of the budget year, etc.

In December, there will be an intensification of actions related to the end of the budget year in order to increase revenue and expenditure.

The actual closing of the budget year also involves concrete activities such as: withdrawal of unused funds and cancellation of open and distributed budget appropriations; extension of the terms of settlement of some investment works; reporting on financial execution, etc.

Each year, the Ministry of Public Finance draws up the annual general execution account regarding the state and separate budget, the budgets of the social insurances and the budgets of the main authorizing officers of budgetary credits based on the financial statements presented by the factors involved in the budgetary relations. The main authorizing officers shall be responsible for drawing up the annual performance reports and attaching them to the annual financial statements showing, for each program, the objectives, expected results and results obtained, indicators and associated costs, legal commitment statements.

### **3. Research methodology**

One of the research methods would be through the COFOG 3 system (International Classification of Public Administration Functions) and the development of an IT system for reporting budget execution and financial statements for public institutions, which ensures the transition to the system of accounts and revenue budget execution. and expenditure in the COFOG system 3.

The access portal offers the following modules:

- useful information - presenting all legislative information and guides for completing the other modules, presentations in electronic format for the use of the platform, the structure of xml files on COFOG 3 budget execution reports as well as instructions for viewing the reports that can be extracted from the application,
- reports from public entities in which reports on budget implementation over a given period can be viewed,
- other reports - containing the list of public entities and their Tax Identification Code,
- reports of public enterprises.

The access to the computer platform was made through the internet (online) based on an authentication that contains user and password.

Also as a research method can be used is the Forexebug computer system, where you can find all the detailed and well-documented budget executions for all public institutions.

To use the search or view function in the Forexebug computer system we need to know some data about the public institution: what type of report we want to search / view, the budget sector to which the institution belongs, the CIF of the chief authorizing officer or the CIF of the institution.

After entering this data, the application requires the insertion of a security code displayed in the image in the search form, which contains a combination of five letters or numbers, then press the "Search" button.

If the data is not entered correctly or the data entered is not enough to generate the desired report, the portal displays an error message.

The portal also provides assistance provided that the user enters the correct data in the budget sector and county fields. From here you can access a drop-down list of public institutions in the requested county, possibly typing a few letters or numbers in the fields "Name of Public Entity Principal Authorizer" or "Name of Public Entity".

The detailed budget execution represents the stage in which the budget commitments were introduced using the Budget Commitments Control (CAB) application within FOREXEBUG (Commitment), the receipts related to the budget commitments (Settlement, Ordinance) were introduced and the payment orders were sent. and cash withdrawal checks to the Treasury (Payment) containing the unique identification code of the budget commitments drawn up within the Budget Commitments Control application.

#### **4. Findings**

The information contained in the financial-accounting statements is very important in guiding the elaboration of the draft budget for the next year, in the correct reporting of the patrimonial situation of the institution and establishing the results of the budget execution.

The accounting data and information are processed periodically through the financial-accounting works for closing the financial or budgetary year, which determines the patrimonial situation of the institution and the results of the economic-financial activity carried out in a budget year and outlines a real and accurate image on the patrimonial unit.

#### **5. Conclusions**

The elaboration of the revenue and expenditure budget, as the main factor for managing the activity of the entity, represents in fact the substantiation of the costs related to the achievement of the objectives of the public institution and of the possibilities of its financing.

The analysis of the institution's needs and the forecast research is an obligation of the authorizing officer because it presents important conclusions regarding the evolution of the budget in a certain period, the influence of external factors in meeting the objectives (salary increases, staff movements, evolution of price increase etc.) and frequent legislative changes applicable to public institutions. In the future, it is desired that the IT system be developed by the Ministry of Public Finance, so as to ensure through it a total transparency of revenues and expenditures of public institutions and the easiest and most complete collection of financial statements.

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## Exercising Own Preventive Financial Control in Military Organizations

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### Abstract

*The aim of this paper is to present how it is organized and exercised the own preventive financial control (abbreviated OPFC) in a military organization. Military organizations are the public institutions with responsibilities in the defense of the country or in the field of ensuring and restoring public order, such as the Romanian Army or the Romanian Gendarmerie. In the military organizations, the OPFC is conducted by the head of the financial structure. The granting of the OPFC visa certifies the legality, regularity and inclusion in the approved budget of all operations carried out on behalf of public funds. Taking into account the consistent budgets of the Romanian military organizations and the fact that all operations that affect these budgets receive the OPFC visa, it is necessary to organize this control activity in conditions of performance.*

**Key words:** financial control; military; public finance; accounting

**J.E.L. classification:** H83

### 1. Introduction

The field of defense, public order and national security is a sensitive one and must be treated as such, in the sense that its underfunding could produce quite serious effects.

Therefore, the Parliament, the body that annually adopts the Romanian State Budget Law, must be cautious when analyzing the sizing of the budgets of military organizations, in this case the Ministry of Internal Affairs, the Ministry of National Defense, the Romanian Intelligence Service, the Foreign Information Service, the Protection and Guard Service and the Special Telecommunications Service.

Analyzing the level of public funds allocated to defense, public order and national security, we believe that the requirements of citizens are high and are expected to enjoy a considerable level of trust and security.

An important role in achieving performance is the managerial activity of control over activities. For this reason, we believe that the head of the financial-accounting structure, namely the chief accountant, has a great responsibility in terms of planning and organizing tasks in performance conditions, hence the importance of exercising the financial control.

By organizing and executing the OPFC in a military unit, the aim is to achieve good financial management of public resources in terms of legality, regularity, economy and efficiency.

The Government Ordinance no. 119/1999 represents the main legislation which sets the limits of OPFC. Also, the Order of the Minister of Public Finance no. 923/2014 regulates the process of granting the OPFC.

In the military units, OPFC is coordinated by the chief accountant, at the level of the structure that he commands.

## 2. Literature review

Despite the focus on management control packages in private sector research, public sector research addressing the management control package is still rare (Van der Kolk, 2019). Managerial autonomy is defined as the extent to which the organization can decide independently of political and administrative principles regarding the choice and use of resources (Wynen et al., 2013). In the case of military units, managerial autonomy is reduced. Public service organizations are exposed to a growing range of risks, far beyond those associated with their financial performance (Vasileios and Favotto, 2021). Therefore, we consider that special attention should be paid to preventive financial control, in order to eliminate the risks related to the management of public resources. The notions of risk and uncertainty are connected by the estimated probability and the potential consequences of the occurrence of an event (Kominis et al., 2021). Risk detection has gained substantial attention in recent years from regulators, investors, academia and other stakeholders (Weber and Müßig, 2022). In the public sector, the question of how to balance the different types of control is the subject of considerable debate. The new public management promotes private sector-inspired management and believes in the added value of business-like management and control practices (Van der Kolk et al., 2018).

## 3. Research methodology

Regarding the research methodology, we have analyzed the legislation in force referring to the exercise of the preventive financial control visa and we have described the operations necessary to obtain the visa from the military personnel in the financial structure.

Also, we have analyzed the accounting data presented in the report on the activity of preventive financial control, published online by the Ministry of Internal Affairs.

## 4. Findings

The OPFC visa shall be granted by the chief accountant and, as a rule, by another subordinate military officer or non-commissioned officer, before the authorizing officer shall approve the operations. The chief accountant is obliged to organize the internal / managerial control over the financial-accounting activity.

The object of the OPFC activity is the documents and information regarding the projects of operations concerning the organization's legal and budgetary commitments.

It is forbidden for the persons that grant OPFC visa to initiate or be involved in the operations subject to the visa.

Granting the OPFC visa mostly consists in the systematic verification of the operations from the point of view of the observance of the applicable legal provisions (legality control), the fulfillment of the applicable procedural and methodological principles and rules (regularity control) and the inclusion in budgetary and commitment approved to the institution.

The OPFC is exercised over the documents in which operations affecting the public patrimony are recorded, before they become legal acts by their approval by the commander of the military unit. The OPFC is exercised on the basis of the documents and supporting documents certified regarding the reality, regularity and legality by the head of the issuing specialized department, who is responsible, within these parameters, even after obtaining the OPFC visa.

The commanders of the military units, having the quality of tertiary authorizing officer, administer and manage public funds and the state patrimony.

They shall draw up checklists for each operation, those checklists being a guide in exercising financial control by persons appointed by order.

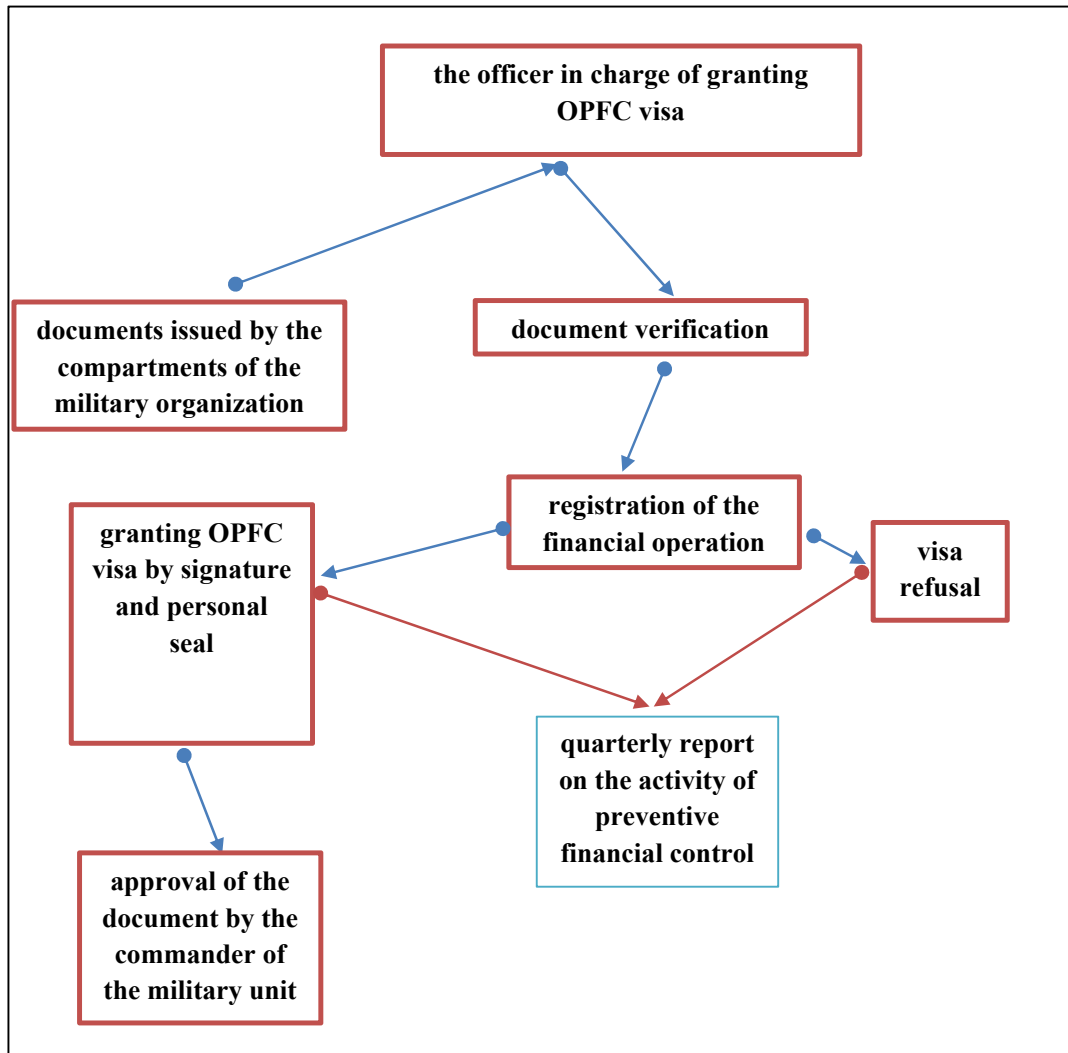
Draft transactions subject to OPFC shall be submitted to the chief accounting officer or his deputy for approval by the heads of the issuing departments who initiate the operation. These are accompanied by the opinions of the specialized departments, the opinion of the legal department and the substantiation notes.

The formal verification considers the completion of the documents, in accordance with their content, the existence of the signatures of the authorized persons within the specialized compartments (certification regarding the reality, regularity and legality of the operations).

The deadline for granting or refusing the preventive financial control visa is three working days from the presentation of the project of an operation.

The documents concerned, accompanied by the supporting documents, shall be returned, under signature, to the specialized departments that issued them, for the continuation of their circuit.

Figure no. 1. Process diagram regarding the granting of the OPFC visa in the military organizations



Source: own processing

The staff of the financial-accounting structure who exercise the OPFC are liable in relation to their fault in respect of the operations for which they granted the visa.

They can refuse to grant a visa in all cases where, following the verifications, they find that the operation subject to the OPFC does not meet the conditions imposed by law. The refusal of the OPFC visa is motivated in writing.

Except in the case of visa refusal operations due to exceeding the approved budget, the authorizing officer may order the operation that has been refused on preventive financial control visa to be carried out. In this case, the commander of the military unit is obliged to issue an internal decision setting out the reasons why he considers that the operation can be carried out.

The copies of this decision must be sent to the person who refused to grant the OPFC visa, as well as to the internal public audit structure of the Ministry of Internal Affairs or the Ministry of National Defense.

Following the receipt of the internal decision of the head of the entity regarding the performance of the operation without its endorsement for OPFC, the chief accountant or his subordinate designated to exercise OPFC must inform, as soon as possible, the economic-financial inspection bodies of the Ministry of Finance and the head of the hierarchically superior military unit. It is also mandatory to notify the Court of Auditors in this regard.

Chart no. 1. The number of operations presented for the OPFC visa in the Ministry of Internal Affairs in 2019



Source: own processing, using the data provided by the Ministry of Internal Affairs (<https://www.mai.gov.ro/bilanturi-contabile/>)

The information regarding the quarterly or annually report on the activity of preventive financial control published by the Ministry of Internal Affairs is available only for 31.12.2019, being the only organization to make this report public.

As can be seen from the graph presented, most of the operations that received the preventive financial control visa are those related to payment orders. Also, an important weight is represented by the legal commitments signed by the organization.

## 5. Conclusions

In this study we analyzed the process of granting the OPFC visa in the military structures, taking into account the legal provisions and the specialized literature.

Preventive financial control is a very important activity in the proper performance of the specific tasks of military organizations, given that all operations affecting public funds and public assets must be targeted for OPFC.

Therefore, military personnel exercising preventive financial control must demonstrate professionalism, competence and responsibility.

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## Early Warning Tools For Insolvency Prevention: Implementation in the Romanian Legal Framework

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### Abstract

*On the 17<sup>th</sup> of July 2022, the Law no. 216/2022 for the amendment and completion of the Law no. 85/2014 regarding insolvency prevention and insolvency proceedings and other normative acts has entered into force. Therefore, the Law no. 85/2014, which regulates pre-insolvency and insolvency proceedings, meets the requirements of the Directive (EU) 2019/1023 of the European Parliament and of the Council of 20 June 2019 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 (Directive on restructuring and insolvency), the latter entering into force on the 10<sup>th</sup> of July 2019. The Directive is focused on three main objectives: (1) the availability of preventive restructuring frameworks, (2) offering a second chance for honest entrepreneurs, and (3) regulating measures to increase the efficiency of restructuring, insolvency and discharge proceeding. The focus of this paper is represented by an analysis of early warning tools regulated in Romania, which are meant to be used for identifying financial difficulties faced by viable enterprises, in order to avoid its unnecessary liquidation by adopting safeguard measures. The development of early warning tools is part of the Directive’s first objective, being closely related to accessing safeguard proceedings.*

**Key words:** financial difficulties, preventive restructuring, insolvency, insolvency prevention, early warning tools

**J.E.L. classification:** K29

### 1. Introduction

This paper aims at analyzing the early warning tools, regulated by the Law no. 85/2014 regarding insolvency prevention and insolvency proceedings (published in the Romanian Official Journal no. 466 / 25.06.2014), which have been recently introduced into the Romanian legislation, through the Law no. 216/2022 for the amendment and completion of the Law no. 85/2014 (...) and other normative acts (published in the Romanian Official Journal no. 709 / 14.07.2022), the latter having transposed the Directive (EU) 2019/1023 of the European Parliament and of the Council of 20 June 2019 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 (Directive on restructuring and insolvency), hereinafter referred to as “The Directive”.

The transposition of the Directive (EU) 2019/1023 was set to be fulfilled until the 17<sup>th</sup> of July 2021. However, if Member States were to encounter any difficulties in the process of the transposition of the Directive’s provisions, they had been granted with a maximum one year extension of the deadline, under the condition of notifying the Commission in advance, until the 17<sup>th</sup> of January 2021, in order to avoid the commencement of the infringement proceeding. Of course, due to the effects of the COVID-19 pandemic, most Member States, including Romania, had requested an extension of the deadline, the only countries having already transposed the Directive’s provisions into their national law by July 2021 being France, Germany, Greece and The Netherlands.

However, by this time, all Member States, including Romania, have implemented into their national law the Directive’s provisions.

The Directive justifies the need of Member States to having a legal framework of early warning tools in the recital (17), which states that small and medium enterprises (hereinafter referred to as "SME"), do not have the means to cope with financial difficulties, especially restructuring costs, and are more likely to be liquidated rather than restructured, even if they are viable. An unnecessary liquidation has consequences such as job losses, the insolvency of other creditors caused by the so-called "domino effect" or low recovery rates of claims, and the loss of tax contributors for the state.

As the statistics show [Flash Eurobarometer, 354, (2012), Entrepreneurship in the E.U. and beyond, p. 72], in most Member States, if people were to set up a business, they would fear the possibility of going bankrupt (43%) and the risk of losing personal assets (37%) the most. "Fear of bankruptcy is explained by the length and the costs that a proceeding would imply. Entrepreneurs often lack the capital they need to initiate a business, so they finance it by applying for a loan." (Corina Georgiana Costea, 2018, p. 38). In most of the cases, when starting a business, entrepreneurs guarantee the loan with their personal assets, which are at risk of being enforced if the enterprise were to face financial distress. Moreover, worrying statistics have surfaced regarding the average lifetime of the enterprises in the European Union, which has been estimated to 5 years. All of these arguments have led to the conclusion that Member States' legislation must be harmonized, by also regulating early restructuring frameworks and early warning tools.

## 2. Theoretical background

Early warning tools meant to prevent the installation of the state of insolvency are a rather new concept for most countries. In 2014, INSOL Europe has submitted a study to the European Commission, entitled *Study on a new approach to business failure and insolvency – Comparative legal analysis of the Member States' relevant provisions and practices* (Stefania Bariatti, Robert van Galen, 2014), in which the legal restructuring frameworks from 28 Member states were analyzed. The conclusion of this study have shown that 13 Member States do not have legal frameworks for preventive restructuring. In the absence of these proceedings, early warning tools would not have any function.

However, since all Member States have now regulated preventive restructuring options for financially distressed, yet viable enterprises, early warning tools had been made available, and Romania makes no exception.

Early warning mechanisms have been regulated in France since the 1<sup>st</sup> of March 1984, and the French doctrine states that it has a high rate of success, therefore contributing to lower rates of insolvency and bankruptcy cases. Named as "*procédure d'alerte*", its success has been especially recognized due to the fact that the French Commercial Code offers the right to initiate such a proceeding to several interested parties. Statistically, in Île-de-France, in 2015, the number of summonses issued by the President of the Court increased from almost 4.500, in the year 2014, to approximately 5.700. It is to be underlined that, in France, early warning mechanisms can be internal and may be triggered by the following categories of persons: auditors, associates and the social and economic committees. The economic and social committee is the employee representative body in the company, and it is mandatory to be implemented in companies with more than 11 employees.

However, early warning mechanisms can also be external and may be initiated by the following entitled persons: approved prevention groups, the president of the Commercial Court and the prosecutor, as a representative of the Public Ministry. "The legislator considered that internal prevention would not suffice, especially because internal alert bodies do not always provide the required guarantees of specialized competence or the necessary authority." (Dominique Vidal, Giulio Cesare Giorgini, 2016-2017, p. 78) Approved prevention groups are non-governmental organizations, constituted from professionals such as insolvency practitioners, lawyers, accountants, auditors etc., which work voluntarily. Companies may apply to become members of such organizations, in exchange of an annually low tax. At least once a year, they may send internal documents (such as financial statements, balance sheets etc.), and the members of these organizations will analyze their current financial state in order to identify a potential financial decline. If identified, the directors will be notified, along with recommendations of both measures needed to be adopted and professionals which are able to advise them further. If the directors remain passive and insolvency is inevitable in a short amount of time, these organizations are able to notify the president

of the Commercial Court, which will summon the company’s directors and dispose the adoption of necessary measures. “It is, therefore, relationship of trust, based on the authority and competence of the magistrate, which the legislator who organized this alert procedure sought to establish in order to help the enterprise” (André Jacquemont, Thomas Mastrullo, Régis Vabres, 2017, p. 50.)

In Greece, the early warning mechanisms consist of assigning a professional which will analyze the company’s current state and shall suggest adequate measures to be adopted. This service is free of charge for the financially distressed company. Moreover, the professional will supervise the implementation of the proposed measures and will assist the debtor throughout the process. This approach on early warning mechanisms is by far one of the most efficient, since it has a double role: on one hand, the debtor will be more likely to surpass the financial difficulty by having the constant assistance of a professional, and on the other hand, it has an educative valence which will help the company to avoid or to identify in advance any other future difficulties. In the event of difficulties, the decisions adopted by entitled persons may be decisive for the continuation of the current activity and the prevention of insolvency, or they may condemn the enterprise to failure.

In Denmark, “The Early Warning mechanism has been operational (...) since 2007 and has assisted close to 6000 businesses in distress. It is a unique opportunity for business owners to get professional assistance at a time in their business’ life cycle when they are often unable to pay for-profit consultants to help them get back on track” (Morten Møller, Piya Mukherjee, 2019, p. 20). Denmark has created an organization called “Early Warning Denmark” (EWD), which is part of “Early Warning Europe” (EWE), the latter being a European organization consisting of a private-public partnership, whose members are professionals, bodies of European states’ Ministries, non-profit organizations, European states’ Chambers of Commerce / Trade etc.

However, even if the concept of early warning mechanisms are not new to few Member States, it is an innovation in the Romanian legal system. Therefore, there aren’t any private entities aiming at assisting financially distressed companies. The Romanian law states that private entities are allowed to develop and implement alert mechanisms that aim at assisting companies to identify financial distress in an early stage.

### **3. Research methodology**

Both the national and the European insolvency reform bring safeguarding procedures to the fore, with the aim of turning the application of formal insolvency procedures into the exception to the rule, aiming for them to be reserved exclusively for professionals who can no longer be saved from bankruptcy. All these arguments reveal the topicality and importance of the researched theme. In the context of the insolvency reforms, it was considered necessary to analyze the most relevant legal systems, applying for this purpose *the comparative research method*. *The theoretical research method* has also been used, since the Directive only states the objective of implementing early warning tools, while giving Member States the opportunity to design their own mechanisms. Since most Member States, including Romania, have only recently adopted early warning tools, we considered it useful to analyze the way that these mechanisms comply with the Directive’s requirements.

### **4. Findings**

As stated in the introduction, the Romanian early mechanisms have been introduced by the Law no. 216/2022, amending the Law no. 85/2014. Before proceeding to analyzing these mechanisms, a short review of the Directive’s requirements is imposed. According to Article 3 of the Directive, Member States need to make sure that they grant access to early warning tools “(...) which can detect circumstances that could give rise to a likelihood of insolvency and can signal to them (the debtors – n.n.) the need to act without delay.” As observed, the Directive does not oblige Member States to regulate a certain type of alert mechanisms, but it only provides their obligation to make such tools available to debtors. As an example, the Directive states that such mechanisms may include, but are not limited to the following: (1) alert mechanisms triggered by situations where the debtor hasn’t made certain types of payments; (2) assistance offered by public or private organizations; (3) incentives given to third parties having relevant information for notifying the debtor upon a negative development.



The Romanian legal system has implemented the first and the second recommendations, while remaining passive in adopting the third one. It is to be underlined that the Directive doesn't limitate Member States' options, and the above-stated recommendations are just an example given to Member States for a better understanding of the Directive's desideratum.

Early warning tools in the Romanian legal system are regulated by articles 5<sup>1</sup> – 5<sup>6</sup> of the Law no. 85/2014. The Romanian legislator took into consideration recital (22) of the Directive, which states that “(...) Early warning tools which take the form of alert mechanisms that indicate when the debtor has not made certain types of payments could be triggered by, for example, non-payment of taxes or social security contributions. Such tools could be developed either by Member States or by private entities, provided that the objective is met (...)” Therefore, the main early warning tool recently introduced in the national legislation consists of the obligation of the fiscal body to notify the debtor regarding the non-execution of certain obligations. The notification shall also include free of charge information regarding the recovery solutions provided for by law through a website. “The enterprises are alerted by means of an alert notification sent automatically through the electronic communication system by electronic means of remote transmission developed by the Ministry of Finance/National Fiscal Administration Agency (A.N.A.F.) in related to non-execution of obligations to the state budget, to the state social insurance budget or to the unemployment insurance budget” (article 5<sup>2</sup> alin. 1 of the Law no. 85/2014). It is to be noted that, even if the Directive refers to alert mechanisms for the lack of “certain payments”, the Romanian legislator has chosen to apply the alert mechanisms only for the lack of payment of *fiscal and budgetary claims*.

One might ask if the Ministry of Finance is able to detect when the debtor was not able to pay obligations of other nature. The answer is yes, since the Ministry of Finance already disposes of the infrastructure necessary to fulfill such a purpose, because, by Law no. 30/2019 for the approval of the Ordinance no. 25/2018 (published in the Romanian Official Journal no. 44 / 17.01.2019), the Fiscal Procedure Code has been amended in the sense of assigning taxpayers to 3 tax risk classes. According to art. 7 para. (7) of the Fiscal Procedure Code, the general criteria according to which the tax risk class / subclass is established are: (a) criteria regarding tax registration; (b) criteria regarding the submission of tax returns; (c) criteria regarding the level of declaration, and (d) *criteria regarding the fulfillment of payment obligations to the general consolidated budget and to other creditors*. Based on these reasons, we appreciate that it is necessary for the fiscal body to have the duty of early warning also regarding claims of a nature other than budgetary, because, in our opinion, only in this form would the purpose of early warning be fulfilled.

Therefore, *de lege ferenda*, the establishment of a special commission within A.N.A.F., which would have the authority to identify and warn professionals about the existence of difficulties, based on the financial indicators resulting from the submitted tax returns, motivated by the fact that this institution has of all the information necessary for this purpose, is needed. Analyzing the French regulatory model of warning mechanisms, we identify a new argument that comes in support of this proposal, namely the fact that early warning could be carried out free of charge and would include all professionals facing the risk of insolvency.

The Romanian legislator has attributed to the Ministry of Entrepreneurship and Tourism the duty of publishing on its website relevant information regarding guidance in the field of early warning. Such information include the following: (a) the role of early warning consisting in the debtor's need to act without delay, in matters of adopting adequate measures in order to limit the negative impact of its financial distress; (b) economic and financial indicators for a general assessment of the financial situation, in order to diagnose the state of difficulty or insolvency, using available diagnostic programs; (c) systematized information regarding recovery solution, including early restructuring and insolvency proceedings; (d) a list of insolvency practitioners, authorities and organisms that are able to assist and supervise the enterprise's current state; (e) information regarding programs and facilities which may be accessed and which, in our opinion, consist of fiscal measures both permanently regulated or limited in time.

In addition to information which shall soon be made available online, the debtor receiving a notification from the Ministry of Finance may also access specialized assistance from this body, free of charge. Assistance is available either by telephone, or by online correspondence.

From the financially distressed debtor's point of view, the first step is receiving the notification from the Ministry of Finance, regarding the fact that there are increased chances of a financial

decline, and it is necessary for the debtor to intervene and to adopt adequate measures or decisions in order to recover and to avoid a potential state of insolvency. The early warning tools have been introduced in the Romanian legal framework on the 17<sup>th</sup> of July 2022, therefore, by the date of this paper, it is not known if this mechanism is already being used. However, if or when this mechanism is shall apply, the debtor would need to react and to identify what measures would be the most adequate for limiting the risk of insolvency. This is the second step of the early warning mechanism. If the debtor does not identify solutions by itself, the Ministry of Finance is available for free-of-charge assistance, by telephone. The debtor also has a chance of accessing a fiscal mediation proceeding. This proceeding is regulated by article 230<sup>1</sup> alin. (1) of the Code of Fiscal Procedure (Law no. 207/2015 regarding the Code of Fiscal Procedure, published in the Romanian Official Journal no. 547 / 23.07.2015), and by Order of the National Agency for Fiscal Administration no. 1757/2019 (published in the Romanian Official Journal no. 549 / 04.07.2019) and it consists of one of the next objectives: (1) a) clarification of the scope of the fiscal obligation entered in the summons, if the respective debtor has objections regarding it; b) the analysis by the fiscal body together with the debtor of the economic and financial situation of the debtor in order to identify optimal solutions for the settlement of fiscal obligations, including the possibility of benefiting from the payment facilities provided by law.

Starting with the 17<sup>th</sup> of July 2023, when article 5<sup>4</sup> alin. (1) from the Law no. 85/2014 will enter into force, companies facing difficulties in their activity will be able to benefit from a telephone line for guidance and assistance in the field of early warning, for a general assessment of the business in order to access recovery solutions. This assistance shall be offered by the Ministry of Entrepreneurship and Tourism. However, the law offers the Ministry the possibility of settling a network of consultants from both the private and public sector, including representatives of non-governmental organizations of the business environment, in order to establish mentorship programs in the field of early warning. We believe that such mentorship programs, which would be available free of charge, would greatly help financially distressed companies to understanding the risk they're facing and to identify optimal steps needed to be taken in order to limit such risks. This objective is important not only for the debtor itself, but also for the state and for the debtor's creditors, thus having both microeconomic and macroeconomic benefits.

To summarize what is stated above, we can observe the fact that a notified debtor has the possibility of asking for assistance to both the Ministry of Finance and the Ministry of Entrepreneurship and Tourism. While it may appear confusing for the debtor, the legislator wanted – in our opinion – to offer debtors the possibility of discussing with representatives of Ministry of Finance issues related to the lack of payment of *budgetary claims*, while also giving them the possibility of discussing with representatives of the Ministry of Entrepreneurship and Tourism issues related to the lack of payment of *claims of other nature than budgetary*. This is because budgetary claims may be restructured through fiscal mechanisms, while claims of other nature need to be previously negotiated with creditors in order to be restructured.

Lastly, it is to be underlined the fact that the Romanian legislator followed the French model in the field of early warning tools, regulating that even private entities could develop early warning tools. Such private entities could also include non-governmental associations, private companies etc. One of the most beneficial effect of this regulation is the fact that public-private partnerships could be established, and therefore the objective of early warning tools – making debtors aware of the problems they're facing and the effects that they could encounter if they remain passive – could be fulfilled. An interesting, yet concrete idea of developing early warning tools could be an application, or better yet a digital program based on Altman's model for SMEs, which has been known to have a high degree of financial distress identification. Such programs may be offered to SMEs free of charge by public institutions, or for a small monthly fee by private or public-private institutions.

## 5. Conclusions

As a result of the transposition of the Directive (EU) 2019/1023 in the Romanian legal system, early warning tools have been introduced for the first time in our national legislation. These mechanisms have two objectives: (1) to make the debtor aware of a potential risk of insolvency, so that adequate measures would be implemented in order to limit such risks, and (2) to educate debtors

upon the need to constantly analyze their current financial state in order to identify risks as soon as possible. As the French doctrine stated, it is not enough for the management bodies to ensure the fulfillment of the legal provisions in terms of accounting, but it is necessary for them to be able to analyze them in order to identify potential difficulties (Alain Lienhard, 2020 – 2021, p. 27.)

Early warning tools in Romania have been regulated only in the field of banking and insurance systems (Vasile Nemeş, Gabriela Fierbinţeanu, 21.05.2021, p. 212 and following), but SMEs did not dispose of such mechanisms before the entry into force of the Law no. 216/2022. In the banking sector, early warning tools are regulated by Title III of the Law no. 312/2015 regarding the recovery and resolution of credit institutions and investment firms, as well as for the modification and completion of some normative acts in the financial field (Published in the Romanian Official Journal no. 920 / 11.12.2015), while early warning tools in the insurance sector are regulated by Chapter III of Title I of the Law no. 246/2015 regarding the recovery and resolution of insurers (Published in the Romanian Official Journal no. 813 / 02.11.2015).

The regulation of early warning tools in both the banking and insurance systems reveal the importance of insolvency risk limitation. Now, SMEs have access to their own mechanisms, which is expected to decrease insolvency cases. “Economic prospects are modest. Because of an economic slowdown at the end 2021, aggravated by the invasion of Ukraine by Russia in 2022, it is expected that Real GDP will grow by just over 2% in 2022 and 2023 (...), being supported mainly by investments from several EU funds, including from the Mechanism recovery and resilience (MRR)” [European Commission, SWD (2022) 624 final, Bruxelles, 23.5.2022, p. 2]. According to the quoted report, the Romanian economy is still recovering from the effects of the COVID-19 pandemic shocks. Corroborated with a high level of inflation, fiscal instability (See the Government’s Ordinance no. 16/2022 for the amendment and completion of Law no. 227/2015 regarding the Fiscal Code, the repeal of some normative acts and other financial-fiscal measures, published in the Romanian Official Journal no. 716 / 15.07.2022) and also uncontrollable rising prices, we predict a high number of insolvencies in the following 2-3 years. Thus, early warning tools have been introduced into our national legislation with perfect timing and we believe that these mechanisms will contribute to a decrease of insolvency cases.

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## Scientific Contextualization of the Public Policy and Entrepreneurship Nexus

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### Abstract

*Effective public policies and public administration support for entrepreneurship have proven effective in triggering economic development, competitiveness, and technological progress. This research aimed to identify and assess the most influential research trends and to set up a visual framework for the existing relationship between public policy and entrepreneurship. The methodological approach consisted of applying scientific data mapping analysis to EU sample of countries employing an R package, namely R-bibliometrix, through the Biblioshiny app. The dataset comprised 206 documents from the Web of Science (WoS) Core Collection database for the years 2010–2022. The results highlight significant contributions to the research field in terms of the most representative authors and documents, important collaboration networks, prolific countries, jointly with conceptual structure, and scientific production. Ultimately, the results also evidence through the historiographic map that the connection between documents regarding the relationship between public policy and entrepreneurship in EU countries is also extremely significant, being largely discussed by different clusters of authors.*

**Key words:** public policy, entrepreneurship, Shiny app, R-bibliometrix, scientific map  
**J.E.L. classification:** L26, O38, I31

### 1. Introduction

Nowadays, European Member States (MS) are facing major and complex challenges due to two key drivers for economic development and growth, respectively public policy, and entrepreneurship.

Entrepreneurial activity promotes well-being, economic wealth, and the improvement of living standards, thus stimulating competitiveness and innovation, being essential for each state's economy in terms of economic development. Public policy can exert an influence on entrepreneurship through various government regulations.

The fundamental objective is to analyze and build a scientific visual framework for the research on public policy and entrepreneurship. Moreover, we applied a bibliometric analysis of the relationship between public policy and entrepreneurship performed by employing an R tool, namely Bibliometrix, by selecting 206 documents retrieved from the Web of Science (WoS) considering the period between 2010 and 2022.

Through the bibliometric analysis provided by R software, respectively Shiny app, this paper aims to offer a rough overview of the main topics discussed in documents related to the relationship between public policy and entrepreneurship, and to evidence the main conceptual structures, the

annual scientific production, the historiographic map and the links between authors, citations, documents, networks, and countries.

The paper is structured into five main sections. The following section briefly describes the theoretical fundamentals of public policy and entrepreneurship, while the third section discusses the methodology and details the data. The fourth section presents the principal results obtained. The conclusions section brings to the fore the conclusive notes and the limitations of the research.

## 2. Literature review

The international political climate, in the current geopolitical context, is going through a delicate period nowadays. Within this context, the authorities, through the adopted government policies, try to disseminate the best measures to increase economic well-being in order to obtain economic development and growth.

The diversity of national political processes and the desire to design and implement new strategies of international organization in entrepreneurship determine discussions and challenges, which lead governments to the political inconsistency of the time, regardless of the commitments already made, and which have a substantial impact on entrepreneurs in different stages of their development.

Thus far, Leyden (2016) states that improving the entrepreneurial environment in the public sector is possible, although competing demands for democratic rules make this improvement more difficult.

Moreover, Vatavu et al. (2019) highlight that for both economic growth and human development government should provide a series of health benefits, infrastructure, social welfare, a favourable environment, and other fundamental public services.

However, policymakers should consider implementing efficient public policies that have a long-term impact and sustain the citizens' well-being and economic growth. Also, many entrepreneurial activities are developed by people who are more educated and healthier and have an average or above-average in terms of standard of living. In this light, Taran et al. (2022) studied the level of public health at the level of 27 European Member States and stated that the condition of people's health could be affected by many factors such as instability and effectiveness of the public policies, pandemic context, and different processes of digitalization. Within this context, we can affirm that both public policies and the COVID-19 pandemic affected the entrepreneurial environment.

Therefore, Lobont et al. (2022) studied, by applying a panel threshold regression model, the relation between public policy and entrepreneurial activity in the European Member States. Results present that moderate public policy is needed in order to concern the threshold effect of government effectiveness on entrepreneurial activity. Moreover, entrepreneurial activity is impeded by excessive policy intervention, being essential to maintaining economic growth at a stable level in order to stimulate a favourable entrepreneurial environment.

Hence, Dima et al. (2016) examined if the quality of public policies can influence entrepreneurial activities. The results reveal that a robust and positive impact on entrepreneurial climate can be produced through a significant and higher level of public policy, implying credibility and institutions' effectiveness.

Cicchello (2016) explored the public policies to identify if they have an essential role in ensuring the new funding alternatives, even if the public policies can change, stimulates, or even affect entrepreneurship. The results reveal the need for public policies which have the potential to ensure competitiveness and innovation in the entrepreneurial environment. In addition, the results highlighted that the existence of less bureaucratic policies can increase the survival of successful businesses.

Vancea et al. (2021) in the concern about finding the key factors that underlie the success of companies in the context of global competition, focused on exports, offering a series of recommendations on policies to support this activity by states/governments. The results of their study highlighted the need to establish strong export support networks to coordinate local, regional, and central institutions, as well as to build a functional partnership with the business environment.

Another important aspect to consider is the outsourcing of certain services and the implementation of activities to support various activities under the supervision of public sector authorities (Aivaz, 2021).

Withal, several factors can affect entrepreneurial activities, while policymakers play the main role in identifying them. In this regard, Zikou et al. (2017) evidence the need to reduce the public sector to stimulate prosperity, entrepreneurship, and economic growth.

### 3. Research methodology

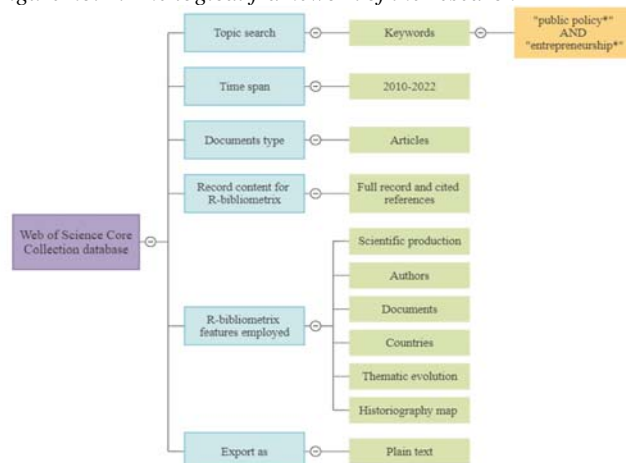
The bibliometric analysis is performed to evaluate scientific publications and to observe impact factors and citations, collaboration models, strategies for disseminating scientific publications and the report on the productivity of scientific documents.

Scientific mapping is complex because it involves several steps and often requires many different software tools. However, with the development of technology, many applications or software have been developed for data analysis, and some can be used for our analysis. One of these applications is the Bibliometrix tool, a package developed in the R language through the Shiny application.

In this sense, the bibliographic data for this paper were retrieved from the Web of Science database, over the period 2010-2022. Various keywords were used for the search, such as: "public policy\*" AND "entrepreneurship\*".

The logical framework of the research is highlighted in Figure 1.

Figure no. 1. The logical framework of the research



Source: Author's own compilation using SmartDraw

Furthermore, the search covered the time span between 2010 and 2022, including sources of information with a number of 206 scientific documents. Moreover, different characteristics specific to the Shiny application were used, by involving various analyzes from the Bibliometrix instrumentation, as follows: the most influential authors, relevant documents, the network of top collaborations, conceptual structures, the most prolific countries and their collaboration at the national and international level, the total annual production of the authors, and the historiographic map.

### 4. Findings

Different types of analysis were applied in R-Bibliometrix, respectively Shiny app and the data (206 documents from Web of Science) were processed to examine whether and to what extent the connection and relationship between public policy and entrepreneurship can offer a visual framework for the existing literature on this topic.

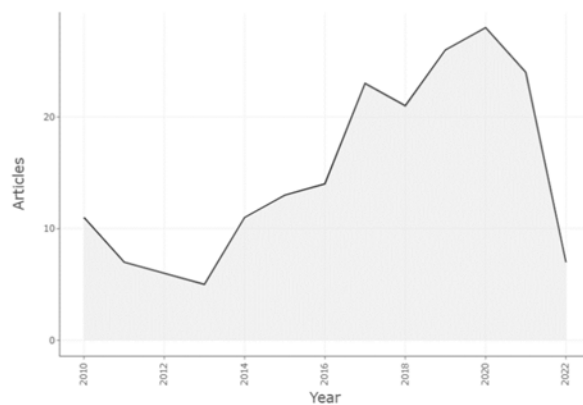
The results of the analysis are entailed below, being configured through scientific data mapping analysis with visual and graphical representation methods.

The main findings reinforce the identified literature findings and evidence of significant scientific collaboration networks and visual maps with different considered items regarding the relationship between public policy and entrepreneurship.

This section also includes detailed and comprehensive results by employing different representative units of bibliometric analysis, respectively: scientific production that covers the period between 2010 and 2022, the most relevant and cited sources, relevant documents, prolific countries, the most productive authors, specific conceptual structure, along with historiography map.

The visual framework of the scientific production regarding the relationship between public policy and entrepreneurship is highlighted in Figure 2.

Figure no. 2. Annual scientific production of documents related to the relationship between public policy and entrepreneurship, over the period 2010-2022

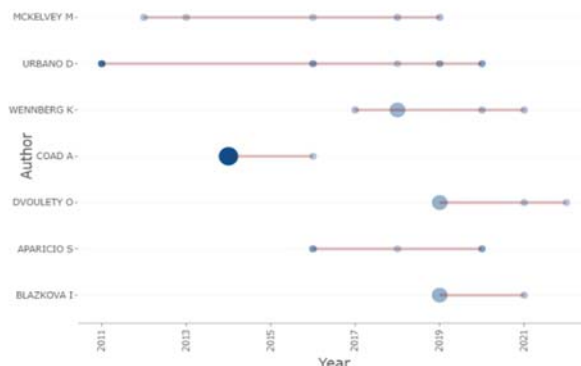


Source: Author’s own compilation using R tool – Bibliometrix

The annual growth of publications related to public policy and entrepreneurship is presented in Figure 2. As can be observed, between 2010 and 2022, the scientific community produced a total of 196 publications. Additionally, it is important to mention that there was scientific production on our research topic in all the analysed years. Subsequently, the period between 2010 and 2013 highlighted a variation in the number of publications in terms of their increase and decrease. On the other hand, the years between 2014-2021 were the most prolific and significant in terms of documents, with a number of 114 publications. Moreover, across time, the year 2020 is associated with the highest number of publications (28), closely followed by 2019 with 26 documents.

Regarding the production of top authors, Figure 3 evidence the seven top authors with the highest number of published documents.

Figure no. 3. Production of top authors over the period 2010-2022



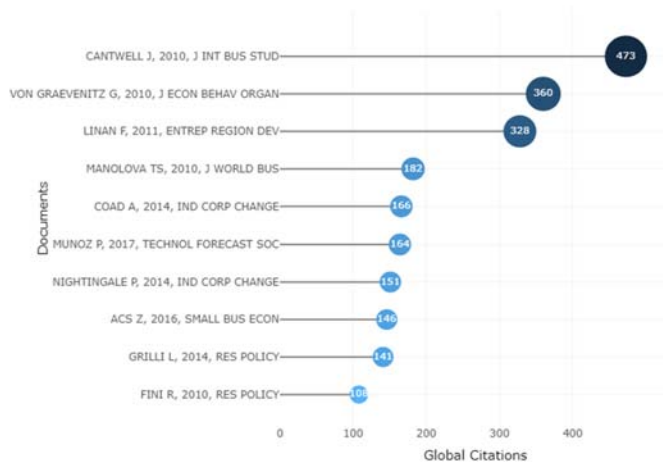
Source: Author’s own compilation using R tool – Bibliometrix



Furthermore, with respect to the analysis of the author's production over time, the results reveal different coordinates of time in which the authors are involved with a significant number of articles and citations. Figure 3 highlights the authors with the highest number of articles and citations, as follows: Coad A (3 documents), Wennberg K (2 documents), Dvoulety O (2 documents), and Blazkova I (2 documents). Along the same lines, the most cited three articles discussed a series of specific aspects related to the relationship between public policy and entrepreneurship, as follows: Frankish et al. (2014) investigate if entrepreneurial activities constitute a path out of deprivation for the people that are living in some deprived areas; Nightingale and Coad (2013) appreciated that even if entrepreneurial activities are considered a key driver for the economy, the performance of an entrepreneurial firm regarding different terms such as innovation, productivity and economic growth, and job creation can have a positive interpretation when we move from analysis to public policy, thus creating a dependent link between policy and entrepreneurship; Coad et al. (2014) assigned significant direct implications of the HFCs in public policy, and reveal that even though HCFs are important in understanding public policy and the economy, they cannot be considered essential pillars for public policy.

Moreover, the most relevant documents by the number of citations are highlighted in Figure 4.

Figure no. 4. Authors' most significant documents and citations graph visualization (2010-2018)

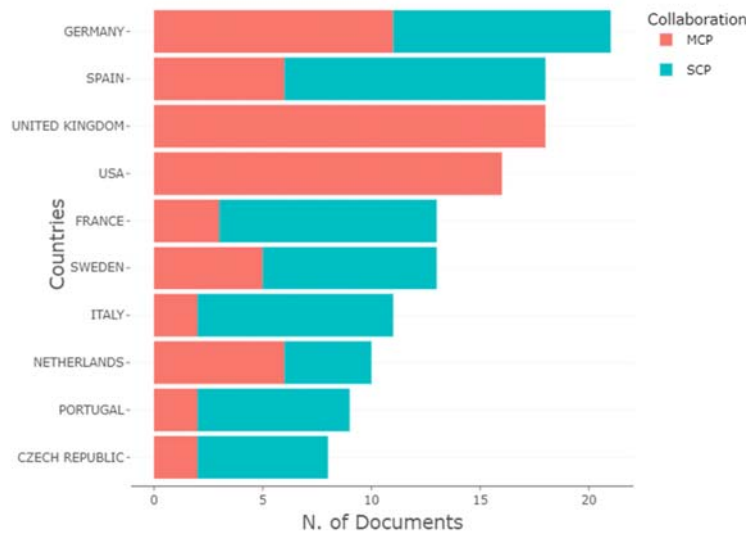


Source: Author's own compilation using R tool – Bibliometrix

The most relevant documents related to the relationship between public policy and entrepreneurship are identified based on the number of citations during the whole period between 2010 and 2022. Due to a large number of documents and authors, the threshold was set to only ten of the most relevant documents, with total citations as the unit of measure. The results in Figure 4 highlight a tight number of citations among the identified documents with the highest number of citations, as follows: the first place in the rank with 473 citations, where Cantwell et al. (2010) bring new co-evolutionary analysis in order to underline the importance of the interrelationship that exists between MNE activity and public policies; the second place with 360 citations, the research aims to identify if entrepreneurship education affects or not the intentions of students to be interested in becoming an entrepreneur, outlining a set of suggestions and recommendations for educators, especially for the public policy (von Graevenitz et al. 2010); the third place with 328 citations, where Linan et al. (2011) stated that entrepreneurial intentions differ depending on various factors that are possible to affect entrepreneurial activities in many regions of a country.

The collaboration between countries and the most prolific countries exploring the core literature regarding the topic of public policy and entrepreneurship over the period 2010-2022 is highlighted in Figure 5.

Figure no. 5. Scientific production and collaboration of countries

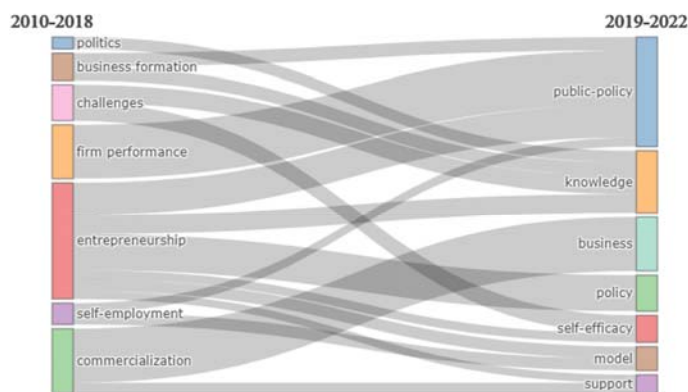


Source: Author’s own compilation using R tool – Bibliometrix

With respect to the scientific production by country, Figure 5 presents the most prolific countries, such as Germany, Spain, the United Kingdom, the USA, France, and Sweden, countries that registered the highest scientific production in the field of public policy and entrepreneurship, respectively with a total of 21, 18, 18, 16, 13, and 13 articles published. The results obtained reveal the number of publications from a single country and those referring to collaborations that take place at the national level (SCP) - Spain, Germany, France, Italy, and Sweden, and publications with multiple countries or in collaboration at the international level where at least one of the co-authors is from a different country (MCP) - Germany, United Kingdom, USA, and the Netherlands. Within the same frame, the collaboration between countries can be observed worldwide, especially at the level of European countries. Therefore, many countries contribute to scientific development within the framework of the relationship between public policy and entrepreneurship.

Regarding the conceptual structure with thematic evolution in terms of keywords plus, the results are highlighted in Figure 6.

Figure no. 6. Thematic evolution in terms of keywords plus

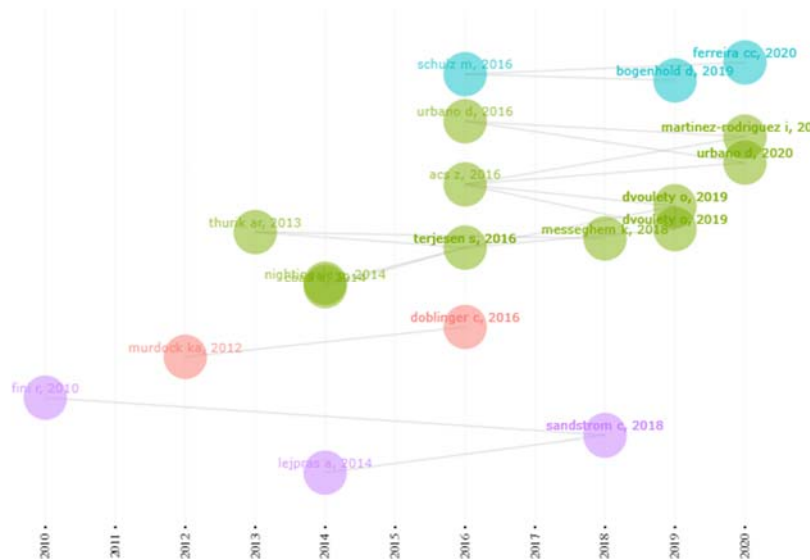


Source: Author’s own compilation using R tool – Bibliometrix

Chen et al. (2008) affirms that in order to determine the thematic evolutions the most relevant items are the keywords plus. Moreover, the process of performing the thematic evolution involved some parameters of the analysis, such as the number of words (250 words) the minimum cluster frequency (5 frequency), and the clustering algorithm (walktrap). Thematic evolution is presented in Figure 6. Likewise, the evolution of the keywords plus between the two periods (2010-2018 and 2019-2022) can be observed. Moreover, the diagram results highlight the transition of many keywords plus along the analyzed period. In this light, we can observe that “challenges”, “business formation”, “entrepreneurship”, and “self-employment” are keyword plus related to the first period of analysis (2010-2018) that are strongly connected with “public-policy” in the second period (2019-2022).

Regarding the historiography map related to the relationship between public policy and entrepreneurship, Figure 7 evidence four different clusters of authors.

Figure no. 7. Historiography map



Source: Author’s own compilation using R tool – Bibliometrix

Figure 7 highlights the historiographical structure based on the network of direct citations, where the circles represent nodes (scientific articles together with information about the first author and the year of publication of the scientific document), and the lines identify the direct citation within the formed clusters. Based on direct citations, the intellectual connections are drawn in historical order; each historical path represents a research topic and contains the most relevant documents, being presented in different colors (light blue for cluster 1, green for cluster 2, pink for cluster 3, and purple for cluster 4). Next, the results reveal that the first route highlights aspects related to hybrid entrepreneurship and public policy, also including some aspects related to entrepreneurial billionaires, with a particular focus on experimental learning theory and hybrid entrepreneurship (Ferreira et al., 2020; Schulz et al., 2016; Bogenhold et al., 2019). Furthermore, route two emphasizes the direct relationship between entrepreneurship and economic growth, referring to public policies that can positively impact and promote entrepreneurship (Urbano et al., 2016; Martinez-Rodriguez et al., 2020; Urbano et al., 2020; Asc et al., 2016; Dvoulety et al., 2019, Thurik et al., 2013; Terjesen et al., 2016; Messeghem et al., 2018; Nightingale et al., 2014; Coad et al., 2014). Route three discusses the entrepreneurship policy and evidences the institutional perspective of public policies (Murdock et al., 2012; Doblinger et al., 2016). Last but not least, route four identifies the public policy for academic entrepreneurs (Fini et al., 2010; Lejpras et al., 2014; Sandstrom et al., 2018).

## 5. Conclusions

This scientific research aimed to present a rough overview of the main topics discussed in documents related to the relationship between public policy and entrepreneurship and visually map this framework by observing 206 documents indexed in the Web of Science over the period 2010-2022.

The analysis performed in this context followed a comprehensive approach, namely bibliometric analysis by employing a revolutionary research methodology that refers to an R tool, namely Bibliometrix and pursued the development of complex innovative features such as conceptual structure, collaboration networks, scientific production over time, historiographic and visual graph representation.

Within this frame of annual scientific publication, the results identified the lowest number of documents in the years 2012, 2011 and 2022. Along the same lines, 114 documents of the total scientific output belong to the last decade, which underlines the fact that the highest production volume was in the last period. It is pertinent to emphasize that the scientific research since the emergence of COVID-19 (2019-present) has increased, representing a significant part of the total production, maintaining a growth trend.

Furthermore, the results of the analysis regarding the annual scientific production of authors reveal that exists a period of activity and inactivity regarding the scientific production of each author. Thus far, the authors Urbano and Mckelvey provide the longest and most continuous period of scientific publication. Therefore, it can be attested that Coad A is the most significant author with the highest production of scientific documents (with a number of 3 articles and 332 citations in 2014), closely followed by Wennberg K (with a number of 2 articles, and 33 citations in 2014), Blazkova I (with a number of 2 articles, and 30 citations in 2019), and Dvoulety O (with a number of 2 articles, and 30 in 2019).

Within the context, considering the production of documents and the index of total citations, the analysis focused on those articles that have received the most significant number of citations. In this case, the results highlight ten documents with the highest number of citations in descending order, and at the top of the ranking with the most relevant documents we can observe the authors Cantwell J (473 citations), Von Graevenitz G (360 citations), and Linan F (328 citations).

Furthermore, the results highlight countries such as Germany, the United Kingdom, the USA, and the Netherlands as the countries with the highest number of articles, where one country is in collaboration with multiple countries and where at least one of the co-authors is from a different country. Conversely, the results have pointed out the countries with the lowest level of international collaboration (France, Italy, Portugal, and the Czech Republic).

Moreover, regarding the number of publications from a single country and the collaborations at the national level, the results have identified many countries, such as Spain, Germany, France, Italy, and Sweden. At the end of the spectrum, the results underlined that some countries are not involved in national collaboration, namely: the United Kingdom, the USA, the Netherlands, and the Czech Republic.

The thematic analysis results highlighted the transition of many keywords plus along the analyzed period. Thereby, according to the obtained results, keywords plus such as "challenges", "business formation", "entrepreneurship", and "self-employment" are related to the first period of analysis (2010-2018) that are strongly connected with "public-policy" in the second period (2019-2022).

At the same time, based on the historiographic map, four scientific research pathways have been identified, being presented in different colours, each path referring to a concept and its historical development.

Nevertheless, by constructing bibliometric networks, graphs and clusters were possible to observe the latest trends regarding the research topic and predict the potential challenges and changes in the field, thus adding value to the existing literature related to the relationship between public policy and entrepreneurship.

The main limitation of this study relies on the considered period (2010-2022), and the database included, respectively Web of Science. However, the database and the analysis period can be constantly updated by including other influential databases or extending the analysis period.

## 6. Acknowledgement

This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS/CCCDI – UEFISCDI, project number PN-III-P1-1.1-PD-2019-0219, within PNCDI III”.

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## Radiography of the Tax Inspection Activity in the Context of Contemporary Challenges

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### Abstract

*This paper maps the influences exerted by the changes related to the period 2016-2021 on the tax inspection activity in Romania, characterized by permanent regulation adaptation, the slow adoption of information technology in public administration, and inefficient crisis management. The data relating to the activity of the National Agency for Fiscal Administration (NAFA) considered in the paper were extracted from the Statistical Bulletins and the Biannual Activity Reports of NAFA. The analysis of contemporary challenges and their effects on the fiscal inspection activity can be found in this study. A detailed trend estimation and correlation analysis between the variables that define the tax activity was made through a model of simultaneous equations using EViews. Our results reveal that the tightening of regulations in specific sectors, the implementation of IT systems in economic activity, and the measures taken in the context of the pandemic are directly reflected in the number of tax inspections and the number of active taxpayers.*

**Key words:** tax inspection activity, contemporary challenges, taxpayers, simultaneous equations, pandemic

**J.E.L. classification:** H26, H29

### 1. Introduction

The present face the most intense challenges to date. In less than 15 years, Europe is experiencing a second economic crisis, a pandemic crisis, and social security are threatened by the ongoing war. The effects of these phenomena have been reflected in the economy through a general increase in prices, economic instability, and a decrease in the predictability of legislation. The government must manage all changes that affect the economy, and one of the most critical levers with which the government can ensure the sustainability of the economy is taxation. By amending the tax legislation, measures have been taken to cap prices for necessities, provide subsidies to sectors severely affected by the pandemic crisis and adopt economic recovery programs. All these changes have put additional pressure on the tax inspection departments.

The tax inspection activity aims to promote the application of tax legislation and combat tax evasion. In Romania, the elaboration of the fiscal inspection methodology falls under the responsibility of the General Directorate for Coordination of Fiscal Inspection, and the activity of fiscal inspection falls under the responsibility of the specialized departments of the Regional General Directorates and the County Administrations of Public Finances. Recently, several programs have

been developed to digitise public administration, and the pandemic crisis has accelerated their implementation.

This paper aims to analyse the evolution of the tax inspection activity and how it is affected by contemporary challenges. The statistical data treated in the research were provided by the National Authority for Fiscal Administration, and their processing was performed through the EViews software. The analysis of the relations between the studied variables was conducted through a model of simultaneous equations that included indicators of efficiency and volume of the fiscal inspection activity. The variables considered in the analysis were: the number of fines applied (DNF), the total number of active taxpayers (DTAT), number of legislative changes (DCHANGES), collection expenses incurred at one million RON budget revenue (DSOR), number of controls performed (DNCP), the number of controls performed by an inspector to legal persons (DNILE), the number of controls performed by an inspector to individuals (DNII), and the degree of voluntary compliance (DVC). Data collection was performed quarterly for the period 2016-2021.

The literature has focused more on studying fiscal policy and the measures taken to mitigate the negative effects of the pandemic and less on how the state collects the revenue it needs. The novelty of this study is that it addresses the efficiency of tax revenue collection from the perspective of tax control. This approach is motivated by the fact that the tax administration is in a position to recover the decrease in the number of tax inspections not carried out due to the pandemic and by the fact that it is necessary to collect all budget revenues to cover the additional expenses generated by the crisis.

The paper includes the general economic context presented in the introduction, the review of the literature found in the dedicated section, the empirical analysis developed in methodology, data and results, the conclusions of the study, and references.

## 2. Literature review

The specialised literature offers a small number of articles with a research topic in fiscal inspection activity. Most studies are based on analysing fiscal policies and measures adopted in specific economic contexts, but very few mention about tax inspection activity. In addition, articles on tax inspection are carried out on the specifics of a particular country or region. However, several papers have been identified that propose new ways of approaching the inspection activity, some of which are based on artificial intelligence.

At the time of querying the Web of Science article database, it contained a number of 274 articles on tax inspection, divided into several fields of study. The search was performed according to the keywords "tax inspection" found in the topic of the documents. The ten most important research fields according to the number of written articles can be observed in Figure 1. It should be mentioned that, in addition to the classic research fields of this subject, there are fields such as social sciences and applied informatics.

Figure 1. TreeMap chart on the first ten areas of research on the tax inspection activity



Source: Web of Science



Løyland et al. (2019) approached the activity of tax inspection about the behaviour of taxpayers. They demonstrated that taxpayers subject to tax inspection are more likely to voluntarily comply in the future than other taxpayers. Also, the degree of compliance depends on the risk profile of each taxpayer. They have observed that other effects of tax inspections are reducing the number of intentionally filed incorrect statements (evasion) and improving knowledge of taxation.

Qu and Yu (2016) believe that the technology has not yet been applied to its full potential, and mainly, it has not been adopted in tax inspection activity. The authors identified three major problems of classical tax inspection methods: under-sizing the tax control structure, compromising the efficiency and quality of tax inspection by manually processing data, and the limited purpose of tax inspection. Consequently, they proposed an ongoing tax inspection model based on information technology and artificial intelligence. Based on the idea that all companies work with accounting reporting software, the program's data can be exported to the tax database and processed using artificial intelligence. The benefits of continuous tax inspection include instantly obtaining inspection-relevant data, continuity of data analysis, process automation, and reduction of processing errors.

Given the need to strengthen the legal framework in the fight against evasion and to take into account the importance of the existence of a unitary control mechanism that removes parallels and thus eliminates the different or even contrary tax assessment of the same economic operation, Aivaz et al. (2022) considered it suitable to carry out a dynamic analysis of the activity of the General Directorate of Fiscal Antifraud through the indicators reported by it. The obtained results showed that the functional or regulatory improvement in combating tax evasion could be supported by statistical studies that combine the indicators reported by the authorities with events (Chiriac et al., 2021) or empirical data (Chiriac et al., 2022).

In the same research area, Miseviciene and Nikonov (2011) developed software that automatically calculates the results obtained from tax inspections. The model presented by the two authors is based on the existence of a tax administration that collects all data on contributions, payments, and tax control activities in a predefined electronic format. This software can calculate the contributions due according to the parameters established by law and based on the payments made. It can also determine the differences between the income obtained, the declared income, and the tax base resulting from the tax inspection.

To apply the new methods of technology-based tax inspection, it is necessary for the tax administration to have adopted the essential technologies and to ensure the predictability framework of tax legislation. This conclusion was also reached by Lobonț et al. (2022) when they researched the relationship between public policies and the activity of the entrepreneurial environment. The authors demonstrated that economic growth and moderate regulation of entrepreneurial activity ensure an economic climate favourable to business development. However, in Romania, legislative changes are frequent. An analysis of the normative acts with an impact on taxation can be found in the following table:

*Table 1. Legislative changes in fiscal matters from 2016-2021 by quarters*

	2016	2017	2018	2019	2020	2021
Q 1	13	12	12	13	12	9
Q 2	13	13	13	9	11	11
Q 3	12	13	12	13	11	12
Q 4	12	13	11	7	11	10
Total	50	51	48	42	45	42

*Source:* own processing of data provided by NAFA

The main changes in the Romanian tax legislation from 2016-2021 were the following:

- providing fiscal facilities to develop some sectors of activity (tourism, construction, IT, research);
- transfer of social contributions to the employee;

- introduction of other types of taxable income (cryptocurrency transactions);
- granting fiscal facilities to taxpayers affected by the pandemic crisis;
- implementation of electronic reporting through the virtual private space (VPS);
- implementation of the SAF-T system;
- electronic invoicing through the national RO e-invoicing system.

Considering contemporary challenges, economic operators and taxpayers need to update their accounting records, tax records, and reports as legislation updates. For all the regulations regarding electronic reporting, many companies have had to invest in software systems that meet the requirements of the law. To ensure the proper implementation of fiscal measures and update the way of working with the current legislation, NAFA carries out national fiscal inspection programs. An evolution of the control activity in Romania can be found in the next section.

### 3. Data and methodology

In this paper, the data were analyzed by performing two research methodologies: the first methodology is the statistical analysis of the data, and the second is their econometric analysis. The statistical analysis aimed to follow the evolution of the analyzed variables, and the econometric analysis aimed to establish the links and influences between the variables using a model of simultaneous equations.

In the statistical analysis, the data were analyzed in raw form. This analysis follows the evolution of variables, growth rate, minimum or maximum points, and differences between analysis periods. The econometric analysis considered a model of simultaneous equations presented in its general form below. This model allows the analysis of variables both as dependent variables and as independent variables.

$$\begin{aligned} X &= \alpha_1 + \alpha_2 Y + \varepsilon \\ Y &= \beta_1 + \beta_2 X + \beta_3 Z + \varepsilon \end{aligned}$$

The data were collected from the quarterly Fiscal Statistical Bulletins from 2016-2021. The selection of the data from the sample was made by block selection, respectively all the data from 2016-2021 were considered in the analysis. The variables for which the data were collected and analyzed are:

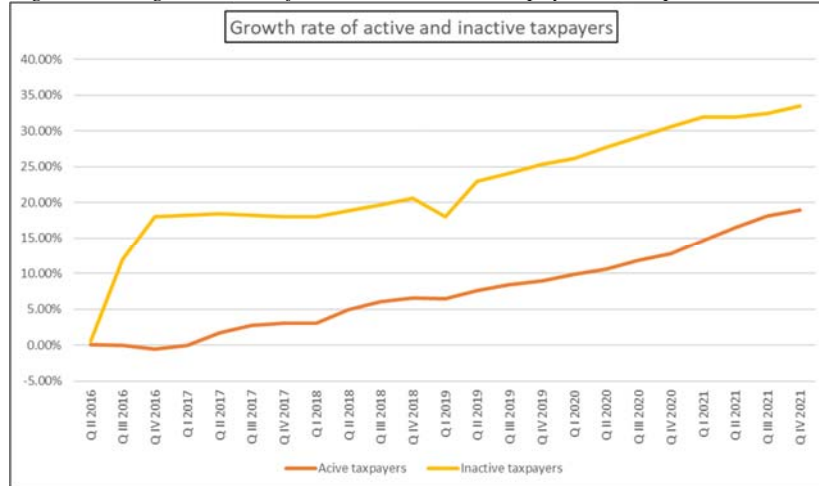
- total active taxpayers, which represents the total number of active taxpayers registered at the Trade Register Office and is expressed in the number of persons;
- RON spent at one million RON net budget revenues which represents the value of expenditures made by the tax administration for the collection of budget revenues and is expressed in absolute value;
- staff expenses at one million RON net budget revenues which represents the value of personnel expenses from the total value of expenditures made by the tax administration for the collection of budget revenues and is expressed in absolute value;
- number of checks performed represents the number of tax inspections performed during a semester for all categories of taxpayers and is expressed in absolute values;
- the degree of voluntary compliance with the payment of tax obligations is expressed as a percentage and represents the percentage of taxpayers who have paid in full or in part the contributions due from the total of registered taxpayers;
- changes of a fiscal nature that are expressed in absolute values and represent the number of newsletters issued by NAFA announcing the amended legislative aspects;
- number of inspections performed by an inspector (legal entities) is expressed in absolute values and represents the number of tax inspections performed by an inspector during a quarter to taxpayers legal entities;
- number of fines is the number of sanctions applied by the tax authorities as a result of irregularities found in tax inspections and is expressed in absolute values;
- the number of inspections performed by an inspector (individuals) is expressed in absolute values and represents the number of tax inspections performed by an inspector during a quarter to individual taxpayers.

#### 4. Empirical analysis

The analysis period started with an inflation rate of -2.98% and ended with a rate of 8.19%, the difference being over 10%. In the six years of analysis, the economic conditions changed suddenly; a pandemic crisis occurred, followed by a post-pandemic financial crisis. 2020 was a critical year, marked by reduced economic activity due to the restrictions in force at that time. However, the number of unemployed, in absolute terms, decreased from 419.5 thousand people to 234.8 thousand people. The decrease in the number of unemployed is due to the increase in labour demand and the increase in the number of new companies in the economy.

During the analysis period, the total number of registered taxpayers experienced a constant evolution. The absolute values of the number of tax-active and inactive taxpayers are increasing. In order to follow the dynamics of the growth rate, we considered the number of taxpayers registered in the first quarter of 2016 as a basis for calculating the rate, thus being able to make a comparison between the two sets of reported values (Figure 2). It should be noted that the growth rate of fiscally inactive taxpayers has exceeded the growth rate of active taxpayers.

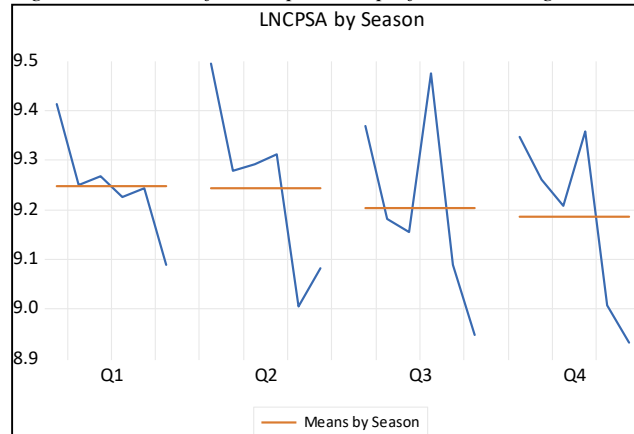
Figure 2. The growth rate of active and inactive taxpayers in the period 2016-2021



Source: own processing of data provided by NAFA

The graph in Figure 3 indicates the number of tax inspections performed during the analysis period. There is a tendency to carry out more checks in the year’s first half. This period coincides with the deadline for submitting tax returns. The highest number of tax inspections was recorded in 2019, but with the onset of the pandemic, the number of inspections decreased considerably.

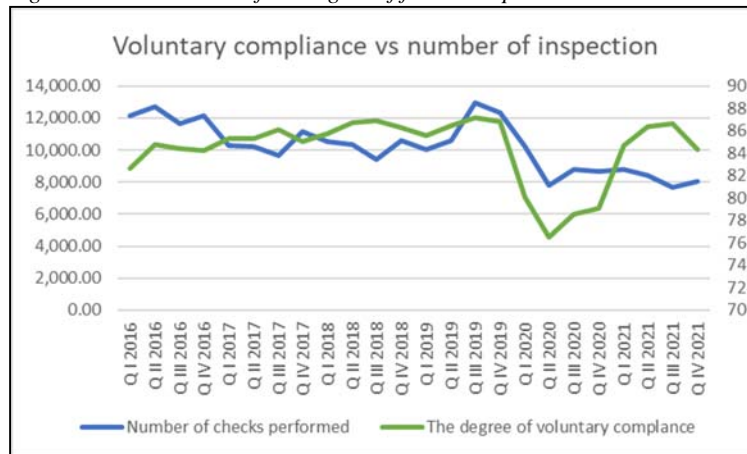
Figure 3. Number of tax inspections performed during 2016-2021



Source: own processing of data provided by NAFA

The degree of voluntary compliance is an indicator that underlies the elaboration of programs developed by the National Agency for Fiscal Administration. At the same time, this indicator can be considered as a result of the information campaigns carried out within NAFA. In the case of Romania, the degree of voluntary compliance depends on the number of tax inspections performed. Citizens consider tax control a punishment they try to avoid, not a response to non-compliance. The pandemic crisis has affected the collection of budget revenues by generating a lower degree of compliance because NAFA cannot carry out its activity properly and by reducing the number of fiscal controls performed (Figure 4). If NAFA had implemented an IT system for tax administration, the pandemic would not have had such a strong impact on the two indicators.

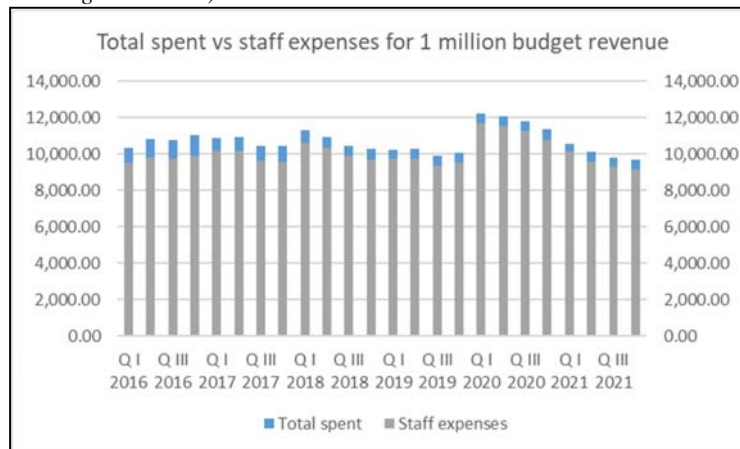
Figure 4. The evolution of the degree of fiscal compliance versus the number of fiscal inspections performed



Source: own processing of data provided by NAFA

Another aspect that we considered when analyzing the activity of the tax administration was represented by the expenditures made in order to collect the budget revenues. A low level of collection costs indicates a more efficient process by the tax administration. The structure of expenditures is also essential. An analysis of them from 2016-2021 can be found in the following chart. Over 90% of Romania's budget revenue collection expenses represent personnel expenses. It should be noted that the reduction of taxes through the fiscal facilities granted during the pandemic resulted in the collection of lower budget revenues, but the collection expenditures remained at the same level. And in this case, adopting an IT system for tax administration and automating all repetitive processes could considerably increase the efficiency of collection.

Figure 5. Structure of expenditures generated by the collection of budget revenues (RON per RON 1 million net budget revenues)



Source: own processing of data provided by NAFA

The statistical analysis of the data highlights the fact that both the fiscal activity and the economic activity of the taxpayers were affected by the pandemic. Moreover, some negative effects could be mitigated or eliminated if the tax administration was properly digitized.

The raw data were processed statistically to ensure the robustness of the simultaneous equation model. The data series were logarithmic to narrow the records range and eliminate the unit of measure. After this stage, the seasonal component was eliminated, the "Augmented Dickey-Fuller" test was performed, and, where appropriate, the series were stationary by the first or second difference. The stationary characteristic of a series ensures the average and the constant variance over time. After all the data were treated from an econometric point of view according to the literature, we built the system of simultaneous equations. The component variables in the system were: the number of fines applied (DNF), the total number of active taxpayers (DTAT), number of legislative changes (DCHANGES), collection expenses incurred at one million RON budget revenue (DSOR), number of controls performed (DNCP), the number of controls performed by an inspector to legal persons (DNILE), the number of controls performed by an inspector to individuals (DNII) and the degree of voluntary compliance (DVC).

The model of simultaneous equations analyzed how the number of taxpayers and the number of tax inspections influence the degree of compliance (1), how the number of inspections carried out by an inspector is affected by the number of taxpayers from the previous year (2), how the number of fines is influenced by the tax inspections carried out (3), and the influence that voluntary compliance has on the number of tax inspections (4).

$$DVC = c(1) + c(2)*DTAT + c(3)*DNCP \quad (1)$$

$$DNII = c(4) + c(5)*DTAT(-1) \quad (2)$$

$$DNF = c(7) + c(8)*DNCP \quad (3)$$

$$DNCP = c(9) + c(10)*DVC \quad (4)$$

Some results obtained using this model were in line with our expectations and previous studies, while others were contrary. The results can be found in the next section.

## 5. Results

The econometric analysis of the variables tries to highlight the links between the indicators of the fiscal inspection activity and the way in which they influence each other. The tax administration can consider the results of the analysis to improve the fiscal control activity and develop control programs.

Using the model of simultaneous equations in the econometric analysis allows the creation of a system of equations based on the available data. In the model, we tested several equations, but because the coefficients of the variables were incorrectly estimated, some of them were eliminated. Subsequently, we tested the distribution of residual variables to see the quality of the model. According to System Residual Normality Tests, we can state with a 99% probability that the residual variables are normally distributed, and the quality of the model is satisfactory.

Table 2. Estimation results using the least squares method

	Coefficient	Std. error	t-Statistic	Prob.	R-squared	Durbin-Watson stat
<b>C (1)</b>	-1.462518	1.340649	-1.090903	0.2786	0.275926	1.071414
<b>C (2)</b>	238.986200	137.9754	1.732092	0.0871		
<b>C (3)</b>	12.333820	7.241001	1.703330	0.0924		
<b>C (4)</b>	0.156218	0.129775	1.203761	0.2322	0.137319	1.771032
<b>C (5)</b>	-25.222860	14.13639	-1.784251	0.0782		
<b>C (7)</b>	-0.048340	0.041484	-1.165272	0.2474	0.206029	2.285855
<b>C (8)</b>	0.973341	0.416959	2.334379	0.0221		
<b>C (9)</b>	-0.027016	0.019847	-1.361222	0.1773		
<b>C (10)</b>	0.011028	0.005617	1.963353	0.0231	0.161593	2.325536

Source: own processing of data provided by NAFA

Table 3. System Residual Normality Tests

System Residual Normality Tests	
Null Hypothesis: residuals are multivariate normal	
Sample: 2016Q2 2021Q4	
Test	Probability
Skewness	0.9897
Kurtois	0.9962
Jarque-Berra	0.9999

Source: own processing of data provided by NAFA

In the end of analysis, we got the following model:

$$\begin{aligned} DVC &= -1.46251771989 + 238.986187546*DTAT + 12.3338172509*DNCP \\ DNII &= 0.156218297798 - 25.2228558268*DTAT(-1) \\ DNF &= -0.0483400764392 + 0.973341350095*DNCP \\ DNCP &= -0.0270156481554 + 0.0110276805399*DVC \end{aligned}$$

The results of the analysis indicate that the degree of tax compliance depends on the total number of active taxpayers and the number of inspections performed. Our results related to voluntary compliance confirm the results obtained by Løyland et al. (2019) in their research. Thus, taxpayers who have been subject to fiscal control tend to comply voluntarily.

The number of inspections carried out by a tax inspector on individuals depends on the total number of active taxpayers in the previous period. If the number of taxpayers increases, then the number of inspectors must also increase proportionally to ensure the degree of revenue collection is as close as 100%. This result motivates the transition of the tax inspection activity from a predominantly manual to a predominantly automatic activity. A higher number of inspectors would generate higher collection costs.

The number of fines imposed depends on the number of tax inspections carried out. This does not confirm the results obtained by Løyland et al. (2019), according to which the number of tax inspections reduces over time the number of errors in tax returns completed by taxpayers. As the tax inspection activity is mainly a manual activity, it must be considered that tax inspectors may make errors. The number of tax inspections depends on the degree of voluntary compliance of taxpayers, but not as we expected. A higher degree of voluntary compliance leads to an increase in the number of fiscal controls.

## 6. Conclusions

This paper aims to study the impact of contemporary challenges on the activity of fiscal control. Studying the evolution of the fiscal control activity is very important because it is the second source of collecting budget revenues after voluntary compliance. In addition, one of the effects of the control activity is to increase the degree of voluntary compliance.

This paper contributes to the enrichment of the knowledge stage of the field of fiscal activity because the previous research offers few studies on this topic. The results obtained in this study can be considered as reference points for both researchers in subsequent studies and tax authorities for the adoption of measures regarding the activity of fiscal control.

From the beginning of the research, we expected that the fiscal control activity would be affected by the pandemic crisis. The low number of tax inspections carried out, the decrease in the degree of voluntary compliance, and the high collection costs related to lower budget revenues (due to the fiscal facilities granted) revealed to us that the impact was more significant than we expected. The results confirmed that the fiscal control activity could increase the degree of compliance, but it does not reduce the number of errors in declaring the tax base in time. It was also expected that the number of tax inspections would decrease as the degree of voluntary compliance increased, which in reality does not happen. One of the reasons why the degree of voluntary compliance does not lead to a

reduction in tax inspections may be that the tax authority determines the control actions by considering other criteria.

The contemporary challenges posed by the pandemic and the lack of IT systems retrieved in tax administration have left their mark on the number of inspections carried out in the last two years. However, after implementing the SAF-T reporting system, it is expected that NAFA will implement a new method for calculating the risk of fraud and determining the taxpayers who will be subject to the tax inspection activity.

Also, with the implementation of information technology, the quality of the control activity is expected to increase. In 2021, the courts admitted 23% of the amounts contested following the tax inspection activity. About a quarter of all control actions performed were erroneous. In addition, significant sums of money were spent on those controls.

Future research should highlight the efficiency of technology in tax inspection. Analysis may also be carried out to include the activity of tax inspection in the efficiency of public sector governance.

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## External Debt of Romania

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### Abstract

*External loans, badly used, don't help the economic development of a country but can have as negative effects the disturbance of the activities in the economy, the reduction of the access to external loans, the flight of the capitals, the diminution of the internal economies and implicitly the economic decrease. Therefore, at the level of each country, solid institutions are needed that can manage the external debt so as to minimize the risk of crises, in order to avoid the increase of external taxation or the need for a rapid increase of the external debt. External debt management has repercussions in economic policy, specifically monetary and budgetary policies and foreign exchange, trade, and decide the volume of external loans that need to be contracted. The aim of the paper is to analyze level and structure of Romania's debt and to reveal those methods of external debt management which bring economic benefits to our country.*

**Key words:** public debt, external debt, debt management

**J.E.L. classification:** H62, H63, E62

### 1. Introduction

The sharp increase in external public debt in the medium and long term as a result of the increase in external loans is a factor that negatively influences the external balance, along with the increase in the current account deficit. Mass indebtedness entails an increase in costs, and implicitly in the risks associated with the repayment and sustainability of external debt. Also, the increase of the external debt generates risks at the microeconomic level with effects on the Romanian banking sector and the increase of the exposure to from the perspective of, but also at the macroeconomic level, from the perspective of the sustainability of the external debt. In the last years, there have been some unfavorable connected phenomena such as the increase in external debt, the unfavorable perception of investors, the high cost of external financing, the exchange rate fluctuations, etc. We will follow the evolution of Romania's external debt since the moment of the financial and economic crisis in 2008 and based on the conclusions we will formulate few recommendations.

### 2. Theoretical background

The financing offer is limited and therefore the beneficiary of loans must choose the best possible combination of financing sources available at a given time, so that they correspond to the financing needs of major projects, but also to the needs of the economy as a whole.

It should also be borne in mind that a debtor country cannot, in general, influence the conditions under which it enters into a debt. They reflect the general characteristics of capital supply and demand and the economic policies of the lending countries.

Between the borrowing rate of a country and the world interest rate, there is a difference that increases in proportion to the worsening of country risk indicators and indebtedness indicators of the country, but also to the value of funds borrowed.

If the country risk approximated by the country rating, given by the rating agencies, is considered to be high (i.e. low country rating), the situation can be reached when the offer of external loans is zero.



Optimizing external financing consists, on the one hand, in obtaining as many loans as possible on concessional terms (this being the cheapest form of financing, but limited by their preferential destination to very poor countries), in the case of public loans, obtained from bi or multilateral sources, and on the other hand, in minimizing the costs of loans obtained under normal conditions (from international bodies, in bilateral relations or on international capital markets), in order to reduce the burden on the economy.

Official loans are usually accompanied by technical assistance, and are granted for longer periods than bank loans, and at fixed and lower interest rates.

Because the terms of a long-term loan are very different, the decision maker has to make some decisions in order to minimize the real cost generated by those funds. The real cost of a loan is a combination of several factors: interest rate, effective interest rate, maturity structure, calculated fees, annual cost, composition of currencies in which the loan is granted, drawdown scheme, grant element, total cost.

In addition to these factors, the decision-maker must take into account other qualitative criteria, such as: withdrawal procedures, planned repayment scheme, nature of the program or project being financed, quality of the loan portfolio after the realization of this loan and its impact on debt service.

If the loan is made to finance a certain investment project, the annual cost will have to be analyzed in correlation with the rate of return of the project, considering as a cost element the debt service related to the loan.

The nominal interest rate is part of the terms of the contract, and represents the annual cost paid for the amount actually drawn, less the amortizations already paid from that loan.

A high interest rate on external loans increases the service of external debt, ensuring its sustainability by obtaining other loan sources (uninspired solution given the effect of increasing the level of indebtedness), debt rescheduling (which may mean postponing the crisis) or increasing export earnings.

In order to determine the most appropriate structure of external debt, designed to reduce the burden on the economy, it is important to make decisions on the ratio between fixed-rate and floating-rate debt instruments. It is generally difficult to obtain medium and long term fixed rate loans.

If the interest rate is fixed, the borrower can determine the cost of the loan based on the drawdown schemes. The ratio between future interest payments and the relative projection of export earnings is a useful indicator, especially for forecasting the possibility of vulnerabilities in the country.

If the interest rate is variable (floating), the uncertainty of the costs and, consequently, of the utility and performance of the loan is manifested.

The most important risk that the interest rate introduces in debt management is the influence that the change of the inflation rate exerts on it, as well as of the exchange rate. An effective method of eliminating this risk is to calculate the costs generated by the loan based on the determination of the present value.

The maturity structure is divided into two distinct periods: the grace period and the repayment (or amortization) period, during which the loan is repaid.

When taking out a new loan, it is important to analyze its impact on the total loan portfolio, taking into account the maturity structure.

Thus, care must be taken that the debt service maturities of the new loan do not overlap with those of the other loans, so that the burden of the payment requirement becomes unbearable. The debt manager will have to plan the debt service payments, taking into account the maturities of each credit, in correlation with net foreign exchange inflows from commercial activities (exports) and financial activities (net capital inflows), as well as with reserves available to the National Bank of Romania.

Commercial loans involve many types of fees: agency fees, management fees, (for the bank that determines the terms of the loan), fees for the legal part, stamp duties, (according to the law or the country where the contract is concluded).

Some of these fees are in the form of a fixed amount, which is paid on the date of the contract, but most are a percentage of the loan amount and can be paid annually.

The total cost of the loan is used when it is more difficult to determine the present value of the loan, and applies only to loans with variable interest rates. The total cost of the loan is the annual average of the costs generated by a loan, including interest and all related fees. (Expressed in basis points compared to a base rate, such as LIBOR).

In general, the lower the total cost of the loan, the more convenient the loan is for the beneficiary. But in order to judge the effectiveness of a loan, several criteria will have to be taken into account, especially when comparing several lending alternatives.

The loan portfolio that forms the effective external debt (withdrawals minus principal repayments) of a state can consist of a wide range of currencies, depending on the sources of financing and the contractual conditions.

The foreign exchange structure of the external debt is one of the important aspects that must be taken into account in the external debt management process considering both the parity of each currency compared to the other convertible currencies and their predictable evolution.

The determination of the foreign exchange composition of the new loans must ensure that the exposure to foreign exchange risk is minimal, and take into account the structure of the country's foreign trade and foreign exchange reserves. Thus, the country should borrow in the currencies in which its exports are paid, and hold international foreign exchange reserves in the currencies needed to regulate imports.

Having a permanent and a capital importance, the subject of debt is treated in numerous studies and articles. Studies like (Gosh *et al*, 2011,) look indebtedness limits in the case of developed economies and debt adjustment to achieve sustainability and a wider fiscal space. As poor countries are often heavily burdened, with a steady increase in debt, (Krugman, 1988,) looks at ways to reduce debt for developing countries. (Reinhart *et al*, 2011,) shows that in the conditions in which the public debts but also the private ones are at higher levels than ever their reduction or restructuring must take into account the negative effects that may occur. For the case of Romania an analysis of the risks and sustainability of medium and long term debts contracted following the economic and financial crisis of 2008 through the analysis of the economic situation of Romania is done by (Zaman, 2010.)

### **3. Research methodology**

To conduct research on the problem of Romanian external debt, the paper analyzes data using comparative, analytical, descriptive method and the use of a set of information sources, collecting financial data in databases, based on monthly or annual reports, consolidated statistical data provided by the National Bank of Romania and the Eurostat. The study was completed by formulating conclusions related to this financial phenomenon.

### **4. Findings**

#### **4.1. The main characteristics of the Romanian external debt**

Because the pandemic triggered by the Sars cov 2 virus is an extremely rare event, which is likely to occur once in one hundred years, we will analyze economic developments in two separate periods. Namely the interval between the years 2008-2019, i.e. the period elapsed between the onset of the economic and financial crisis of 2008 and the crisis triggered by the COVID 19 pandemic and the two years (2020 and 2021) since the onset of the pandemic.

Total external debt increased extremely rapidly in the first years after Romania's accession to the EU, due to the lack of domestic capital and the fact that EU inclusion gave Romania credibility and allowed it to access funds with favourable credit conditions, reaching 76% of GDP (in year 2011), but subsequently, as a result of economic growth, increased exports and declining budget expenditures (wage cuts), the total external debt reached 48% of GDP in 2019.

From 2013 the external debt and its components started to decrease, a trend that continued in 2014 and 2015 (for total external debt), in 2015 (for short-term external debt) and throughout 2013-2018, for external debt medium and long. In 2019, the year before the pandemic began, there are again increases in total external debt, direct public debt and private debt.

Medium and long-term external debt accounted for most of Romania's total external debt, which shows a favourable structure for the sustainable development of the national economy, because debt payment is made over a long period of time, does not unbalance the budget of state and does not jeopardize its development projects.

Until 2011, medium and long-term loans were used to offset the current account deficit, which was paid in 2011 (this contributed to the creation of the balance of payments deficit).

Given the different evolutions of public and private debt following the crisis (private debt has been in a downward trend since 2009 and public debt is on an upward trend) and their weights in long-term external debt have changed if at the beginning public loans had the majority share in the period. In recent years, public loans have the majority share. If we take into account the fact that private loans are made to support imports and public loans to support investment expenditures and salary and pension increases, we can say that the structure of public debt has improved in recent years.

A negative situation for the economy is the high level of credit interest rates in Romania, the result of a combination of factors including the lack of a real competitive environment and the reaction of local banks in the lending process. Therefore, when they had the opportunity, private sector firms borrowed from foreign markets given the lower costs than the domestic market.

Private external debt grew rapidly from 2008 to 2009 but then declined in the following years amid liquidity shortages, economic downturn, creditors' risk aversion caused by the financial crisis and its effects, this having a positive effect on the sustainability of external debt.

Direct external public debt increased almost constantly in 2009-2019, with the strongest increase in 2009-2013, when Romania borrowed almost 20 billion euro from the IMF. This loan was intended for domestic financing, given that the economic and financial crisis has increased investor distrust, with the difficulty and price of loans rising rapidly in the period immediately following the onset of the crisis.

Financial loans from multilateral institutions accounted for most of the medium and long-term external public debt until 2013, and since 2014 the share of funds attracted from multilateral institutions in the long-term external direct public debt has decreased, in favour of bonds, which have become the majority, institutional creditors being replaced by private creditors this having a negative impact on the Romanian economy, given that loans from multilateral institutions have certain advantages, instead of repaying existing external debt, they "roll", In more difficult credit conditions. This shows the need for an external debt repayment strategy. There is also a need for a debt strategy that establishes and uses an optimal ratio between medium and long-term debt and short-term debt, with the burden of external debt service is evenly distributed over time, without burdensome peak payment moments.

In the years 2020 and 2021, as a result of the severe economic disruption imposed by the COVID 19 pandemic, the external debt registered a very high increase due to the decrease of the economic activity in the two months of lockdown, of the amounts necessary to support the necessary medical policies. and economic subsidies for economic agents and certain categories of persons affected by the cessation or diminution of economic activities (especially in the field of tourism), but also of the cultural ones. Thus, in 2020 alone, Romania's external debt increased by over 20 billion euros, and in 2021 by almost 9 billion euros. The increase in 2020 is the largest ever recorded by Romania with a year-on-year increase of 19%. As a percentage of GDP, the total external debt jumped from 47% in 2019 to 57% in 2020, due to both the decrease in GDP but especially the increase in loans contracted by the Romanian state, because in 2021 due to economic recovery, faster growth of GDP than the total external debt this percentage to decrease slightly to 55.9%. The increases in external debt are mainly due to long-term loans contracted in the two years, but also to short-term loans contracted in 2021 in the amount of over 4 billion euros. In the medium and long term, only direct public debt increased significantly, with public guaranteed debt declining and private debt rising slightly compared to the year before the pandemic. Long-term debt service was around € 16 billion lower than in previous years, but short-term debt service grew by two years, with an extreme value of 70 billion euros in 2021. If the downward trend in the economy in the year 2020 would not have been reversed in 2021, registering a rapid economic recovery, a problem could have arisen in the repayment of this record amount. (See Annex Table 1.- Table 2.)

Table 1. The dynamics of Romania's external debt (2008-2021)

Year	2008	2009	2010	2011	2012	2013	2014
<b>GDP</b>	139700	118300	124100	131500	133900	144700	150800
<b>External total debt (mil.euro)</b>	72467	82304	93624	99926	100857	98069	94744
Year-on-year dynamics	25.65%	13.57%	13.75%	6.73%	0.93%	-2.76%	-3.39%
Share in GDP	51.87%	69.57%	75.44%	75.99%	75.32%	67.77%	62.83%
<b>1. Long term external debt (mil. euro)</b>	51874.63	66714.14	74075.03	77131.43	79936.2	78859.7	75829.3
Share in GDP	37.13%	56.39%	59.69%	58.66%	59.70%	54.50%	50.28%
<b>1.1 Direct public debt (mil. euro)</b>	9053.60	12009.1	16184.4	19642.8	23782.0	29069.0	31754.2
Share in GDP	6.48%	10.15%	13.04%	14.94%	17.76%	20.09%	21.06%
<b>1.2. Guaranteed public debt (mil. euro)</b>	1721.00	1517.20	1708.20	1465.80	1423.60	1224.50	1078.30
Share in GDP	1.23%	1.28%	1.38%	1.11%	1.06%	0.85%	0.72%
<b>1.3. Private debt (mil. euro)</b>	35549.40	39187.00	37733.20	36133.30	37182.9	36303.2	34311.6
Share in GDP	25.45%	33.13%	30.41%	27.48%	27.77%	25.09%	22.75%

Year	2015	2016	2017	2018	2019	2020	2021
<b>GDP</b>	159000	170400	187800	204500	223000	218165	240154
<b>External total debt (mil.euro)</b>	92069	92910	97361	99841	105873	125927	134256
Year-on-year dynamics	-2.82%	0.91%	4.79%	2.55%	6.04%	18.94%	6.61%
Share in GDP	57.90%	54.52%	51.84%	48.82%	47.48%	57.72%	55.9%
<b>1. Long term external debt (mil. euro)</b>	71424.5	69644.7	68520.2	68286.4	73646	92826	97043
Share in GDP	44.92%	40.87%	36.49%	33.39%	33.03%	42.55%	40.4%
<b>1.2 Direct public debt (mil. euro)</b>	30940.8	31752.1	33117.5	34498.4	39192	57307	57988
Share in GDP	19.46%	18.63%	17.63%	16.87%	17.57%	26.27%	24.14%
<b>1.2. Guaranteed public debt (mil. euro)</b>	668.90	547.10	432.20	351.40	285.1	219.6	162.7
Share in GDP	0.42%	0.32%	0.23%	0.17%	0.13%	0.10%	0.06%
<b>1.3. Private debt (mil. euro)</b>	33497.8	32453.3	31330.0	30807.5	33209.3	34002.5	34679.5
Share in GDP	21.07%	19.05%	16.68%	15.06%	14.89%	15.59%	14,44%

Source: National Bank of Romania (Author's calculations)

Table 2. Romania's short-term external debt. External debt service (2008-2021)

Year	2008	2009	2010	2011	2012	2013	2014	2015
<b>2. Short-term external debt (mil euro)</b>	20592.4	15589.4	19548.9	22794.7	20921.1	19209.2	18915.0	20644.0
Share in total external debt	28.42%	18.94%	20.88%	22.81%	20.74%	19.59%	19.96%	22.42%
<b>Long term debt service (mil euro)</b>	13056.1	12272.2	14696.4	15138.8	18663.4	26285.7	24103.1	25285.4
<b>Sort term debt service</b>	32519.5	36765.7	29078.9	31093.6	35604.5	33675.1	33915.6	32285.0

Year	2016	2017	2018	2019	2020	2021
<b>2. Short-term external debt (mil euro)</b>	23265.1	28840.5	31554.4	32226.8	33100.8	37213.2
Share in total external debt	25.04%	29.62%	31.60%	30.44%	26.29%	27.71%
<b>Long term debt service (mil euro)</b>	21041.8	19440.2	19131.8	16736.6	16372	15968.4
<b>Sort term debt service</b>	49393.9	41450.9	46688.4	50730.8	55 461,4	70001.8

Source: National Bank of Romania (Author's calculations)

Level of NBR reserve assets showed a well planned strategy to support a reserve currency that can meet the needs of reimbursement and possible occurrence of economic or financial shocks, reserves that increase financial credibility of Romania. It is noted that although Romania has gone through a difficult period after 2008 due to the financial crisis foreign exchange reserves increased continuously from 2008 until 2011 and then to remain around 32 billion euro with small annual variations. Romania's total foreign exchange reserves had several variations from 28 billion euro in 2008 to a maximum of 37.2 billion euro in 2011 so that in the next 4 years Romania has total reserves of about 35.5 billion euro, in the last 4 years they have been around the amount of 37 billion Euro.

In 2020 and 2021, the National Bank of Romania decided to increase foreign exchange reserves (and implicitly international reserves) by 3 and 5 billion euros, respectively, in order to reduce the probability of default, and to maintain the confidence of foreign investors and creditors, and to obtain loans on favorable terms. (See Table 3.)

Table 3. Romania's total internat. reserves and internat. foreign exchange reserves (2008-2021)

Year	2008	2009	2010	2011	2012	2013	2014
<b>Total international reserves (mil euro)</b>	28269.93	30858.57	35950.66	37251.77	35412.98	35434.48	35505.66
<b>Inter. foreign exchange reserves (mil euro)</b>	26133.92	27321.48	31637.96	32737.31	31091.88	32496.99	32199.84

Year	2015	2016	2017	2018	2019	2020	2021
<b>Total international reserves (mil euro)</b>	35485.05	37905.41	37106.67	36800.20	37450	40752.2	45830.7
<b>Inter. foreign exchange reserves (mil euro)</b>	32227.02	34241.60	33494.5	33064.7	32926.7	35830.0	40475.3

Source: National Bank of Romania (Author's calculations)

#### 4.2. International comparisons

For 2019, Romania's government gross external debt as a percentage of GDP was one of the lowest of the EU countries of only 35.3%. Eastern European countries have low degrees of indebtedness compared to Western European ones. Thus the same indicator was for Bulgaria 20.0%, Czech Republic 30.1%, Estonia 8.6%, while PIGS countries have a high degree of external indebtedness Portugal 116.6%, Italy 134.1%, Greece 180.7%, and Spain 98.3%.

In 2020, as a result of declining global economic activity and the growing need of governments to cope with the pandemic, there is an increase in government debt in all EU countries, but in 2021 as a result of the economic recovery the percentage of government debt in GDP will increase. It decreases slightly in most of the EU countries, with all the advance registered Romania still remains in the group of countries with low government debt in relation to GDP. (See Table 4.)

Table 4. General government gross debt (percentage of gross domestic product) - annual data

Country/ Year	2019	2020	2021
Belgium	97.7	112.8	108.2
Bulgaria	20.0	24.7	25.1
Czechia	30.1	37.7	41.9
Denmark	33.6	42.1	36.7
Germany	58.9	68.7	69.3
Estonia	8.6	19.0	18.1
Ireland	57.2	58.4	56.0
Greece	180.7	206.3	193.3
Spain	98.3	120.0	118.4
France	97.4	114.6	112.9
Croatia	71.1	87.3	79.8
Italy	134.1	155.3	150.8
Cyprus	91.1	115.0	103.6
Latvia	36.7	43.3	44.8
Lithuania	35.9	46.6	44.3
Luxembourg	22.3	24.8	24.4
Hungary	65.5	79.6	76.8
Malta	40.7	53.4	57.0
Netherlands	48.5	54.3	52.1
Austria	70.6	83.3	82.8
Poland	45.6	57.1	53.8
Portugal	116.6	135.2	127.4
Romania	35.3	47.2	48.8
Slovenia	65.6	79.8	74.7
Slovakia	48.1	59.7	63.1
Finland	59.6	69.0	65.8
Sweden	34.9	39.6	36.7

Source: Eurostat

Regarding the GDP growth compared to the previous year, in 2019, Romania was in the leading group with a growth of 4.2% together with Ireland 4.9%, Hungary 4.6%, Malta 5.9%, Poland 4.7%, Lithuania 4.6%, high values compared to those of developed countries in the EU: Germany 1.1%, France 1.8%, Italy 0.5%, Austria 1.5%, the Netherlands 2.0%. So we have countries with high

GDP growth and high debt relative to GDP (Ireland, Malta), but also countries with high GDP growth and low debt relative to GDP (Romania, Hungary, Poland), so there is no the link between the growth rate of GDP and the degree of external indebtedness of countries.

In 2020 all EU countries were affected by the pandemic, all (except Ireland) experiencing declining GDP, in 2021 as the virus became less lethal, all EU economies managed to grow, most managed to recover the previous year's loss. Thus, Romania registered a decrease of (only) 3.7% of GDP in 2020, year in which the most affected were the countries with a high contribution of tourism to GDP (Spain, France, Croatia, Italy, Greece, Portugal) and in 2021 Romania managed a growth of 5.9%. (See Table 5.)

Table 5. Real GDP growth rate - volume

Country/ Year	2019	2020	2021
Belgium	2.1	-5.7	6.2
Bulgaria	4.0	-4.4	4.2
Czechia	3.0	-5.8	3.3
Denmark	2.1	-2.1	4.7
Germany	1.1	-4.6	2.9
Estonia	4.1	-3.0	8.3
Ireland	4.9	5.9	13.5
Greece	1.8	-9.0	8.3
Spain	2.1	-10.8	5.1
France	1.8	-7.8	6.8
Croatia	3.5	-8.1	10.2
Italy	0.5	-9.0	6.6
Cyprus	5.3	-5.0	5.5
Latvia	2.5	-3.8	4.5
Lithuania	4.6	-0.1	5.0
Luxembourg	3.3	-1.8	6.9
Hungary	4.6	-4.5	7.1
Malta	5.9	-8.3	10.4
Netherlands	2.0	-3.8	5.0
Austria	1.5	-6.7	4.8
Poland	4.7	-2.2	5.9
Portugal	2.7	-8.4	4.9
Romania	4.2	-3.7	5.9
Slovenia	3.3	-4.2	8.1
Slovakia	2.6	-4.4	3.0
Finland	1.2	-2.3	3.5
Sweden	2.1	-5.7	6.2

Source: Eurostat

In terms of current account deficit (or surplus) Romania in 2019 had a large current account deficit -4.9% - the third in the EU after Ireland -19.9% and Cyprus -5.7, while many other countries current account surpluses were recorded: the Netherlands 9.4%, Denmark 8.8%, Germany 7.6%. in this case we have countries with a high degree of indebtedness that have current account surplus (ex Netherlands, Malta) but also countries with a current account deficit with a high degree of indebtedness (Ireland, Cyprus), we have countries with a low degree of indebtedness and current account surplus (Bulgaria, Croatia, Iceland, Lithuania), but also countries with a low degree of indebtedness and current account deficit (Romania, Czech Republic).

In 2020 and 2021, due to the inability of the economy (industrial and agricultural production) to meet domestic demand, Romania will see an increase in the current account deficit, to 5% in 2020 and 7% in 2021 these being some of the largest values recorded at EU level, in 2021 only Cyprus with a higher deficit (-7.3%). (See Table 6.)

Table 6. Current account balance (percentage of gross domestic product) - annual data

Country/ Year	2019	2020	2021
Belgium	0.2	0.8	-0.4
Bulgaria	1.9	-0.1	-0.4
Czechia	0.3	2.0	-0.8
Denmark	8.8	8.1	8.3
Germany	7.6	7.1	7.4
Estonia	2.5	-0.3	-1.1
Ireland	-19.9	-2.7	13.9
Greece	-1.5	-6.6	-5.9
Spain	2.1	0.8	0.9
France	-0.3	-1.9	-0.6
Croatia	3.0	-0.1	3.1
Italy	3.2	3.7	2.5
Cyprus	-5.7	-10.1	-7.3
Latvia	-0.7	2.9	-2.9
Lithuania	3.5	7.3	1.4
Luxembourg	4.6	4.1	4.8
Hungary	-0.7	-1.0	-3.0
Malta	5.0	-2.9	-6.1
Netherlands	9.4	7.0	9.5
Austria	2.1	1.9	-0.5
Poland	0.5	2.9	-0.6
Portugal	0.4	-1.1	-1.1
Romania	-4.9	-5.0	-7.0
Slovenia	6.0	7.4	3.3
Slovakia	-3.4	0.4	-2.0
Finland	-0.3	0.7	0.7
Sweden	5.5	6.1	5.5

Source: Eurostat

## 5. Conclusions

In order to increase the accessibility to loans and to obtain good credit conditions, Romania needs a persistent credible image in terms of political, economic and social conditions. This requires a mix of coherent policies to ensure a positive and predictable political and social environment without fractures and sudden changes.

Romania's main economic problems are the inflation rate one of the largest in the EU, the largest budget deficit in the EU, and as we have seen, the current account deficit one of the largest in the EU. With an intelligent use of budgetary resources, investments in those branches that incorporate high added value, investments in transport infrastructure but also the informational one, (and less the increases of social aids, pensions and salaries as at present), which to stimulate economic growth can be supported and therefore implicitly those economic indicators that have an important weight when granting a rating (GDP, GDP per capita, exports, current account surplus, unemployment, etc.). Regarding the reduction of external debt, we can say that as long as there are sustained rates of economic growth and external loans support this growth if the economic growth rate is higher than the effective interest rate it is more natural to follow the decrease of external debt relative to GDP and not the nominal value of the external debt.

To the extent that this desideratum is achieved in terms of investor perception and country rating, the loan portfolio must focus on advantageous loans, terms, grant element, effective interest, etc. Thus, they must be pursued outside a real fixed interest rate as low as possible so that the maturity of the loan is as high as possible so that the repayment effort is as small as possible.

The currency structure of the borrowed amounts must correspond to the currency sources of exports, so 73% of exports go to the EU (euro) and 27% extra EU (usd).



Current trends (increase in long-term loans and decrease in short-term loans, increase in the share of direct public debt in total debt and decrease in the share of publicly guaranteed debt, decrease in the share of loans obtained from bilateral and multilateral institutions and banks decreases over time on the capital market through bond issues increases) are positive and should be continued in the next period. Also, as the external debt increases, it is essential that the total international reserves held by the national bank increase as a necessary security element.

In terms of loans on the domestic market, they can be a quick way to obtain liquidity, but repeated use of this method can result in increased domestic interest rates, companies' access to loans is reduced, the increased cost of capital makes investments decreases, decreases the profitability of companies and thus slows down economic development, so this can be rather a measure to get out of certain difficult economic circumstances.

Because in the year 2022, although the pandemic of Covid-19 seems to be ending, which can give hope for a good global economic development, other threats have appeared instead, namely: the war in Ukraine, the energy crisis, the oil and gas crisis, increased inflation, it is necessary that the policy mix agreed by the governments of our country try to achieve a healthy development of the economy, not based on consumption but on investment. The reduction of budgetary expenditure, especially the salary expenditure of state employees, in particular by making their work more efficient and reducing the number of employees, the orientation of budgetary expenditure towards investments that generate economic growth such as investments in transport infrastructure or IT infrastructure at the level of state institutions. Economic growth resulting from lower wages and some social expenditures could create a so called "virtuous circle", the state budget is balanced, domestic demand is covered by domestic supply, the trade balance is balanced, and the external debt may decrease over time.

## 6. References

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# Importance of Fundamental Analysis in the Market Valuation of the Medical Sector. Evidence from a Developed Stock Market

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## Abstract

*This study was conducted with the aim of showing the importance of fundamental analysis in valuing the companies in the medical sector, listed on Frankfurt Stock Exchange. The analysis period is 2008-2019 and the sample consists of 24 companies. As a result of the econometric modelling, it has emerged that fundamental analysis is a decisive one in the evolution of the market price of the companies listed on the German capital market, identifying indicators that have a positive and strong influence on the market value of companies, such as ROE and P/B ratio, and other indicators that exert a negative influence, such as indebtedness ratio and PER.*

**Key words:** fundamental analysis, efficient market hypothesis, fundamental indicators

**J.E.L. classification:** G11, G15, G32

## 1. Introduction

Fundamental analysis is one of the most well-known concepts in finance, alongside the efficient market hypothesis, time value of money or the CAPM model. It is based on the premise that share prices on the stock market are correlated with some fundamental factors, so, by analyzing the evolution of these factors, investors can make a profit above the market average.

Since the publication of the Security Analysis (Graham and Dodd, 1934), which is considered to be the cornerstone of fundamental analysis, until now, they have been both adherents of fundamental analysis, which validated its effectiveness, but also criticisms against its validity. The theory of efficient markets (Fama, 1965) still seems to be the main counter-argument of fundamental analysis. The efficient market hypothesis holds that when a new information about a company appears in the market it is immediately transposed in that company's share price. In this case, technical analysis, as well as fundamental analysis are useless in the attempt of estimating future prices, that would enable an investor to make a higher profit than that which might be obtained from a diversified portfolio for a long period of time (Malkiel, 2003). However, numerous empirical studies have shown that markets are not always efficient, while the presence of some anomalies such as the reversal effect or the effect of small firms (Banz, 1981) tend to confirm that opportunities to make a profit can exist even in these markets.

The main function of fundamental analysis is to determine the intrinsic value of a security on the basis of some fundamental indicators. The idea of determining the true value of a financial instrument stems in the fact that the market prices of these instruments do not fully correspond to the intrinsic value, and, in a world of uncertainty, this value is not known exactly. Because the opinions of market participants may differ, the market price of a share and its actual value may be different as well (Fama, 1965). Although, in theory, determining the intrinsic value seems to be a fairly accurate process, in practice it happens quite the opposite, since this value is determined not only by indicators whose size can be accurately calculated, but also by some market factors that are unknown to investors. Moreover, the intrinsic value may itself change over time as a consequence of new information emerging in the market. This information may be related to new research projects of a

company, changes in the management of the firm, the growth of industrial production, or any other factor that may affect the future course of the company (Fama, 1965), hence, the complexity of fundamental analysis.

More than 80 years after the publication of the second edition of Graham and Dodd's work (1940), some ideas still seem to be valid today. However, the efficient market hypothesis makes investors apprehensive about the effectiveness of fundamental analysis. Moreover, as a result of the technological development of capital markets, when financial information of firms is accessible to all users, the theory of efficient markets is still an actual topic of interest among researchers.

This study aims to highlight the importance of fundamental analysis in valuing companies in the medical industry, listed on Frankfurt Stock Exchange, one of the most developed European capital markets. The paper is structured in literature review, which highlights the main theoretical currents that considered the establishment of the market value of companies, and the case study, where we will quantify the existing linkage between different indicators of fundamental analysis and the market value of the companies in the selected sample.

## **2. Literature review**

### **2.1. The concept of fundamental analysis and its determinants**

The idea of fundamental analysis suggests that each financial instrument has an intrinsic value, which can be established by considering significant indicators such as dividends, profit, liquidity indicators, etc. In general, fundamental analysis is based on public information, accessible to all users, and investors using fundamental analysis argue that the stock prices adjust to new information emerging in the market with a certain delay (Lee, 1987).

Fundamental analysis becomes relevant with the advent of Graham and Dodd's work, first published in 1934, where intrinsic value is defined as that value based on real facts: dividends, assets, profit, etc. Long time ago, the intrinsic value was considered to be equal to the book value, but it was later proved that neither a company's profit nor the share price had anything to do with the book value (Graham and Dodd, 1940). The paper first published in 1934 supports the idea that, through a complete analysis of a company, the real price of the share can be determined, thus obtaining a profit above the market average (Isidore and Christie, 2019).

In general, fundamental analysis involves three basic elements: economic analysis, an analysis of the entire industry in which the analyzed company operates, and the analysis of the company itself. The three components of fundamental analysis are interconnected, and it is necessary to go through all the steps for an efficient analysis.

The idea behind the importance of economic analysis before investing in a firm is that, in a developing economy, the company is much more likely to thrive and possibly see an increase in the price of its shares (Isidore and Christie 2019). Following a study by Naik and Padhi (2012), it was found that there is a long-term link between the BSE Sensex index of the Indian capital market and three of the five macroeconomic variables studied. Thus, it was inferred that the stock market index has a positively correlation with the money supply and economic activity proxied by the industrial production index.

The second part of fundamental analysis consists of the analysis of the industry in which the firm operates, since even in a prosperous economy, some industries can have additional benefits as a result of some government actions. Therefore, an analysis of the industry the company comes from is necessary before an investment decision is made.

The last stage of fundamental analysis involves the analysis of the company, where factors such as the quality of management, financial indicators, competitive advantages, etc., are taken into account (Isidore and Christie, 2019). The financial information of a company can be extracted from the financial statements, and based on this information, fundamental financial ratios can be computed.

## 2.2. The efficient market hypothesis

Proponents of economic cycles theories argued that, following the evolution of economic variables for a certain period, one could foresee the future prospects of the entire economy (Bodie et al., 2020). Among the first to analyze these time series was Kendall (1953), who, after analyzing stock prices of listed companies, observed that they did not follow a specific direction, but rather evolved randomly. At the first appearance of this study the results seemed to suggest that the capital market is dominated by those "animal spirits" which cause an irrational behavior. Later, it was demonstrated that the random evolution of prices confirms the hypothesis of efficient markets (Bodie et al., 2020).

### **The idea of efficient markets and the randomness hypothesis**

The efficient market hypothesis is an important part of modern finance. Although empirical studies aimed at testing the hypothesis have not reached similar results, nevertheless, the idea itself is accepted by a large part of economists. In general, an efficient capital market is that market where stock prices reflect the fundamental information of the company. The theory of efficient markets supports the fact that, when a new information about a company appears in the market, it is immediately reflected in the share price of that company. Therefore, technical analysis and fundamental analysis as well are fruitless in determining the future prices of shares (Malkiel, 2003).

The theory of efficient markets is often linked with the random walk hypothesis, in the case of which future price developments are random deviations from previous prices. In fact, the random walk hypothesis suggests that, if the theory of efficient markets holds, then share prices in period  $n$  will only reflect the information of that period, thus being independent of the evolution of share prices in period  $n-1$  (Malkiel, 2003).

### **Limits of the efficient market hypothesis**

Shostak (1997) considers that the main problem arising when it comes to the efficient market theory is that it assumes that all participants in a market make rational decisions, which means that they all have the same expectations regarding the future evolution of stock prices. If this were true, then these financial instruments would no longer be traded, as the sale and purchase of these assets is in fact the result of different expectations of market participants regarding the future evolution of financial instruments. The second problem related to this theory, in Shostak's view (1997), is that the hypothesis holds that a buy-and-hold strategy has the same yield as any other strategy, so an entrepreneurial approach in capital markets would not make sense.

Over the years, several empirical studies have illustrated that investors could obtain profits above the market average even in developed capital markets. However, these studies are in contradiction with the theory of efficient markets, which is why the emergence of these possibilities to obtain above-average profits are called anomalies of efficient markets (Bodie et al., 2020).

The effect of small firms is one of the anomalies of efficient markets. This anomaly was first studied by Banz (1981), who analyzed the evolution of firms listed on the NYSE over a period of 40 years and observed that small firms had a higher profitability than large firms.

The reversal effect is another anomaly of efficient markets. According to this hypothesis, firms that in the past had a low yield tend to have a higher rate of return in the future than companies that previously performed well (Bodie et al., 2020). De Bondt and Thaler (1985) were among those who noticed this trend in the capital market. Following the analyses carried out by them, it was noticed that the companies that had a low performance until the formation of a portfolio that would include those firms, offered a higher rate of return in the next 36 months than the companies that in the past had high performances.

Empirical studies have shown that the efficient market hypothesis has enough problems to be considered entirely true. However, the probability of the emergence of strategies that offer the opportunity to make a profit above the average is quite small. Markets are efficient enough that the opportunity to win in these markets without having the information or skills superior to other investors is almost impossible.

### 2.3. Fundamental indicators and the market value of companies

Identifying a clear relationship between fundamental determinants of a company and its market value has been from the very beginning one of the most important issues in the field of investments. One of the first to notice the presence of this relationship is Collins (1957), who examined the factors that have the greatest influence on the share prices of ten banks from Wall Street. He identified several indicators that have influence on stock prices, among them are dividends, net profit, book value, etc. Another study conducted by Patell (1976) validates a positive relationship between earnings-per-share (EPS) and share prices. This was especially observed when firms voluntarily presented estimates of net earnings per share for future periods. Thus, it was observed that share prices increased more in the week in which these data were presented (in addition to the price increase due to the evolution of the market).

An indicator often used in fundamental analysis is dividend yield. Studies on the possibility of dividends to predict the future share price were realised by Campbell and Shiller (1988), as well as Fama and French (1988). In general, from these studies it was inferred that investors had a more significant gain if they invested in an index containing stocks that had higher dividend yields, than those investors who invested in an index with lower dividend payout ratio.

Earnings per share (EPS) is another indicator used by investors, which is widely used in financial analysis. Over the years, there have been several opinions about the ability of the EPS to predict the future value of a company. While some authors argue that earnings per share can be considered a relevant indicator in assessing the future value of a firm (Bustani et al., 2021), others believe that this indicator is not of much importance if analyzed separately (Khan et al., 2014). One of the reasons why EPS enjoys huge popularity among investors is that the profit, respectively, the profit per share can be used as a proxy to measure a company's capability to generate future cash flow flows (Besley et al., 2007). On the other hand, the value of a company depends both on future cash flows and on the risk associated with these cash-flows. Thus, trying to increase a company's profitability may not necessarily result in a higher price of that company as a result of a higher level of risk (Besley et al., 2007).

Another indicator that enjoys high popularity among investors is given by the ratio between the market price of the share and the earnings per share (PER). The price-to-earnings ratio has gained popularity among investors because it is easy to calculate, although interpretations of this ratio are different. One of the fundamental ideas behind this indicator states that investors should buy shares of those companies that have a low value of the PER coefficient, since these shares are considered to be cheaper, promising a higher rate of return in the future (Doblas et al., 2020). In opposition, some authors argue that a high price-to-earnings ratio denotes that this firm is set to grow considerably in the future, and these opportunities for the growth of the company result into a high value of PER.

Return on equity is another indicator used in fundamental analysis. Many consider that return on equity (hereinafter referred to as ROE) is one of the most important indicators in measuring the performance of a company. There are different opinions on the influence it has on a firm's market value. Following a study by Talamati et al. (2015), where banking companies listed on the Indonesian Stock Exchange were studied, they noted that ROE, taken individually, does not influence the firm's market value significantly.

Another useful indicator for investors is price-to-book value (hereinafter referred to as P/B). P/B indicator reflects the value that market participants assign to a company in relation to its book value. For most companies, the value of PB is bigger than 1, however, there are companies that have a value of this ratios lower than 1. A value of this indicator lower than 1 could mean that the firm is undervalued, thus being an opportunity to buy shares in that company. However, firms that have values of P/B below 1 may have some financial problems, which has caused the market to value the share price at its value. Among the first to study the influence of this indicator on share prices were Fama and French (1992), who analyzed the correlation between B/P ratio and the evolution of stock prices of non-financial companies. Following this study, it was concluded that the B/P indicator and the evolution of the market prices of these companies are positively correlated.

### 3. Case study and results

#### 3.1. The attractiveness of the medical sector in the German capital market

The econometric study in this paper aims to identify a correlation between the share prices of the companies in the medical sector in Germany and some indicators of fundamental analysis. The reason for choosing this sector lies in the favorable evolution of companies in the medical industry in the last ten years, but also in the potential for future growth.

The medical sector in Germany is of considerable interest among investors, being one of the largest economic sectors in the German economy, because this market occupies the first place in Europe in terms of market volume, number of patients and health service providers, according to GTAI (Germany Trade & Invest). Medical expenses in Germany amounted to over 400 billion euros in 2019, and in the last ten years this market has grown at an annual rate of 4.1% (Germany Trade & Invest).

Another reason why companies in the medical sector are important among investors is given by the evolution of medical technology in the last years. Germany is the largest market in Europe in terms of medical technology and the third in the world, with more than 1200 manufacturers of medical devices (German Trade and Invest, 2020). Table 1 is a summary of the medical equipment market in Germany for the period 2019-2020.

Table no. 1 Germany's medical equipment market 2019-2020 (USD billions)

	2019	2020
Market size	35	36,7
Local production	37,6	40,5
Imports	20,2	22,7
Exports	22,8	26,5
Imports from the U.S.	4,9	6,8

Source: International Trade Administration.

Even though this market has grown considerably in recent years, however, the potential for future growth is huge, and this should generate interest among investors. Among the factors that may influence the growth of this market in the coming years are:

- a) Ageing society – by 2035, 24 million people will be over the age of 65, representing 31% of Germany's population;
- b) Addiction to healthcare – this is supposed to increase from 3.5 million people (2017) to 4 million by 2030;
- c) Digitalization – digitization and safe transmission of data will increase the quality of medical services, at the same time offering the possibility of providing these services at lower costs (Germany Trade and Invest, 2020).

#### 3.2. Econometric study

##### Data and methodology

In our study data grouping method was panel data type, in order to identify a link between share prices, return on equity (ROE), price-to-book value (PB), debt-to-equity ratio (DE), earnings per share (EPS), price-to-earnings ratio (PER), and dividend yield (DIVY). The sample analyzed is made up of 24 companies from the medical sector, listed on Frankfurt Stock Exchange. The analysis period is 2008-2019. The share price was considered as a dependent variable, and ROE, PB, DE, EPS, PER, DIVY are independent variables. We have started our econometric analysis by estimating an ordinary least squares (OLS) regression. The level of significance used to accept or reject the null hypothesis is 10%. The software used for regression analysis is EViews 12 Student Version. The basic econometric model that we started our analysis from is as follows:

$$y_{it} = \alpha + X'_{it}\beta + \varepsilon_{it} \quad (1)$$

where:

$y_{it}$  - dependent variable;

$i=1,2,\dots N$  (analyzed indicators);

$t=1,2,\dots T$  (time)

$X'_{it}$  - vector of explanatory variables (regressors);

$\alpha$  and  $\beta$  - the parameters of the model.

The econometric model used in this study has six independent variables, as mentioned earlier, and the structural model of the initial regression is presented below:

$$Price_{i,t} = \alpha + \beta_1 ROE_{i,t} + \beta_2 PB_{i,t} + \beta_3 DE_{i,t} + \beta_4 EPS_{i,t} + \beta_5 PER_{i,t} + \beta_6 DIVY_{i,t} + \varepsilon_{i,t} \quad (2)$$

The data for the 24 companies were collected from the koyfin.com website, as well as from the boerse-frankfurt.de, and the calculation of the six variables is presented in Table 2.

Table no. 2 Fundamental analysis indicators

Indicator	Formula
Dividend yield (DIVY)	$DIVY = \frac{\text{Dividend per share}}{\text{Share price}}$
Earnings per share (EPS)	$EPS = \frac{\text{Net income} - \text{Preferred dividends}}{\text{Number of shares}}$
Price-to-earnings ratio (PER)	$PER = \frac{\text{Share price}}{\text{Earnings per share}}$
Return on equity (ROE)	$ROE = \frac{\text{Net income}}{\text{Book value of equity}}$
Price-to-book value (P/B)	$P/B = \frac{\text{Share price}}{\text{Book value per share}}$
Debt-to-equity ratio (D/E)	$D/E = \frac{\text{Total debt (interest bearing)}}{\text{Book value of equity}}$

Source: realized by authors

Descriptive statistics for the data can be depicted in the table below (Table 3).

Table no. 3 Descriptive statistics

	PRICE	ROE	PB	DE	EPS	PER	DIVY
Mean	27.21282	-0.026661	3.174470	0.843982	0.304767	13.71134	0.020523
Median	15.90000	0.058800	2.100000	0.310000	0.500000	13.94444	0.009857
Maximum	175.0000	4.638900	75.17073	64.71100	11.33000	650.0000	0.427692
Minimum	0.399000	-2.881800	-19.57407	-2.845000	-19.40000	-547.3571	0.000000
Std. Dev.	29.50844	0.564302	6.439153	4.112699	3.151458	70.73146	0.046519
Skewness	1.577820	2.638396	6.274926	13.72443	-2.558874	2.237644	5.366454
Kurtosis	5.527412	30.72801	66.16830	210.6587	17.19346	51.62819	38.64971
Observations	279	279	279	279	279	279	279

Source: realized by authors

### Results and interpretation

Following the regression analysis of the 24 companies, the regression coefficients for the six independent variables were determined. The proposed regression method was the Generalized Method of Moments (GMM). The GMM method is recommended in the empirical literature, being designed for situations when:

- the panel is a “small T, large N” panel (we have a rather small time period, of 12 years and a larger number of companies);

- There is a linear functional relationship;
- The dependent variable is dynamic, depending on its own past realizations (the closing price depends on its previous value);
- The independent variables are not strictly exogenous, being correlated with past and possibly current error.

On the other hand, GMM controls for the endogeneity of the lagged dependent variable, omitted variable bias and unobserved panel heterogeneity. Consequently, using GMM estimation method conducts us to more robust results.

The econometric estimation, using GMM, can be viewed in the Table 4. Sargan test proves that the instruments used in the GMM estimation are valid. We can therefore analyze the results.

According to the Table 3, the results regarding the influence of the dividend yield (DIVY) and the influence of Earning per share (EPS) are statistically insignificant. In the case of the DIVY indicator, the explanation could be given by the big number of companies which have not paid any dividends in this period. According to the data, 10 of the 24 companies did not pay dividends in the period of analysis, while only 8 companies distributed dividends each year for the period 2008-2019. Regarding the EPS indicator, its lack of significance could be given by the fact that many companies in the sample had losses over several consecutive years, losses that materialized in negative values of the EPS indicator.

Table no. 4 Results of the GMM econometric modelling

Dependent Variable: PRET  
Method: Panel Generalized Method of Moments  
Transformation: First Differences  
Sample (adjusted): 2010 2019  
Periods included: 10  
Cross-sections included: 24  
Total panel (unbalanced) observations: 231  
White period (period correlation) instrument weighting matrix  
White period (cross-section cluster) standard errors & covariance (d.f. corrected)  
Standard error and t-statistic probabilities adjusted for clustering  
Instrument specification: @DYN(PRET,-2) @DYN(PER,-2)  
Constant added to instrument list

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PRET(-1)	0.847008	0.022100	38.32644	0.0000
ROE	9.163386	2.674787	3.425838	0.0023
PB	0.528688	0.141462	3.737320	0.0011
DE	-1.333393	0.741907	-1.797251	0.0854
EPS	0.121926	0.130952	0.931077	0.3615
PER	-0.021377	0.008443	-2.531941	0.0186
DIVY	42.50439	33.79485	1.257718	0.2211

Effects Specification

Cross-section fixed (first differences)			
Mean dependent var	2.613459	S.D. dependent var	12.02641
S.E. of regression	15.76205	Sum squared resid	55651.08
J-statistic	13.65474	Instrument rank	24
Prob(J-statistic)	0.691373		

Source: realized by authors



As a result of the econometric modelling, it was inferred that ROE has the biggest impact on the evolution of share prices, having a coefficient of 9.16, which means that an increase of ROE by 1% would cause an increase in the share price of listed companies by 9.16 euros. This result converges to other results obtained by other empirical and theoretical studies, where it is shown that ROE directly influences the growth rate of a company, which in turn influences its market price (Bodie et al., 2020). In the study conducted by Lusiana (2020), it was shown that ROE has a positive effect on the share prices of Indonesian food companies.

As for the influence of the PB indicator on the market value of companies, things seem to be more complicated in reality. Looking strictly at the results of the regression, a coefficient of 0.53 suggests that, although to a lesser extent, PB positively influences share prices, which means that higher values of this indicator would result in higher share prices of listed companies. However, our results are not in line with economic theory, because adherents of fundamental analysis argue that those companies that have the lowest values of the PB indicator have a better chance of growth. Contrary to the results of this study, Fama and French (1992) came to the conclusion that those companies that had the lowest values of the PB indicator offered a higher rate of monthly return than the companies that had high values of the PB.

The third indicator in this study, this time having a negative influence on the market price of shares, is the ratio of debt to equity, in other words the indebtedness ratio of the company (DE). According to the results, a coefficient of -1.33 suggests that an increase in the DE indicator causes an evolution in the opposite direction of the share prices of companies. Thus, increasing a company's indebtedness would have a negative effect on the market value of this firm. One of the reasons why the DE indicator has a negative coefficient could be given by the higher risk of bankruptcy, specific for companies with a high degree of indebtedness. Therefore, companies that have a high level of debt are considered to be risky, and this can have negative effects on the market value. However, there are also studies that demonstrate that DE has a positive influence on the market value of listed companies. Bhandari (1988) was among the first to identify that the DE indicator has a positive influence on the companies' share prices. Kamar (2017), as in the previous study, also identifies a positive influence of the DE indicator on the market value of companies, although this time the influence is much weaker.

Regarding the impact that PER has on the market value of companies, the corresponding coefficient is of -0.02, meaning that the PER indicator negatively influences the share prices of the analyzed firms. Respectively, an increase in the PER indicator should generate a decrease in the share price, but to a lesser extent. Our results are in line with the economic theory, which point out to the PER indicator as a signal for buying/selling shares. In general, a higher PER is associated with an overvaluation of a share, giving a selling signal, while a lower PER indicates that the share is undervalued and consequently a buying recommendation. In other words, an increase in the PER should be negatively associated with the market price, giving the increasing volume of that share supply on the stock market.

Overall, we can say that there are fundamental analysis indicators that influence the market price of the analyzed companies, even in a developed capital market such as the German market.

#### **4. Conclusions**

Based on the results of the econometric modelling, we can conclude that some indicators used in fundamental analysis can influence indeed the market value of a company. It was revealed that ROE has the greatest influence on the market price of shares, having a coefficient of 9.16. Other indicators such as PB, have a positive but less stronger influence on the market price. On the other hand, DE negatively influences the market value of firms, having a regression coefficient of -1.33. As mentioned before, one of the explanations of the inverse link between the degree of indebtedness and the share price would be the high risk that companies with a high level of indebtedness present, which translates into a lower market value. PER influences negatively the market value of the companies, an increase of this indicator leading to a decrease in the market price.

Concluding, we can say that some of the analyzed indicators can be used by investors to substantiate some ideas on the future evolution of stock prices. However, we must not forget that the analysis in the given study was carried out on the basis of historical data, and trying to predict future prices based on past data is barely the best option. Moreover, the data used in this study can be accessed by all investors at no cost or at minimal cost, and, according to the theory of efficient markets, we would expect that this data would have long been reflected in stock prices. The present study could be extended by taking into account other sectors of activity in the German capital market, in order to carry out a comparative analysis.

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# The Impact of Bank Credit to the Public and Private Sector on the Economic Growth in Albania

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## Abstract

*The Vector Error Correction Model uses bank credit to the public sector and bank credit to the private sector as variables co-integrated with GDP growth. Finding the short-term and long-term causes of the relationship between credit activity and economic growth in Albania is the primary goal of this paper. The independent variable of bank credit to the public sector expressed as a percentage of GDP will be the focus of the econometric model. The additional independent factors taken into account are: bank credit to the private sector as percent of GDP; deposits as percent of GDP; roe; non-performing loans and the Herfindahl index. The VEC model concluded in a positive relationship between economic growth and public credit, deposits and non-performing loans. Otherwise, the results displayed a negative link between economic growth and private credit, ROE and the Herfindahl index.*

**Key words:** Albania, bank credit, economic growth, Vector Error Correction Model

**J.E.L. classification:** C1, G21

## 1. Introduction

The lending of an economy is also considered as one of the indicators of the well-being of that country. The more credit is given to the economy, the more investment opportunities and new jobs will be generated. Bank credit is essential for the economy of Albania, a country that underwent multiple stages of development following the overthrow of the prior political and economic order. In particular, bank credit to the private sector has been a good impetus for economic development.

The Albanian banking system plays an important role in public investment lending. The implementation of the strategy for the public sector has led to the use of several new products to increase efficiency, such as loans for government investments and loans for public corporations. Within the governing framework, public finance is a priority issue, for development and trust reasons. Efficiency and effectiveness in public spending are of particular importance not only in reducing poverty, but also good management of public goods helps in the economic development of the country.

Finding the short-term and long-term causes of the relationship between credit activity and economic growth in Albania is the primary goal of this paper. The Vector Error Correction Model uses bank credit to the public sector and bank credit to the private sector as variables co-integrated with GDP growth. The independent variable of bank credit to the public sector expressed as percent of GDP will be the focus of the econometric model. The additional independent factors taken into account are: bank credit to the private sector as percent of GDP; deposits as percent of GDP; roe; non-performing loans and the Herfindahl index.

With a focus on the banking industry in Albania, this research will significantly contribute to the enrichment of the empirical literature on finance and credit activity.

## 2. Literature review

According to the authors Spulbăr and Nițoi (2011, p.43), "*banks are of particular importance for economic growth, credit allocation, financial stability, as well as for the competitiveness and development of companies.*" In 2010, Spulbăr and Nițoi estimated an econometric model that intercepts determinants of the evolution of non-government credit in Romania. The authors noted that economic growth and real estate prices had the most significant impact on non-government credit.

The majority of empirical investigations (Fink, Haiss and Vukšić (2005), etc.) typically come to the conclusion that the rise of the financial sector speeds up economic expansion. The work of Dima Bogdan and Opreș Petru Eugen (2014) analyzes the relationship between financial intermediation and economic growth of developing economic systems. First, using the data set from 28 countries, between 2001 and 2010 the authors defined a financial intermediation indicator using the EFA method. The result suggests that financial intermediation as part of financial development is positively associated with economic growth. Emecheta and Ibe (2014) in their study were based on time series from 1960-2010 and concluded on a positive and significant link between bank credit and the banking sector, money in general and economic growth. The authors emphasize the importance of consolidating and recapitalizing the banking sector. Zeqiraj et al. (2020) found that the performance of the banking sector had a favorable and significant impact on economic growth in a total of 13 nations in South-Eastern Europe between 2000 and 2015 by using the generalized method of moments to panel data.

Iwanicz-Drozdowska et al., (2019) have confirmed a negative impact of bank credit on economic growth for 14 countries of Central, Eastern and South-Eastern Europe for the years 1995-2015. An indirect influence of bank credit on economic growth was also found in the example of European Union countries (EU-27) for the period 1990-2010 (Leitão, 2012).

After studying the factors related to credit activity that influence economic growth, I conducted (2022) an econometric case study to make a quantitative analysis of the relationship between credit activity and economic growth for six developed countries, resulting in a positive relationship between economic growth and bank credit to the private sector, the real interest rate and ROE and in an indirect correlation between the dependent variable and the determinants of bank credit to government and public enterprises and non-performing loans.

My paper, which was published in April 2022, used a Vector Error Correction Model to estimate through empirical analysis the long- and short-term effects of the influence of credit activity and some bank-specific determinants on economic growth in Albania. In general, the GDP and bank credit to the private sector had a negative cointegration.

## 3. Research methodology

Finding the short and long-term causes of the correlation between credit activity and economic growth in Albania is the primary goal of this paper. After reviewing the econometric models used, I chose to build a multivariate regression model, the Vector Error Correction Model (VECM) investigate the causal relationship between variables across the long and short terms.

The quarterly time series examined in this study include 93 data for each variable and cover a 24-year period from the fourth quarter of 1998 to the fourth quarter of 2021. The data for each variable were collected from the Bank of Albania's website and from INSTAT. The model and all related tests are performed using the R statistical program.

The rate of quarterly GDP growth is used to evaluate economic growth. The independent variable of bank credit to the public sector expressed as a percentage of GDP will be the focus of the econometric model, calculated as the total of these loans in ALL millions to GDP. The additional independent factors taken into account are: bank credit to the private sector as percent of GDP; deposits as percent of GDP; ROE; non-performing loans and the Herfindahl index.

The definition of the variables is shown in Table no. 1 below.

Table no. 1. Defining variables

Variable	Code	Definition	Source
Economic growth	gdpg	the quarterly rate of GDP growth	INSTAT
Bank credit to the private sector (% of GDP)	credit_private	bank credit to the private sector (individuals and businesses) in ALL millions relative to GDP	Bank of Albania
Bank credit to the public sector (% of GDP)	credit_public	bank credit to government and public enterprises, calculated as the total of these loans in ALL millions of GDP	Bank of Albania
Nonperforming loans (% of total loans)	npl	non-performing loans are calculated as a percentage of all bank loans	Bank of Albania
ROE	roe	rentabilitatea capitalurilor proprii	Bank of Albania
Deposits (% of GDP)	saving	return on equity	Bank of Albania
Herfindahl index	hh	the degree of concentration of the banking sector	Bank of Albania

Source: own processing

The main hypothesis of the research methodology are:  
 $H_0$  = Credit activity does not determine economic growth.  
 $H_a$  = Credit activity determines economic growth.

#### 4. Findings

Table no. 2 shows the optimal gap for this model, as indicated by the Akaike information ratio (AIC), the Schwartz information ratio (SC), the Hannan-Quinn information ratio (HQ) and the final error prediction criterion (FPE). The HQ, FPE and SC lag selection criteria opt for lag 1 as a good delay sequence, and the AIC criterion chose lag 3. To see the impact of credit to GDP and for a larger gap, for this model I will choose to include all variables in the model with lag = 2.

Table no. 2. Delayed order selection criteria

Lag	AIC(n)	HQ(n)	SC(n)	FPE(n)
1	7.716521	8.181176*	8.867773*	2249.108795
2	7.814109	8.677040	9.952148	2503.718262
3	7.291422*	8.552628	10.416247	1521.703112*
4	7.626995	9.286476	11.738607	2232.803090

\* shows the criteria-based lag order

Source: own data processing using the R program

According to the Maximum Eigen test of the Johansen cointegration in Table no. 3, the existence of a cointegration equation is confirmed, so the cointegration rank is 1 with a confidence level of 90%. Economic growth has an effective and cointegrated equation of rank 1. This finding suggests that, for the time period under study, economic development and credit activity in Albania have a long-term equilibrium connection.

Table no. 3. Johansen Max-Eigen test

No. hypothesized of cointegrations	Max-Eigen statistic	10% critical value	5% critical value	1% critical value
$r = 0$	43.96*	43.25	46.45	51.91
$r \leq 1$	35.61	37.45	40.3	46.82
$r \leq 2$	27.19	31.66	34.4	39.79
$r \leq 3$	13.65	25.56	28.14	33.24
$r \leq 4$	10.58	19.77	22	26.81
$r \leq 5$	6.29	13.75	15.67	20.2
$r \leq 6$	2.75	7.52	9.24	12.97

Source: own data processing using the R program

Considering the cointegration of the variables, the mathematical representation of the Vector Error Correction Model (VECM), specified in R software is:

$$EQ_{gdpg} = 2.31credit\_public - 0.21credit\_private + 0.42saving - 0.03roe + 0.01npl - 0.17hh$$

The long-term impact of credit proxies on economic growth is displayed in Table No. 4.

Table no. 4. Long-term results from R's VEC regression equations

Variable	gdpg
credit public	2.310971
credit private	-0.2080444
saving	0.4229355
roe	-0.03153645
npl	0.01387332
hh	-0.1733327

Source: own data processing using the R program

According to the VEC model, public credit, deposits, and non-performing loans all have a positive impact on economic growth. Otherwise, the findings revealed a negative correlation between economic expansion and ROE, the Herfindahl index, and private credit. The GDP will rise by 2.31 percentage points for every one percentage point increase in credit extended to the public sector. A 1% increase in the amount of credit extended to the private sector will result in a 0.21 % decline in GDP. A 1% increase in deposits will result in a 0.42 % increase in GDP. A 1% rise in the ROE level will result in a 0.3% decline in GDP. A 1% increase in the percentage of non-performing loans will result in a 0.1% increase in GDP. A 1% increase in the Herfindahl index will result in a 0.17 % decline in GDP.

The output of a VECM model over the short term is shown in Table No. 5. The system contained seven variables in the equation and GDP is defined as the function of its own delays and the other six variables.

ECT, or correcting errors and the long-term impact of variables, affects one's GDP. Benchmark ECT for GDP is -0.6% and is significant. This means a corrective tilt in the system shifts back by 0.66% from imbalances in one quarter to the next.

The impact of private credit on GDP is stronger in the short term, and lagged credit has a positive impact on GDP growth (lag 2). This result is in line with the study of Haiss and Kichler (2009). In lag 2, credit growth to the private sector will increase GDP by 0.69p.p. but two quarters later.

On GDP, the constant has a favorable effect. GDP growth will be 10.97p.p. if all variables have no impact. Following a credit-related economic shock, GDP is negatively adjusted. Eventually, bank credit to the private sector showed a lag in its negative effects on GDP (-0.91p.p.). Additionally, there is a sizable lag ratio (-1) between the expansion of the GDP and private sector

credit. This connection is significant and harmful. When this credit increases, the GDP will be negatively impacted, and the impact will show up three months following a gap (-1).

Table no. 5. Short-term output of VEC regression equations in R

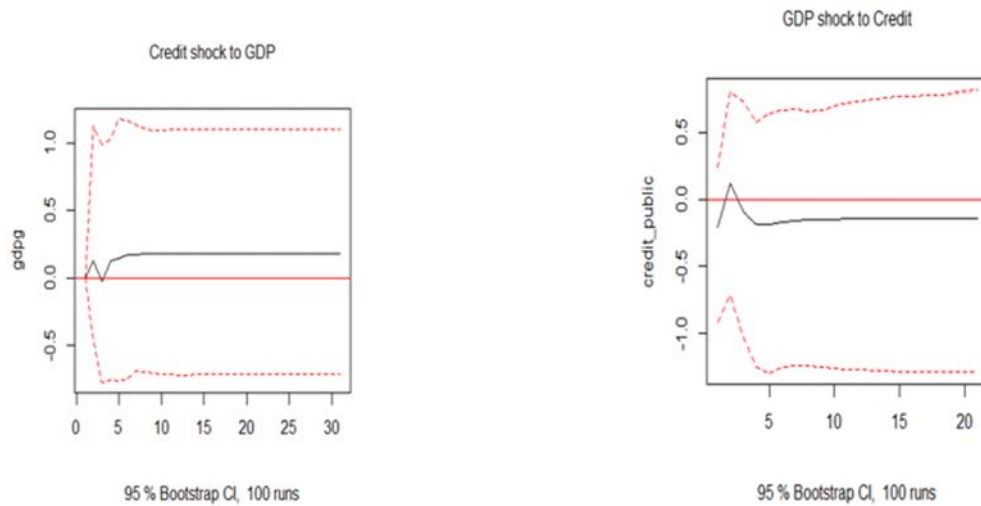
Regression coefficients	Equation 1 Equation gdp
ECT	-0.6579*** (0.1374)
Intercept	10.9701*** (2.3271)
gdp <sub>g</sub> -1	0.2241. (0.1254)
credit <sub>public</sub> -1	-1.2772 (1.289)
credit <sub>private</sub> -1	-0.9105. (0.4725)
saving -1	-0.0325 (0.2383)
roe -1	0.2566 (0.1290)
npl -1	-0.1836 (0.2263)
hh -1	-0.70. (0.3734)
gdp <sub>g</sub> -2	0.1702 (0.1109)
credit <sub>public</sub> -2	1.153 (1.2391)
credit <sub>private</sub> -2	0.6958 (0.4986)
saving -2	-0.1002 (0.2403)
roe -2	0.216 (0.1258)
npl -2	0.2653 (0.2278)
hh -2	0.2573 (0.3854)

Source: own data processing using the R program

There is also a negative lag ratio (-1) between bank credit to the public sector and GDP growth. Increased credit will have a negative influence on economic growth, and the effect will show up three months following a gap (-1). According to this model, this credit has boosted economic growth over time, and in the short run in lag 1 a negative relationship is observed. When the state is credited, initially the expenses increase and at the same time the budget deficit. In the long run, the funds that the state has invested in the economy will bring the first positive results. The Herfindahl index and GDP growth have a notable and negative lag ratio (-1). When the index rises, there will be a negative impact on economic growth, and the impact will show up three months following a gap (-1).

Figure no. 1 presents the impulse-response functions for economic growth and bank credit to the public sector. For the GDP growth equation and the equation of bank credit to the public sector, the impulse-response functions were derived.

Figure no. 1. Impulse-response functions for economic growth and public credit



Source: own data processing using the R program

For the model it was not found serial correlation nor heteroskedasticity, and errors are within the bounds of the normal distribution, as shown in Table No. 6.

Table no. 6. Portmanteau, ARCH and Jarque-Bera Tests

	Portmanteau Test	ARCH	JB-Test	Skewness	Kurtosis
<b>Chi-squared</b>	118.89	875.68	11148	641.13	10507
<b>p-value</b>	1.995e-06	0.01231	< 2.2e-16	< 2.2e-16	< 2.2e-16

Source: own data processing using the R program

## 5. Conclusions

The econometric model's findings demonstrated that the variables of bank credit to the public sector, deposits, and non-performing loans have a statistically significant direct link with the dependent variable, economic growth. On the other hand, the econometric model's findings indicated that there is an indirect relationship between economic growth and ROE, the Herfindahl index, and bank credit to the private sector.

The results showed that bank credit to the public sector has a positive effect on long-term economic growth, as these loans are used by governments for investments, a value that will be felt over time. This model also shows a long-term negative impact of bank credit to the private sector on economic growth. Albania as a country in transition has allocated a well-functioning financial system to the banking sector. For this reason, the rapid loan expansion during the early years of the transition and the subsequent slowdown following the financial crisis, the earthquake, and the coronavirus pandemic affected bank policy and helped to explain this negative relationship.

In the long run, bank credit to the public sector has had a positive impact on economic growth, and in the short run in lag 1 a negative relationship is observed. When the state is credited, initially the expenses increase and at the same time the budget deficit. In the long run, the funds that the state has invested in the economy will bring the first positive results.



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## Recovery of Recyclable Waste – Taxation and Accounting Monograph in Romania

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### Abstract

*Solid waste management has received increasing attention due to the urgent need to fulfill with the principles of the circular economy. Romanian waste generators have the obligation to maintain waste management by type of waste. By the principle of generator pays, a tax of 2% of the value of the waste sold by the generator was imposed on the collecting company. The collection of the tax is done by stopping at the source, so the obligation to pay to the Environmental Fund is the responsibility of the authorized company to take over the waste from the generator. The added value of this paper is the combination of accounting regulations and the role of the Romanian Environmental Protection Agency in this vast area of waste recycling. The purpose of this paper was to detail the accounting records related to the sale of generated waste to the company authorized for collection.*

**Key words:** solid waste management, accounting records, sale of generated waste

**J.E.L. classification:** Q53, Q56

### 1. Introduction

Waste recycling as a result of economic activities has become an important branch of every economy. Each company, depending on its activity, produces a smaller or larger amount of recyclable waste.

Recycling is the introduction of waste or scrap into a technological process in order to obtain its reuse and recovery for ecological purposes. Recycling reduces the consumption of new raw materials and also reduces energy consumption and the level of contamination of the natural environment.

Among the benefits of recycling for the environment are: recycling significantly reduces landfilling in landfills that not only massively pollutes the environment but also creates a desolate image of cities, destroying the health of those living around them; by recycling them, the pollutants released into the air and water by depositing waste in landfills are considerably reduced; recycling reduces greenhouse gas emissions from the atmosphere. This is done by replacing the used virgin raw material with secondary raw material resulting from recycling. By recycling, we save the community's energy costs in the long run, if we only consider the fact that the energy saved by recycling a single bottle can power a light bulb for four hours. Recycling preserves the Earth's natural resources.

Nowadays, most of the products of various industries can be recycled: packaging, glass, metal, electrical and electronics, batteries, tires and plastics, batteries, used oil and more. The use of refillable containers saves both raw materials and energy, because if it is returnable the container can be refilled  $n$  times it is equivalent to  $n$  disposable containers of the same size. Regarding the

recycling of scrap metal: metals are materials that can be recycled 90-95% if collected selectively. Certain metals, such as aluminum, can be recycled indefinitely. By recycling metals, energy consumption is reduced by 70% compared to the production of a completely new element.

Regarding the recycling of paper and cardboard: almost any kind of paper and cardboard can be recycled. Recycling technology can remove inks, staples, glue to which books are attached, but not oil. Therefore, oil and food stained paper and cardboard cannot be recycled. In addition, waxed, laminated or plastic-coated paper (glossy magazine covers), napkins or other used sanitary paper products cannot be recycled. A ton of recycled paper saves 17 trees from cutting. For every ton of recycled paper, over 26 tons of water and almost 1.8 tons of fuel are saved. Cardboard can be recycled many times, but not indefinitely. That is why it is good to avoid packaging as much as possible, even if it is made of paper.

The glass can be recycled by melting, without losing its properties. Also, the costs of recycling are lower than those of producing glass from raw materials, thus saving energy. Only glass of the same color can be made of colored glass. Therefore, colorless glass is more valuable, as it can be reused for many purposes. Heat-resistant glass is not recycled with ordinary glass, as it affects the melting process.

The purpose of this paper was to detail the accounting records related to the sale of generated waste to the company authorized for collection. The accounting records differ depending on the VAT payer's status of both the seller and the buyer.

## 2. Literature review

Solid waste collection allows recycled materials to be processed into new products. Waste, and especially plastic waste, is a major global challenge. For example, plastic represents about 10% - 15% of the weight of municipal solid generated waste (it also differs depending on the country), it represents a huge fraction in volume, reaching up to 40% (P. Singh and V.P Sharma, 2016). About 40% of plastic waste ends up in landfills, 25% is incinerated, 16% is recycled, and the remaining 19% is dumped in the environment (Kuan Shiong Khoo, Lih Yiing Ho, Hooi Ren Lim, Hui Yi Leong, Kit Wayne Chew, 2021).

In the case of e-waste, collection and recycling vary significantly globally. For example, Europe generates the most e-waste per capita (16.2 kg), but excels in the collection and recycling of e-waste (42.5%), setting the global standard (Baldé, CP; Bel, G.; Forti, V.; Kuehr, R., 2020). In contrast, Oceania generates similar amounts of e-waste per capita (16.1 kg) as Europe, but by comparison, has one of the lowest recycling rates in the world (8.8%) (Van Yken, J.; Boxall, NJ; Cheng, KY; Nikoloski, AN; Moheimani, NR; Kaksonen, AH, 2021).

Glass is another major component of e-waste, which accounts for up to 12% of e-waste generated worldwide (Baldé, C.P.; Bel, G.; Forti, V.; Kuehr, R., 2020). CRT glass has been used in the past in monitors and televisions. CRTs are classified as hazardous waste due to the lead content of the glass. Advances in technology have slowly replaced CRTs with liquid crystal displays (LEDs) and organic light emitting diodes (OLEDs); Ling, TC; Sarker, PK; Su, W.; Liu, J.; Wu, W.; Tang, J., 2018) Globally, 26% of disused CRTs are recycled, and 59% % of these are sent to landfills (Yao, Z.; Wu, D.; Liu, J.; Wu, W.; Zhao, H.; Tang, J., 2017).

The COVID-19 pandemic has raised issues with waste management practices. During the pandemic, there was a huge increase in the amount of personal protective equipment (face masks, gloves and other protective equipment) and a wide distribution of infectious waste from hospitals, health care units and quarantined households (Dwi Hantoko, Xiaodong Li, Agamuthu Pariatamby, Kunio Yoshikawa, Mika Horttanainen, Mi Yan, 2021).

Solid waste management has received increasing attention due to the urgent need to comply with the principles of the circular economy and to recover the value of waste (de Souza Lima Cano, N., Iacovidou, E., Rutkowski, E.W. 2022).

Medina (2005) distinguished four different types of public recycling policies, as follows: neglect, repression, collusion, and stimulus in which recycling stakeholders are supported by policies.

### 3. Research methodology

In Romania, the regulation of environmental protection is done by GEO 195/2005 on environmental protection.

As a result of the awareness of the benefits of recycling, there has been a demand for raw materials obtained from waste. The recyclable waste market has grown significantly in the last 10 years due to the growing demand for products that contain recycled raw materials.

Until raw materials arrive, recyclable waste goes through a series of technological steps. The first stage takes place within the waste generating company, as follows: in order to be recycled, the waste must be sorted and stored by categories (metal, paper and cardboard, plastic, glass, etc.).

The waste generators in Romania have the obligation to keep the waste management by type of waste and to send it to the Environmental Protection Agency monthly until the 10th of each month for the previous month. On the principle of *the generator pays*, by GEO 196/2005 a tax of 2% of the value of the waste sold by the generator to the collecting company was imposed. This tax is recognized at the time of invoicing the waste, and appears as a distinctive negative value on the invoice. The collection of the tax is done by stopping at the source, so the obligation to pay to the Environmental Fund is the responsibility of the authorized company to take over the waste from the generator.

The Romanian Environment Fund is used to finance pilot projects and programs and the following categories of projects and programs for environmental protection: reducing the impact on the atmosphere, water and soil, including air quality monitoring; noise reduction; waste management; education and public awareness on environmental protection; programs for financing investments in environmental infrastructure for selective collection, treatment and recycling of waste.

Most importantly, the recovery of waste resources depends on the process chain (i.e. the activities and performance of the value chain) and structures created and relationships throughout the value chain, which bring together production, distribution, access and management (Iacovidou et al., 2020).

### 4. Findings

The accounting monograph related to the sale of generated waste to the company authorized for collection differs depending on the VAT payer status of both the seller and the buyer (Tables 1, 2 and 3).

Table no 1. Accounting monograph if the seller is not a VAT payer

<b>Case 1. The seller is not a VAT payer</b>	
<i>The seller will register:</i>	
-recognition as additional inventory of generated waste: 346 = 758	quantity x price from the contract with the waste collection company
- waste sales: 4111 = 703	quantity x the price of the contract with the waste collection company
- calculation and reduction of the receivable from the client with the value of the environmental fund: 635 = 4111	2% x (quantity x price from the contract with the waste collection company)
- subtraction of the sold waste: 658 = 346	quantity x price from the contract with the waste collection company
<i>The buyer will register:</i>	
- receipt of purchased waste: 401 = %	
301	quantity x price of the contract with the waste generating company
447	2% x (price of the contract with the waste generating company)

Source: Authors' contribution

According to case 2 (Table 2), the acquisition cost of the waste for the collecting company also includes the VAT collected by the generating company. Therefore, it is recommended that waste collection companies opt as a VAT payer when preparing and submitting the tax vector to the Financial Administration.

*Table 2. Accounting monograph if the seller is a VAT payer and the buyer is not a VAT payer*

<b>Case 2. The seller is a VAT payer and the buyer is not a VAT payer:</b>	
<i>The seller will register:</i>	
- recognition of generated waste as additional inventory:	
346 = 758	quantity x price from the contract with the waste collection company
- waste sales:	
4111 = %	
703	quantity x price from the contract with the waste collection company
4427	19% x (quantity x price from the contract with the waste collection company)
- calculation and reduction of the receivable from the client with the value of the environmental fund	
635 = 4111	2% x (quantity x price from the contract with the waste collection company)
- subtraction of sold waste:	
658 = 346	quantity x price from the contract with the waste collection company
If the seller applies the VAT COLLECTION system, the VAT registration related to the sale of waste will be made in account 4428 NON-CHARGABLE VAT, this amount will be resumed in account 4427 VAT COLLECTED at the time of collection of the invoice from the customer by the operation:	
4428= 4427	
<i>The buyer will register:</i>	
- receipt of purchased waste:	
401 = %	
301	quantity x price from the contract with the waste collection company + 19% x (quantity x price from the contract with the waste collection company)
447	2% x (price from the contract with the waste collection company)

Source: Authors' contribution

In case 3, the invoicing of the waste will be done with REVERSE TAXATION according to the law no. 227/2015, art. 109- simplified measures. Thus, the seller has the obligation to write on the waste sales invoice the statement REVERSE TAXATION; otherwise the VAT deductibility for the buyer will not be recognized.

*Table 3. Accounting monograph where both (seller and buyer) are VAT payers*

<b>Case 3. The seller and the buyer are the payers of VAT</b>	
<i>The seller will register:</i>	
- recognition of generated waste as additional inventory:	
346 = 758	quantity x price from the contract with the waste collection company
- waste sales:	
4111 = 703	quantity x price from the contract with the waste collection company
- calculation and reduction of the receivable from the client with the value of the environmental fund	
635 = 4111	2% x (quantity x price from the contract with the waste collection company)
- subtraction of the sold waste:	
658 = 346	quantity x price from the contract with the waste collection company
<i>The buyer will register:</i>	
- receipt of purchased waste:	
401 = %	
301	quantity x price from the contract with the waste collection company
447	x (quantity x price from the contract with the waste collection company)
- registration of the REVERSE TAXATION operation:	
4426=4427	19% x quantity x price from the contract with the waste collection company

Source: Authors' contribution

For reasons of prudence, the waste generating company may choose that at the time of registering the inventory surplus of the recyclable generated waste, the inventory value should be a small one such as 0.01 lei / kg.

## 5. Conclusions

Global population growth, urbanization, technological development, and economic growth generate large amounts of waste, but also put great pressure on the Earth's finite material and energy resources. Recycling is a key practice for the successful operation of zero waste cities. It is essential to understand the recycling potential of recyclable waste.

The problem is the management of the Earth's resources and our obligation to consider the resource needs of future generations and the sustainability of the earth's ecosystem. Environmental concerns caused by inadequate waste management as well as measures to combat global warming promote actions for sustainable waste management.

Since the company's waste streams contain material and energy resources, decision-making on waste management must be inextricably linked to the problems of conservation and use of resources.

Waste will become the major resource in the future circular economy.

One problem in supporting the proper management of recyclable waste, and especially plastic waste, is the action of legislative regulation (taxation, incentives, liability) that affects the producer or consumer. In most cases, taxes are focused on the consumer, who is found guilty of misuse or selection and does not participate in recycling efforts. But the major role of the producer must also be emphasized. Consumers buy according to the choice offered by the manufacturers without having the complete knowledge or information about the composition of the material. Regulation targeting the manufacturer could encourage redesign, as due to the responsibility to recycle or handle end-of-life products, efforts will be made to improve the ease of recycling.

The main opportunities identified by better waste management are: avoiding the loss of economic value and generating job opportunities, as well as conditioning the behavior of stakeholders. On the other hand, we emphasize that poor management of recyclable waste can pose a threat to human health (R. Santagata, M. Ripa, A. Genovese, S. Ulgiati, 2021).

Recyclable waste, if used properly and correctly through circular economy strategies, prevents spills into the environment.

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## Challenges and Opportunities for Green Finance

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### Abstract

*The green finance sector is booming, and the development of this finance side brings changes in the dynamics of financial markets, investor behaviour, and regulatory and supervisory activity. The green sector and climate change are expected to be significant issues for the financial industry in the future. These motivate research into green finance subject, taking into account that changes are happening very quickly and the impact on markets and the population is significant. The main objective is to highlight and summarise the main risks, challenges, and opportunities for green financing.*

**Key words:** green finance, climate change, risk categories, opportunities

**J.E.L. classification:** G32, O16, Q5

### 1. Introduction

Climate change and environmental constraints are the biggest challenges facing the economy and society. It has become increasingly accepted that we must act, and time has been to our detriment in recent years. That is why concrete measures are needed to prevent these risks from turning into essential ones.

Definitions of various aspects of the green economy generally differ significantly from country to country. Emerging markets usually work differently than developed ones. There is disagreement about the role of nuclear resources or the acceptability of clean coal obtained by capturing and storing carbon. However, if the financial products that facilitate the transition to a carbon-neutral economy are transparent and certified, they will be appropriately valued on the financial market. Under such conditions, investors can choose the assets that best suit them, depending on ethical and economic issues.

Finance can help support green areas in several ways, from green bond financing and long-term lending to green projects, by providing financial facilities for projects that have benefited from energy improvements. Another way is to involve venture capital funds to finance innovative projects that support the environment or provide mitigation solutions.

Sometimes, however, funded projects can have controversial effects on society or even the environment. A simple example would be the investment in new energy storage technologies that will help production from renewable sources but require the production of particular elements and the exploration of rare mineral reserves that will influence the environment and society again.

While climate change can harm investment, damaging or blocking assets often, new opportunities appear for new products and services or investments. The financial sector, through investment decisions, can negatively influence the environment by financing activities that directly or indirectly affect the environment.

The amounts estimated to be necessary to meet the green targets differ from one institution to another. However, the common denominator is that they are substantial, and private funds must supplement public funds. For this reason, the involvement of financial markets in supporting the transition to a low-carbon economy has become crucial, especially in the context where it is estimated that around 80% of funding needs to be provided from private funds.



It is becoming increasingly clear that green funding is a fast-growing sector attracting more and more players. At the same time, regulatory and measurement systems are being developed to avoid adverse effects.

Concerns about green financing in financial institutions had begun to gain momentum in the early 2000s. However, the emergence of the global financial crisis of 2007-2008 and then the sovereign debt crisis of 2010 led to a shift in priorities. Green products have been proposed for decades, and polluting emissions trading systems have been considered for over 50 years.

The financial sector is one in which changes and disruptions can occur more frequently and with a significant impact. For example, digital technologies and the availability of data and information have changed the banking, investment, or insurance business quite a bit in the last decade.

Green financing aims to target the financial system towards environmentally-friendly investments that will limit the effects of climate change wherever and whenever possible. The term often appears in line with other concepts, such as sustainable financing or climate finance. In addition to the environmental and economic issues that are often addressed in this context, we notice an intertwining of social and governance elements.

## **2. Theoretical background**

There is increasing international use of the term green financing, sometimes in an inclusive sense and sometimes using very technical terms. From the formulation of standards (usually imposed by the market) to regulatory measures for the development of financing principles (public or private), we encounter different ways of defining and classifying, but also common elements, depending on the context (economic policies and taxes, regulations and regulations, market standards, statistical objectives) and parties involved (national or international financial systems, financial institutions, investors, companies).

Although there is no single definition for green funding, definitions and sets of criteria are used globally, nationally, or institutionally. These definitions can be used to evaluate and classify financing and financial instruments in this category for regulation, establishing economic policies, and statistical purposes. These may refer to green products or services offered by financial institutions, climate and environmental risk management, investments in specific sectors or industries, and regulatory instruments.

In the beginning, it is necessary to clarify the differences between terms with similar coverage or meaning. Such examples are sustainable financing or financing strictly related to climate goals. Sustainable financing, in general, refers to a broader context that includes both economic, social, and environmental elements.

Proponents of sustainable financing believe that the environment and society are inseparable elements that influence each other. Climate finance is related to environmental issues and is used to reduce pollutant emissions and support adaptation to the effects of climate change. Green funding, in principle, lies between the other two terms (sustainable financing and financing of environmental objectives).

Some definitions of green finance are linked with related activities, while others are technical and refer more to financial terms. Although these definitions differ in how they emphasize one element or another, they include references to the role finance played in allocating capital for broader environmental protection and climate change mitigation purposes. It draws attention to risk management or mentions products and services supported by green funding.

Therefore, we can consider green finance those products, services, processes, or financial initiatives that are built to offer protection to the environment and enable the transition to a low carbon economy, to support the management of environmental risks and climate change.

Increasing global action to mitigate the effects of climate change has also led to an increase in interest in green finance, both in the economic literature and in practice. The concept is not very clearly defined, but its development and attention to the subject are growing very fast. According to a recent study (Zhang, Zhang, and Managi, 2019), the number of scientific papers published in this field had increased considerably since 2015, when the Paris Agreement was signed.

### 3. Research methodology

The first stage of the research was dedicated to clarifying the associated terms in the theoretical background section. The next step involved identifying risks and challenges, as well as opportunities for green finance.

The methodology used in the article is based on descriptive and comparative analysis, interpretation of realities, identification of the main trends in the field, and enriched with examples. The bibliographic exploration is the first method used to anchor the results.

### 4. Findings

#### 4.1 Risks and challenges for green finance

Green finance faces many risks and challenges due to issues related to environmental elements and features specific to the financial system. A preliminary assessment of Romania's ability to green its financial system is conducted by the World Bank (World Bank, 2021).

When it comes to risks to the financial sector in climate change, reference is made to the three categories.

Physical risks arise from the impact of climate risks on humans and the natural system (e.g. floods, droughts, storms). It generally refers to extreme events that occur more frequently (hurricanes, floods) and to global warming and sea-level rise in the longer term. The first category represents acute risks, and the second chronic risks (Task Force on Climate-related Financial Disclosures, 2017). The first category produces unforeseen shocks on both the supply and demand side, with short- and long-term economic effects; the second category impacts potential G.D.P. and growth in the medium and long term (Batten, 2018).

Transition risks arise due to the crossover to a low-carbon economy (materialized in the loss of economic value due to asset foreclosure, new regulations, the emergence of disruptive technologies, changing investor sentiment and consumer behaviour, reputational risks or image). They produce shocks in the economy on the demand and supply side or economic growth, with short- and medium-term effects (Batten, 2018). The least affected sectors are health, media, I.T., services, medium impact in the banking sector, insurance, aerospace and defence, and high risks associated with the chemical industry, utilities, energy, and automobiles. Although they are high emission sectors, there are large emitters in every sector. Some companies' emissions are associated with high temperatures, even in industries for which low emissions are identified, such as health (MSCI, 2021). According to the MSCI report, 57% of listed companies are not yet aligned to keep global warming well below 2°C, preferably up to 1.5°C, above pre-industrial levels, as set out by the Paris Agreement. Another important observation is that companies' carbon emissions are starting to rise as the global economy begins to recover from the pandemic.

The risks of litigation arise from parties who have suffered losses due to the effects of climate change.

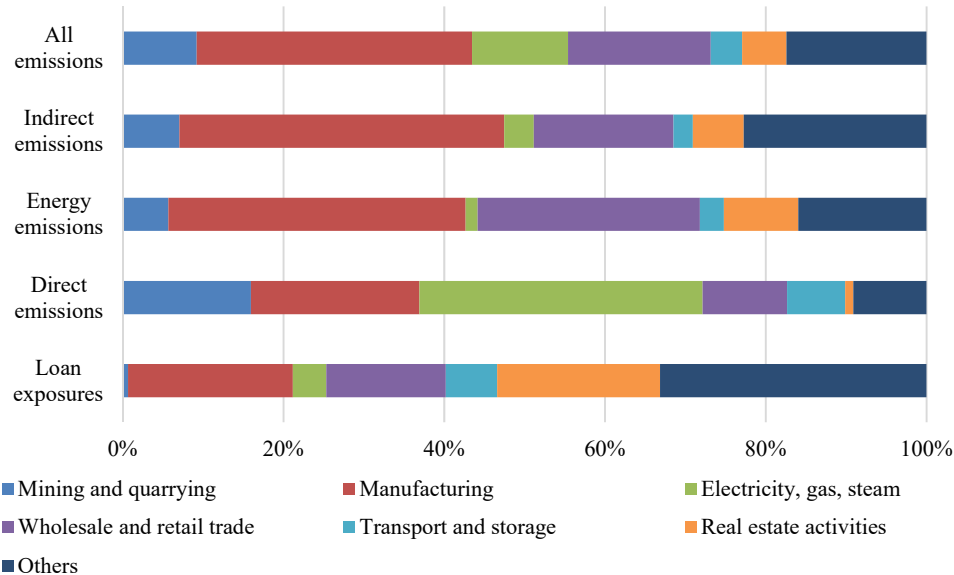
When they occur, physical risks can affect the value of collateral and assets and significantly impact insurance. According to the European Central Bank's estimates, globally, the catastrophes caused by the weather have an increasing share, and the losses represented over 80% of the total losses caused by the catastrophes reported in insurance for 2018. This year was also a peak in the frequency of occurrence of events leading to weather-related losses.

Regarding the transition risks, the results from the literature are mixed and highlight their complex character (Friede, Busch, and Bassen, 2015 - an article summarising the results of over 2,000 empirical studies.). The market assessment of the transition risk is complex, a stage that will extend over a more extended period. At the same time, their analysis is hampered by a lack of information; when they exist, they often cannot be compared due to the lack of globally accepted standards.

Financial institutions' exposure to this risk category is measured for specific business sectors based on indicators such as, for example, carbon emissions for a particular sector. The sector analysis allows for an overview of the sector and can be helpful for the first round of approximation of financial institutions' exposures. On the other hand, the differences between companies registered in that sector are omitted.

Such an aggregate analysis of euro area banks' exposures to climate-sensitive assets was carried out by the European Central Bank and is illustrated in Figure no. 1. The European Central Bank's valuation is calculated for more than 4 trillion euro exposures, which represents approximately 80% of total euro area loans to non-financial corporations. The highest exposures of bank loan portfolios are in the industry (20.49%) and real estate (20.25%).

Figure no. 1. Exposure of euro area bank lending by business sector, by share of companies' emissions in each sector (The exposures correspond to December 2020, and the emissions are calculated at the level of 2018.)



Source: Authors' adaptation based on European Central Bank (2021)

Another classification of climate change risks is made by the United Nations (United Nations Environment Program Finance Initiative, 2016). These are divided into five categories: financial and credit risks (loss of value of assets, inability to pay loans, difficulties in accessing capital, liquidity), market risks (reduced competitiveness, loss of market share), operational risks (higher costs, inefficient processes), reputational or image risks (damage to funded clients, recruitment difficulties), compliance or legal risks (regulatory actions, creditor liability, civil actions).

Although few attempts have been initiated to classify and assess these risks and it is considered that some of them can be anticipated, the risks mentioned are complex, dynamic, and interconnected. Their impact is often unexpected and affects the stability of the whole financial system finally. However, this impact is conditioned by several variables that are characterized by different degrees of uncertainty regarding the period of occurrence or the degree of intensity. Even if the risk of a sudden and significant global alignment is not necessarily immediate, the financial risks arise from the transition to a low-carbon economy. It may increase in the next period if financial decisions are not made in line with global and national climate goals.

Regarding the specific features of the financial system, we can point out, for example, that decisions are taken by financial institutions often take into account a much shorter period compared to the time horizon in which the effects on the environment or climate change become visible.

The short-term focus is on the need to deliver good results to shareholders or on liquidity requirements, leading to reluctance for green investment. An investment that can be profitable in the short term can be disadvantageous in the long run because of the adverse effects on the environment. This mismatch in the timeline has implications for the fight against climate change: while the effects of climate change are long-term, financial decisions must be made now.

In such a context, where priorities are facing current issues and climate change issues are beyond business and political cycles, the mandate of some technocratic institutions they are considered the "tragedy of the horizon" (Carney, 2015).

Returning to the focus on providing good results to shareholders, if this is the primary concern of companies, there may be potential damage to the environment due to decisions taken if these issues are not taken into account. This leads to investments in projects that generate pollution and carbon emissions or affect a particular area. Maximizing profits and orienting decisions in the short term can have cumulative effects on the environment or are not immediately visible. Another relevant aspect is that this impact is not necessarily felt by shareholders most of the time.

Developing green or sustainable financing in developing countries, where climate change adaptation or mitigation activities are needed, is another type of challenge. This is often hampered by underdeveloped markets, high capital costs, poor regulation, or political instability. Statistical data are not always available for these countries compared to developed countries. Even in developed countries, statistical data and other information may be difficult to access; there may be a reluctance to report or apply different standards for similar concepts.

In recent years, however, the orientation of companies towards stakeholders has been promoted more and more, aiming for businesses to generate value for all stakeholders: employees, shareholders, customers, suppliers, creditors, and the community as a whole. Such an approach, to which we can add concern for future generations, could help protect the environment and reduce the long-term effects of climate change.

However, the financial system as a whole cannot be considered green. Sufficient activities that adversely affect the environment are still being funded, including burning fossil fuels. Moreover, financial markets face the greenwashing process, namely attempts to make false or unproven claims about the positive impact on the environment.

## **4.2 Opportunities for green finance**

Financing the transition to a climate-neutral economy involves attracting a considerable amount of funds, far more than those offered by public institutions, which requires the participation of private investors for whom new opportunities are opening up. Moreover, the demand for green financial products is expected to increase. The transition to a low-carbon economy is a promising long-term business opportunity, with financial institutions able to sustain green finance. Therefore, exploring opportunities and new taxonomies and standards is becoming a central concern.

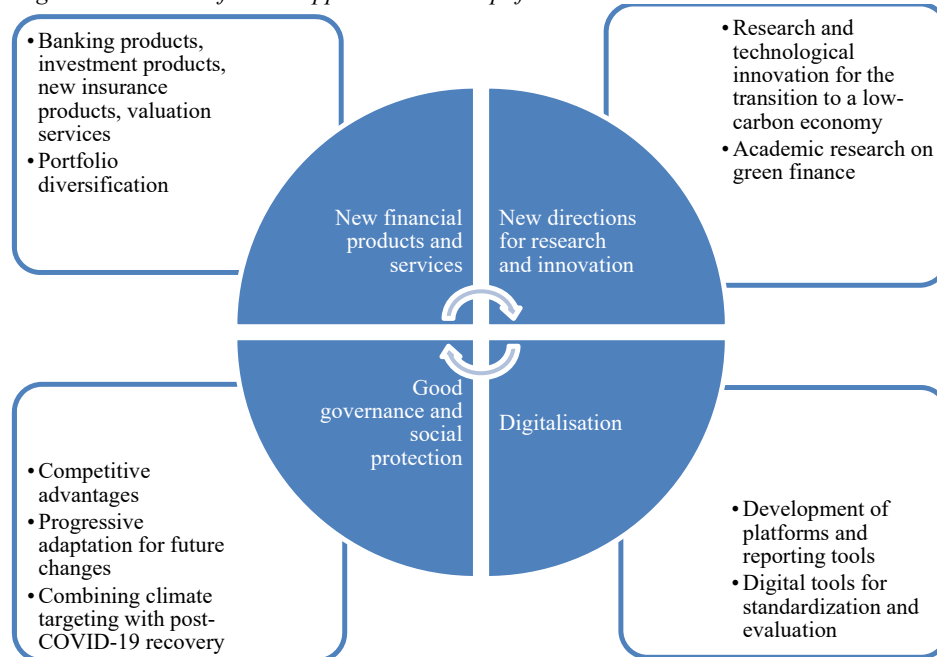
Institutions that include green funding in their strategy can enjoy multiple benefits. Firstly, in the face of increasing pressures in recent years to focus activities on environmental protection and climate change reduction, they can have a better image that contributes to improving reputation and credibility and improving the relationship with government or regulatory institutions, partners, customers, and investors. This improvement is due to the understanding and proper management of environmental risks. It can facilitate access to new markets, provide a competitive advantage or improve resilience to changes in the market due to feeling the effects of climate change. Adapting to new customer preferences opens up new opportunities, laying the groundwork for suitable medium- and long-term collaboration.

Another opportunity may be to diversify portfolio risks by reducing the share of assets associated with environmental risks. Such a weighting may prepare companies and institutions for the new regulations (capital requirements based on "green" and "brown" assets held, special reporting requirements, stress testing).

Last but not least, green funding is an opportunity for new research and analysis. The main trends and research opportunities in this field are identified and analyzed by Wang, Li, and Wang (2021), Akomea-Frimpong et al. (2021), Gilchrist, Yu, and Zhong (2021), and Zhang, Zhang, and Managi (2019).

A simplified scheme of the main opportunities for green financing is shown in Figure no. 2. They are divided into four categories (new financial products and services, new directions for research and innovation, good governance and social protections, and digitalization). In this way, green finance promotes financial innovation, and even if it brings uncertainty, it also contributes to the development of the positive side of innovation (Lupu and Criste, 2021).

Figure no. 2. Green finance opportunities - simplified scheme



Source: The authors' conception based on literature

It is becoming increasingly clear that the financial sector is playing an essential role in the fight against climate change. For example, a recent Global Risk Report states that climate change poses a pivotal risk to business, finance, and society (World Economic Forum, 2021). Institutional investors, hedging instruments, and financial instruments (such as green stock indices, and green bonds) can help rebalance and redistribute climate risks, allocate investment to green sectors and maintain financial stability.

## 5. Conclusions

The role can play in combating the effects of environmental change gives the importance of green financing without adding significant additional risks and benefits for the economy and society. Given the possible effects of climate change and environmental challenges, the economic system is constrained to consider these issues. Financial institutions are thus driven to identify, manage and report the risks to which they are exposed, increasing the institution's resilience and the financial system as a whole.

Both natural causes and human activities have led to the emergence and intensification of climate change, but the latter certainly has the most significant impact. Green finance plays an essential role in the fight against climate change, supporting activities that contribute to reducing carbon emissions (mitigation activities) and activities that adapt to changes that have already taken place or are about to occur. The financial sector's involvement is both direct, through specific financial products and services, and indirect, through the modelling of investment decisions. Moreover, the reshaping of the financial system is carried out by several actors, such as national and international organizations, central banks, regulators, banks and non-bank financial institutions, and individual and corporate actions. How they are involved and cooperate determines the speed with which green financing develops and is included in economic and institutional development.

Globally, many risks have been identified related to climate change and the environment affecting consumers, financial institutions, and the economy. However, at the same time, opportunities spring for investors, asset managers, or lending institutions. Many of the identified risks are still not fully or correctly assessed, which causes their impact to take unpredictable forms, creating new opportunities for the launch of fair assessment and mitigation services.

However, the emergence or identification of new risks also triggers new opportunities for the financial system. The transition to a low-carbon economy is very capital-intensive, requiring the support of private entities, thus generating opportunities for financial services firms. Opportunities are created for portfolio investment, the application of FinTech services for green financial products and services, and artificial intelligence for data analysis and interpretation. Institutional and societal pressure may accelerate awareness of other possible disasters, which should facilitate the implementation of measures to combat climate change and awareness and acceptance of the green finance principles needed to encourage the transition to a low carbon emission economy.

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# The Liquidity and Indebtness Indicators in Evaluating Bankruptcy Risk Assessment and Insolvency Risk

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## Abstract

*In a world dominated by continuous growth, the cash and cash equivalents represents one of the most important criteria in establishing the business success. In order to understand the importance of the cash and cash equivalents in the accounting principles (especially in the continuity activity principle), I performed a statistical evaluation of the companies listed on Bucharest Stock Exchange in order to determine the effect of the liquidity and indebtedness indicators in the day-by-day activity of the most important romanian entities.*

*This set of indicators shows the ability of companies to meet their short-term debts, and their importance is given by the possibility of covering a continuous flow of goods and services necessary for the pecuniary activity. A low level of liquidity is the first signal of a downturn in the near future and the generation of financial problems that can later lead to the declaration of insolvency.*

**Key words:** insolvency procedure, fraud risk, indebtedness, accounting principles, bankruptcy

**J.E.L. classification:** G40

## 1. Introduction

One of the objectives of the annual financial statements is the accurate presentation of information on the financial position, performance of a business and possible changes in financial position from time to time, useful information for the decision-making process of for-profit companies.

The financial position reflects a company's ability to adapt to changes in the financial paradigm, the correlation between the value of the asset and the structure of equity and debt.

Phenomena and economic processes that may affect profit-oriented businesses are reflected either in the result for the year (affecting income and expenses) or in the balance sheet (by affecting the balance sheet structure (fixed assets, current assets, debt, equity, etc.). .

The balance sheet includes information on the ability of companies to generate future cash flows (or cash equivalents), information on future financing needs and the ability to honor those present, on relations with trading partners and shareholders. This information is reflected by means of economic-financial indicators of liquidity, solvency and financing.

In this study I aim to determine if the liquidity and indebtedness indicators may offer a clearer view of a company risk of insolvency and bankruptcy based on audit opinions.

## 2. Theoretical background

The concepts of liquidity and solvency appear with different meanings and definitions in financial theory and practice, which is an impediment in conducting a relevant analysis of the current financial position and performance of the analyzed companies (Trif, 2015).

Yves Bernard and Jean Claude Colli consider solvency as "the ability of a business to meet its commitments with all the resources that make up its assets or assets, and liquidity as" the ability to meet a financial commitment quickly "or" immediately available amount ". which can honor a current or future financial commitment" (Colli, 1995).

This set of indicators is most often used in modern portfolio theory, a concept introduced in 1952 by Nobel Prize winner in Economics Harry Markowitz. This theory is a mathematical model by which a portfolio of investments or financial assets is designed, chosen and traded in a way that maximizes relative gain (average return) and reduces financial risk. This model was later taken on most of the world's stock exchanges, and is now known as investment funds or mutual funds.

In the analysis of the risk of bankruptcy with the help of financial indicators, it is important to visualize the chosen sample as a whole, and then to better understand the risk of fraud and bankruptcy with the help of the division of financial indicators into groups (Tillman, 1995).

### 3. Research methodology

In the study below, the companies used on the Bucharest Stock Exchange were used, the sample being divided into audit opinions with and without the risk of associated fraud. At the beginning of my analysis, I propose to find out if the companies qualified by the auditors as having an associated risk of fraud have lower values (below the minimum established by the specialized literature) of the liquidity and financing indicators.

For a good understanding from the beginning of the sample we want to analyze, it is necessary to create an overview of the companies listed on the Bucharest Stock Exchange, then following the separate analysis of the same sample, divided by audit and risk opinions. of fraud detected, according to the audited audit reports.

### 4. Findings

#### 4.1. Liquidity indicators in assessing the risk of bankruptcy

According to the data published by the companies that are listed on the Bucharest Stock Exchange, at the end of 2020 the liquidity indicators presented the following average values, according to Table no. 1:

Table no. 1: Liquidity indicators  
One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
Rata_lich_gen_2018	3,468	63	,001	3,83047	1,9867	5,6742
Rata_lich_gen_2019	1,699	63	,094	6,96656	,1223	13,8108
Rata_lich_gen_2020	4,211	63	,000	1,48250	,8948	2,0702
Rata_lich_red_2018	2,479	63	,016	2,46687	,8054	4,1284
Rata_lich_red_2019	,753	63	,454	3,47609	-4,2297	11,1819
Rata_lich_red_2020	3,854	63	,000	,78391	,4443	1,1235
Rata_lich_imd_2018	2,819	63	,006	,12187	,0497	,1940
Rata_lich_imd_2019	1,671	63	,100	,45891	,0005	,9173
Rata_lich_imd_2020	4,411	63	,000	,03500	,0218	,0482

Source: Own processing in SPSS 20.0

Analyzed at the level of the entire population, it can be seen that the average of the analyzed indicators takes favorable values at the level of the sample in the last three financial years analyzed, a discordant note making the year 2020 in view of the Covid-19 pandemic.



According to the student T test in Table number 2, the general liquidity rate oscillates in the analyzed period (2018 - 2020) in all the companies listed on the Bucharest Stock Exchange. Starting from two general hypotheses (hypothesis H0: population average is not different and hypothesis H1: population average is different), with the help of the Student test we can determine if there are significant deviations from the average in terms of liquidity indicators. In the event that the H0 hypothesis is rejected, the Student test in this case cannot help us formulate a model for detecting the risk of bankruptcy.

In 2018, the liquidity rates take T values of 3,468 in the case of the general liquidity rate, T = 2,479 in the case of the reduced liquidity rate and a T value of 2,819 for the immediate liquidity rate. Correlated with a value of the sig indicator below the limit set by the 90% confidence interval for all three indicators analyzed (0.01 for the general liquidity rate, 0.016 for the low liquidity rate and 0.006 for the immediate liquidity rate), it can be concluded that the financial liquidity indicators take positive values and the sample represented by the companies listed on the Bucharest Stock Exchange has the ability to pay their current debts on time.

The year 2019 shows a significant improvement in the values of the analyzed indicators. Thus, the general liquidity rate takes the value T equal to 1,699 correlated with a sig value of 0.940, below the initially set threshold of 10%. This indicates a better overall liquidity than in 2018 and a significant increase in current assets at the sample level, correlated with a decrease in short-term debt. This indicates an increased degree of financial autonomy, the possibility of developing the business through loans for the investment segment and an increase in the consumer market as a whole.

As for the low liquidity rate, the T indicator is 0.753, which at first sight indicates an improvement over the previous year in terms of temporary payment capacity. However, correlated with the value taken by the sig indicator of 0.454, the value of the low liquidity rate indicates suspicions regarding the ability of companies to pay their debts on time, in case of elimination of stocks. The correlation between the two values shows a higher allocation of financial resources for the acquisition of stocks, in a market that has been ambitious for 10 consecutive years of financial growth and 'unprepared for the unforeseen'.

The immediate liquidity rate shows signs of improvement compared to 2018, the difference in value of the T indicator (1,671 in 2019 compared to 2,819 in 2018) is not as significant as in the case of the other indicators analyzed, referring here to the difference between the value between the first and second year of analysis (2,819 - 1,671 = 1,148). The sig value for this indicator is at the limit of the 90% confidence threshold, which shows that there are no significant deviations from the average and the sample has sufficient immediate payment resources to avoid default.

In 2020, the overall liquidity rate stands at 2.66 times the total population, which shows that the current assets cover, at the level of the whole sample, 2.66 times the value of current debts, a favorable aspect in terms of business continuity, and the risk of insolvency, given that the entities under study are able to cover their current liabilities without compromising material resources.

The reduced liquidity rate is on the same better position in 2020 (value T = 3,854, sig = 0.00) compared to 2018 (value T = 2,479, sig = 0.016) but lower than in 2019 despite the calculated risk (value T = 0.753, sig = 0.454), similar to the general liquidity rate. The value of 1.70 recorded by the indicator at the end of 2020 shows that the value of stocks in total current assets is 0.96 (2.66 - 1.70), which translates into an avoidance of companies listed on the Stock Exchange Bucharest to block its financial resources in stocks, the impact of this policy being the pandemic effect of Covid-19 and the increase of reluctance on the part of buyers.

As in the case of the indicators analyzed above, the immediate liquidity rate follows the same evolutionary trend. In 2020, the immediate liquidity rate takes the T value of 4,411 and at an assumed risk of 10% the sig value is 0.000. The increase in the indicator resulting from the Student test shows a decrease in the immediate liquidity of the companies listed on the Bucharest Stock Exchange, correlated with an increase in short-term debts in the case of almost all the companies that make up the sample. This is due to the isolation measures at home, the closure of non-essential activities, the increase in unemployment and the lack of capital in the market, effects of the Covid-19 pandemic.

A crucial contribution in estimating the risk of bankruptcy with the help of liquidity indicators is the audit reports that classify the entities listed on the Bucharest Stock Exchange into entities with risk and without risk of fraud. Thus, the classification of the sample according to this criterion forms

a more detailed picture of the risk detection procedure. Information on liquidity indicators according to the criterion with and without risk of fraud is presented in Tables 2 and 3.

Table no. 2: Descriptive analysis of liquidity indicators - period 2018 - 2020 - without associated fraud risk

		Statistics									
		Risc_frauda	Rata_lich_ge n_18	Rata_lich_ge n_19	Rata_lich_ge n_20	Rata_lich_red _18	Rata_lich_red _19	Rata_lich_red _20	Rata_lich_im d_18	Rata_lich_im d_19	Rata_lich_im d_20
N	Valid	36	36	36	36	36	36	36	36	36	36
	Missing	0	0	0	0	0	0	0	0	0	0
Mean			3,7261	3,5878	2,64	1,6839	-2,0442	1,3936	,1175	,4989	,0622
Std. Error of Mean			1,15889	1,01214	,557	,79385	4,15867	,32882	,03786	,40117	,01237
Median			1,4800	1,6050	1,47	,9950	,9850	,9700	,0350	,0400	,0300
Std. Deviation			6,95332	6,07283	3,340	4,76313	24,95202	1,97292	,22716	2,40700	,07422
Variance			48,349	36,879	11,153	22,687	622,603	3,892	,052	5,794	,006
Skewness			3,418	3,196	2,243	,797	-5,729	,577	3,145	5,948	1,449
Std. Error of Skewness			,393	,393	,393	,393	,393	,393	,393	,393	,393
Kurtosis			12,361	10,202	5,131	4,335	33,866	1,849	10,348	35,558	1,148
Std. Error of Kurtosis			,768	,768	,768	,768	,768	,768	,768	,768	,768
Minimum			,04	,04	0	-11,20	-145,56	-3,68	,00	,00	,00
Maximum			34,57	27,28	15	16,42	17,09	6,23	1,08	14,50	,27

Source: Own processing in SPSS 20.0

Table no. 3: Descriptive analysis of liquidity indicators - period 2018 - 2020 - with associated fraud risk

		Statistics									
		Risc_frauda	Rata_lich_ge n_18	Rata_lich_ge n_19	Rata_lich_ge n_20	Rata_lich_red _18	Rata_lich_red _19	Rata_lich_red _20	Rata_lich_im d_18	Rata_lich_im d_19	Rata_lich_im d_20
N	Valid	28	28	28	28	28	28	28	28	28	28
	Missing	0	8	8	8	8	8	8	8	8	8
Mean			3,9646	11,3107	2,69	3,4736	10,5736	2,0968	,1275	,4075	,0661
Std. Error of Mean			2,06544	9,31108	,796	2,04108	9,02744	,72942	,08704	,36572	,02600
Median			1,9000	1,9850	1,83	1,2550	1,4200	1,2300	,0300	,0350	,0300
Std. Deviation			10,92928	49,26960	4,211	10,80039	47,76873	3,85975	,46055	1,93521	,13758
Variance			119,449	2427,493	17,733	116,648	2281,852	14,898	,212	3,745	,019
Skewness			5,201	5,287	4,565	5,221	5,288	4,724	5,238	5,288	4,654
Std. Error of Skewness			,441	,441	,441	,441	,441	,441	,441	,441	,441
Kurtosis			27,330	27,965	22,601	27,475	27,972	23,790	27,604	27,975	23,296
Std. Error of Kurtosis			,858	,858	,858	,858	,858	,858	,858	,858	,858
Minimum			,27	,24	0	,17	,17	-,33	,00	,00	,00
Maximum			59,43	262,64	23	58,35	254,26	21,09	2,47	10,28	,74

Source: Own processing in SPSS 20.0

The classification of the sample into the two categories (with and without the risk of associated fraud), according to the audited audit reports, shows more accurately the deficiencies found by the auditors engaged in the mission of analyzing the annual financial statements.

Thus, the general liquidity rate in 2018 takes average values of 3.7261 and a deviation from the average of 1.15889 in the case of companies without risk of associated fraud and 3.9646 in a deviation from the average of 2.06544 in the case of companies at risk. This suggests an overvaluation of current assets in the case of companies at risk of fraud. In addition, the value of the indicator is able to lead to the conclusion that the entities on which a risk of fraud is planning have a slower movement of stocks, correlated with their seniority of more than one year and higher uncollected receivables, especially to intra-group partners, which have not been reclassified, which represent non-performing assets but which are still retained by the company for the "beautification" of the annual financial statements. The holding of non-performing assets by the company is also an impediment to the recovery of debts by creditors because they have a high moral and physical wear and tear, and their revaluation can lead to significant differences between their carrying amount and the revalued amount.

In 2019, the difference between those indicators increases significantly, reaching 3.5878 in the case of entities without risk of fraud, together with an average deviation of 1.01214 and 11.3107 in the case of companies with an associated risk of an average deviation of 9, 31108. The significant difference is due, in the case of risk-free companies, by increasing the turnover rate of stocks and improving internal and external trading policies (this is also supported by the analysis in Chapter 1 on the value of exports coupled with the number of declared insolvencies). ). Improving the turnover rate of stocks plays a key role in the development of companies and in preventing fraudulent events (regarding the theft of stocks, their devaluation, declining market demand, fictitious recognition of

stocks, etc.). In the case of companies with an associated risk of fraud, the significant increase in the indicator is due to the continued storage of high value current assets to increase the attractiveness of financial partners (mainly creditor banks), coupled with a decrease in overall productivity. found in the significant decline in short-term debt, average annual labor productivity and the number of employees). An important aspect of this variance is the analysis of audit reports that present specific cases, in which items of fixed assets are reclassified as current assets at the time of sale, oversized revaluation of current assets and non-adjustment for impairment of inventories. significant impact on the growth of this indicator.

The year 2020 is an atypical year from all points of view. Regarding the general liquidity rate, it can be observed a decrease to 2.64 by 0.557 average deviation in the case of companies without risk of fraud and 2.69 by 0.796 in the case of companies with risk of associated fraud. The general decline in this indicator can be easily explained by the economic effects of the Covid-19 pandemic, but there are a number of peculiarities here as well. In the case of non-fraudulent companies (considered to be "in good faith"), the decrease can be easily explained by measures to restrict movement and stop non-essential activities that have led to a rapid increase in short-term debt. higher than current assets. In the case of companies at risk of fraud, on the other hand, in addition to the deficiencies found previously, a peculiarity is that of declaring insolvency in greater numbers than in the case of companies without associated risk. Audit opinions for these companies show an increase in the number of days of short-term debt payments and constant delays in payments.

The low liquidity ratio retains the same explanations as for the general liquidity ratio, with the exception that, excluding stocks, the deviation from the average is higher for entities with an associated risk of fraud. The mean deviation is important in the analysis of the groups of indicators, which indicates how much the values of the sample vary from the analyzed average. In the case of companies classified as having a risk of fraud, the deviation from the average is much higher than in the case of risk-free companies, and this means that most of the values calculated for each entity in the sample deviate from the values recommended by economic theory. a risk of insolvency due to either overvaluation of assets or non-recognition of current liabilities in full.

The immediate liquidity rate shows the ability to pay on the spot of current debts from existing liquidity. In the case of companies without risk of fraud, this indicator has values that reflect a better ability to pay than in the case of companies at risk.

In 2018, the immediate liquidity rate measures 0.175 at a deviation from the average of 0.03786, compared to 0.1275 at a deviation of 0.08704. Although initially the liquidity rate is higher in the case of companies at risk, the deviation from the average is higher in the case of the latter category, which reflects that entities at risk of fraud have a lower ability to pay debts.

In 2019, this indicator takes the value of 0.4989 at a deviation of 0.40117 in the case of the first category of entities and 0.4075 at a deviation of 0.36572. The increase in the ability to pay debts in the liquidity of companies reflects a better degree of debt recovery at the same time as a better management of current debt in the case of the first category of entities. The second category shows significant deviations from the average, which refers to an impossibility of immediate payment of current debts mainly due to lack of liquidity.

The year 2020 shows a significant decrease in the liquidity of both categories of the sample, the values of 0.0622 to a deviation of 0.01237 in the case of risk-free companies and 0.0661 to a deviation of 0.026 in the case of risk companies supporting the unfavorable financial impact of the pandemic of Covid-19. Again, the average deviation is higher for high-risk companies than for non-risk companies, which supports the assumption we initially made, namely a higher risk of default on current debts in the case of the second category.

At the same time, the values of asymmetry (Skewness) and flattening (Kurtosis) indices are also of interest in this type of analysis. In the three periods analyzed, it can be seen that in the case of companies that do not present a risk of fraud, the values taken by this indicator are lower than in the case of companies at risk of fraud.

In the case of the asymmetry index, there is a right (positive) asymmetry in both categories of the sample, in the case of entities at risk of fraud this asymmetry is more pronounced, which reinforces the previously stated conclusion that deviations from the average are more large in the case of companies at risk. A pronounced positive asymmetry lies in a higher risk of fraud for these companies and resonates with the audit opinions analyzed.

The vaulting index (flattening or Kurtosis) has a leptocurtic shape because the values taken by it are higher than the nominal value of 3. This index, together with the asymmetry, has the role of showing the shape of a distribution of variables. As in the case of the Skewness Index, the Kurtosis Index shows a higher excess for fraudulent companies than for non-fraudulent ones, an additional reason to support the initial hypothesis that companies classified as fraudulent have a lower capacity. payment of current debts.

#### 4.2. Debt indicators in bankruptcy risk assessment

Debt indicators measure the ability of companies to contract financial resources to finance planned operations and investments, which are hedged with their own capital (in this case, it assesses the ability of an economic entity to meet its financial obligations using its own capital. which disposes) (Smith, 2017).

In order to create an overview of the situation of indebtedness indicators at the level of the entire sampled population, we analyzed the global population without taking into account the classification of companies as risk-free or risky. The analysis of debt indicators can be found in Table number 4.

Table no. 4: Descriptive analysis of risk indicators

Descriptive Statistics												
	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Lev_fin_18	64	80,81	-7,75	73,06	1,3127	1,16139	9,29109	86,324	7,512	,299	58,968	,590
Lev_fin_19	64	89,30	-7,16	82,14	1,4839	1,29724	10,37794	107,702	7,671	,299	60,567	,590
Lev_fin_20	64	78,47	-6,29	72,18	1,3958	1,14135	9,13078	83,371	7,611	,299	59,928	,590
Aut_glob_18	64	89,58	-5,40	84,18	2,0973	1,32089	10,56712	111,664	7,668	,299	60,426	,590
Aut_glob_19	64	90,06	-7,11	82,95	2,1442	1,31138	10,49102	110,062	7,476	,299	58,329	,590
Aut_glob_20	64	66	-7	59	1,73	,947	7,580	57,456	6,999	,299	53,114	,590
Indat_glob_18	64	9,16	,00	9,16	,8703	,20795	1,66359	2,768	3,888	,299	16,051	,590
Indat_glob_19	64	10,68	,00	10,68	,9667	,24309	1,94473	3,782	3,899	,299	16,213	,590
Indat_glob_20	64	13	0	13	1,08	,266	2,131	4,541	4,020	,299	18,694	,590
Indat_term_18	57	8	-6	2	,05	,141	1,066	1,137	-3,590	,316	19,067	,623
Indat_term_19	56	7	-5	2	,07	,126	,940	,884	-2,829	,319	14,835	,628
Indat_term_20	55	7	-4	2	,08	,124	,919	,845	-2,690	,322	13,029	,634
Valid N (listwise)	55											

Source: Own processing in SPSS 20.0

Risk indicators have variations that could easily be predicted during the analyzed period. Specifically, in the case of leverage, there is an increase in the period 2018 - 2019 (from an average of 1.3127 to a standard error of 1.16139 in 2018 to 1.4839 to a standard deviation of 1, 29724 in 2019), followed by a decrease in 2020 (from 1.3958 to a standard deviation of 1.14135), the decrease being attributed mostly to the negative effects of the Covid-19 pandemic. The values taken by this indicator, however, show a supra-unit value in the analyzed period, which refers to a high degree of indebtedness, but not critical (the reference threshold of this indicator is 2.33, the equivalent of 70% of total assets which is assigned to bank loans). The standard deviation for this indicator is also much higher than the general average, reinforced by the flattening and vaulting indicators (Skewness and Kurtosis). In this case, it can be stated that there are values of this indicator that vary greatly from the general average, in the sense of a very high degree of indebtedness that may call into question the principle of business continuity in the following periods. Coincidentally or not, entities that know the values of these indicators with significant deviations from the overall average are labeled by audit firms as presenting a risk of fraud, which we will return to.

The global autonomy shows similar oscillations as in the case of the indicator stated above. Starting from an average value of 2.0973 at a standard deviation of 1.32089 in 2018, it reaches 2.1442 at a standard deviation of 1.31138 in 2019 and stopping at 1.73 with a deviation 0.947 in 2020. The general decrease in 2020 on all indicators analyzed cannot be attributed to a widespread risk of fraud, given that for at least 3 calendar months, any non-essential activities were stopped and the Romanian economy fell by about 10% this year. The decrease in this indicator is attributed to a significant

decrease in the equity of the companies that make up the sample, which translates into accounting losses reported in 2020, along with a decrease in investment subsidies, facilities and grants supported from the state budget. The standard deviation for this indicator is similar to the financial leverage indicator, which translates into very large deviations from the general average, and the previous explanations remain valid in this case as well.

When we refer to the global debt indicator, unlike the previous indicators, it has steady increases from one analyzed period to another. In 2018, the average value of the indicator is 0.8703 at a standard deviation of 0.20795 and a flattening of 3.888, close to the economic theory of 3. These values show that although the overall indebtedness is high overall, it does not show values that deviate significantly from the average and does not at first sight create the premise of a risk of fraud. In 2019, the average value of the global debt indicator reaches 0.9667 at a standard deviation of 0.24309 and a flattening indicator of 3.899, slightly higher than the previous period. The growth of the global economy, the increase of production capacity and exports (detailed in Chapter 2) are factors that contribute to the increase in the current need for financing and business development by attracting investment capital. Although the Bucharest Stock Exchange has seen progressive increases in traded capital since its inception, the main source of financing for Romanian companies remains investment credit, a capital instrument very well developed by banking financial institutions in this geographical area ( of Central and Eastern Europe).

In 2020, the indicator continues its upward trend, with an average value of 1.08 at a standard deviation of 0.266 and a flattening of 4.020. This year, the increase in the value of global debt is no longer attributed to the increase in turnover, but on the contrary, to the need for current financing as a result of stopping production and avoiding the declaration of insolvency.

Also, the gradual increase in flattening and vaulting indices refers to a discrepancy between the average value taken by the indicator and its extremes.

The analysis of risk indicators becomes more eloquent if we add to the equation the division of the sample into two distinct categories, depending on the audit reports, annexes to the annual financial statements. Thus, the breakdown of the risk indicators according to the criterion without associated fraud risk and with associated fraud risk is visible in Tables number 5 and 6.

Table no. 5: Analysis of risk indicators - entities without associated fraud risk

	Descriptive Statistics											
	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Lev_fin_18	36	11,84	-6,95	4,89	,0178	,31112	1,86669	3,485	-1,573	,393	6,264	,768
Lev_fin_19	36	11,35	-7,16	4,19	,0450	,29441	1,76645	3,120	-2,062	,393	8,197	,768
Lev_fin_20	36	10,10	-5,26	4,84	,1353	,27764	1,66587	2,775	-,953	,393	4,225	,768
Aut_glob_18	36	89,58	-5,40	84,18	2,9394	2,34281	14,05684	197,595	5,823	,393	34,576	,768
Aut_glob_19	36	90,06	-7,11	82,95	2,9019	2,31823	13,90939	193,471	5,743	,393	33,946	,768
Aut_glob_20	36	66	-7	59	2,16	1,657	9,941	98,817	5,556	,393	32,544	,768
Indat_glob_18	36	9,16	,00	9,16	1,1303	,34951	2,09708	4,398	3,148	,393	9,561	,768
Indat_glob_19	36	10,65	,03	10,68	1,2136	,40021	2,40125	5,766	3,362	,393	11,026	,768
Indat_glob_20	36	13	0	13	1,46	,447	2,684	7,206	3,228	,393	11,315	,768
Indat_term_18	36	5	-3	1	,03	,122	,731	,534	-2,857	,393	11,678	,768
Indat_term_19	36	4	-3	1	,04	,112	,670	,449	-3,164	,393	14,652	,768
Indat_term_20	36	4	-3	1	,06	,115	,689	,475	-2,649	,393	10,659	,768
Valid N (listwise)	36											

Source: Own processing in SPSS 20.0

Table no. 6: Analysis of risk indicators - entities with associated fraud risk

	Descriptive Statistics											
	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Lev_fin_18	28	80,81	-7,75	73,06	2,9775	2,61723	13,84906	191,796	5,144	,441	26,995	,858
Lev_fin_19	28	88,45	-6,31	82,14	3,3339	2,93348	15,52254	240,949	5,203	,441	27,381	,858
Lev_fin_20	28	78,47	-6,29	72,18	3,0164	2,57802	13,64158	186,093	5,179	,441	27,219	,858
Aut_glob_18	28	8,19	-.40	7,79	1,0146	,28327	1,49891	2,247	3,692	,441	16,135	,858
Aut_glob_19	28	11,76	-.75	11,01	1,1700	,39026	2,06507	4,265	4,270	,441	20,551	,858
Aut_glob_20	28	13	-1	13	1,18	,440	2,326	5,410	4,579	,441	22,710	,858
Indat_glob_18	28	3,11	,01	3,12	,5361	,14026	,74217	,551	2,740	,441	7,342	,858
Indat_glob_19	28	4,74	,00	4,74	,6493	,20393	1,07908	1,164	2,930	,441	8,512	,858
Indat_glob_20	28	4	0	4	,59	,170	,902	,813	3,039	,441	8,838	,858
Indat_term_18	28	8	-6	2	,06	,244	1,291	1,666	-3,687	,441	18,747	,858
Indat_term_19	28	7	-5	2	,09	,209	1,104	1,219	-2,772	,441	15,003	,858
Indat_term_20	28	7	-4	2	,08	,196	1,037	1,076	-2,827	,441	15,188	,858
Valid N (listwise)	28											

Source: Own processing in SPSS 20.0

The breakdown of the sample into the two groups shows a clearer picture of the risk of associated fraud of the entities listed on the Bucharest Stock Exchange.

The financial leverage ratio is significantly lower in the case of entities without the risk of associated fraud. Thus, in 2018, the indicator takes the average value of 0.0178 at a deviation of 0.31112 in the case of risk-free companies and 2.9775 at a standard deviation of 2.61723. The year 2019 brings an average value of 0.045 in the case of companies without associated risk, at a deviation of 0.29441 and an average of 3.3339 in a deviation of 2.93348 in the case of companies with associated risk, and in 2020, the average value it is slightly higher in the case of companies without associated risk, reaching a value of 0.1353 at a deviation of 0.27764, compared to 3.0164 at a deviation of 2.57802 in the case of companies at risk. The average difference of 2.9597 (2.9775 - 0.0178) in 2018, 3.2889 in 2019 (3.3339 - 0.045) and 2.8811 in 2020 (3.0164 - 0.1353) is attributed to a much higher degree of indebtedness in the case of risky companies, a constant need to finance current and investment activity and often negative equity (in terms of uncovered loss). A significantly higher degree of indebtedness than economic theory reflects future debt problems and the inability of creditors to cover their debts on the basis of the debtor's assets, a crucial aspect in detecting the risk of bankruptcy. Also, the flattening (Skewness) and vaulting (Kurtosis) indicators show serious deviations from the general average, which results in a higher risk of bankruptcy in this area and values of indicators that deviate far from the average, according to the previous tables.

Global autonomy is also more pronounced in the case of companies without associated risk, to the detriment of the second category. Significant differences in value on average and standard deviation refer to the inability of fraud-prone companies to sustain their normal operating capacity from their own resources. The average difference of 1.9248 (2.9394 - 1.0146) in 2018, 1.7319 (2.9019 - 1.17) in 2019 and 0.98 (2.16 - 1.18) in 2020 shows a slight harmonization of the discrepancy between the global financial autonomy of companies with and without the risk of associated fraud. As can be seen, the overall autonomy of entities without risk of associated fraud follows a downward trend in the period under review, due to two distinct factors from one financial year to another. Between 2018 and 2019, the indicator shows decreases due to the increase of total liabilities (by contracting new sources of financing - on the stock market or by bank loans) in a ratio higher than equity. At the same time, the issuance of new shares on the stock exchange had the impact of decreasing their nominal value and not in all cases the newly issued shares were also traded, which led to a slight decrease in share capital within the companies in this group. The second factor appears in the period 2019 - 2020 where the decrease of global autonomy occurs as a result of the Covid-19 pandemic which limited the right to free movement and decreased sales in 95% of the Romanian stock market.

With regard to the second group in the sample (the one with the associated risk of fraud), an increase in global financial autonomy is visible, mirrored by the first category. This gradual increase between 2018 and 2020 is due to the non-recognition of all provisions, the increase of subsidies received from the state budget and local budgets (to cover the need to finance) and the non-recognition of interest on loans received from intercompany partners, according to audit reports .

Also, the flattening and vaulting indices are higher in the case of the first group in the sample than in the case of the second, which indicates higher values that deviate from the average in the case of companies without risk of associated fraud. Therefore, even if they are not assigned a risk of fraud, not all of these companies are within the limits imposed by economic theory.

The overall indebtedness indicator is also higher for non-fraudulent companies than for those with an associated risk of fraud. The difference of 0.5942 (1.1303 - 0.5361) in 2018, 0.5643 (1.2136 - 0.6493) in 2019 and 0.87 (1.46 - 0.59) in 2020 show a higher degree of global indebtedness in the case of companies without associated risk to the detriment of companies classified as risky. The explanations regarding these variations are the same as in the case of the global autonomy indicator, the companies that present a risk not recognizing all the losses of value or the financial loans within the group. Also, the increase in the need for financing the current activity was more pronounced in companies without associated risk due to the Covid-19 pandemic and the cessation of non-essential activities.

The flattening and vaulting indices are also higher in the case of the first group in the sample than in the second, which leads to the idea of indicators that deviate more from the average in the case of the first category.

Long-term debt, on the other hand, is better for non-fraudulent companies than for those with an associated risk of fraud. The difference of - 0.3 (0.3 - 0.6) in 2018, - 0.5 (0.4 - 0.9) in 2019 and - 0.2 (0.6 - 0.8) in the year 2020 shows a debt situation of more than one year better in the case of the first category, with the real future possibility of contracting new loans and the limitation of future defaults. Higher equity ratios can cause problems in attracting funds from the profile markets (either attracting new investors or opening new lines of credit) and make it easier to conclude a future default in the case of companies at risk. associated fraud. The flattening index also has negative values for both categories in the sample, which translates into several values close to the average.

## 5. Conclusions

Following the analysis, we found that a company that will inevitably go bankrupt in the next reporting period has a very low or even negative liquidity level, a significantly lower return on assets than risk-free companies, a solvency and profitability rate. which does not encourage investors to contribute capital to the development of the company, low investment and production potential, inefficient asset management and a very low degree of recoverability of receivables, notions corroborated and low yield on the stock market and low marketability of actions.

Determining the values of these indicators, we can formulate a forecast regarding the economic future of a company, the investment policy rallying depending on the results obtained.

The importance of predicting bankruptcy and understanding the causes of financial failure lies in its pragmatic aspect. The costs of insolvency or liquidation (lawyers', auditors' and accountants' fees, legal fees, etc.) are much lower than the losses that investors and / or creditors may incur as a result of economic failure. Also, indirect costs such as losses for business partners, managers, financial institutions and the state are usually considerable (Țăndăreanu, 2017).

All these aspects have been fully felt in the Romanian economy in recent years. Any progress in identifying the causes and predicting bankruptcy can significantly minimize the costs discussed.

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## Structural and Profitability Indicators in Assessing the Risk of Bankruptcy

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### Abstract

*Financial rates are indicators used to assess the performance and financial position of a company. Most of these economic and financial indicators are calculated based on the information provided by companies in the financial statements. The usefulness of these economic-financial indicators consists both in highlighting a trend, and especially in the possibility that the analyzed company can be compared with other companies active in the same sector.*

*At the same time, there are financial indicators that help predict a possible bankruptcy in the future.*

*In order to determine the risk of bankruptcy based on the assets owned by a company, I performed an empirical study in order to examine the impact of tangible and intangible assets in companies with deficiencies revealed by external auditors, together with profitability indicators which can help in predictions regarding company evolution.*

**Key words:** management indicators, fraud risk, insolvency, audit report, bankruptcy

**J.E.L. classification:** G40

### 1. Introduction

The bankruptcy risk case study deals with the main groups of economic-financial indicators taking into account the audit opinions issued by the certified members of the A.S.P.A.A.S. on the chosen sample (Bucharest Stock Exchange main listed companies), in order to observe notable differences in the annual financial statements of the entities that may lead to the assumption of a faster declaration of insolvency in the case of companies with and without risk of associated fraud.

The analysis and assessment of bankruptcy risk took into account the international directives on accounting and financial audit, the legislative basis on which our study is based given the ISA 240 rules approved by the European Commission (ISQC1), the standards issued by the I.F.A.C. through the Council for International Standards on Auditing and Insurance (I.A.A.S.B.), Accounting Law 82/1991, O.M.F.P. 1802/2014, O.M.F.P. 2844/2016 and Law no. 162/2017 regarding the statutory audit.

The target population chosen for the study is selected from among the entities listed on the Bucharest Stock Exchange, as the main capital market approved and regulated by law, which is under the aegis of the National Security Commission.

### 2. Theoretical background

The study is carried out over a period of three consecutive financial years (2018, 2019 and 2020), base of the study representing Mironiuc & Robu empirical study, modified with new indicators representatives for this period (Mironiuc, Robu, 2012).

The motivation underlying the choice of three consecutive financial years is that of the representativeness of the model taking into account aspects such as insolvency law, the number of entities listed on the Bucharest Stock Exchange, the complexity of current business, the opening of European markets (by increasing the value of exports in the previous subchapter) and the chosen study model, which dealt with two consecutive financial years. Significant changes in the annual

financial statements could be the answer to unfortunate events within a company that could (erroneously) conclude that an entity went bankrupt from one financial year to another. Thus, we consider that the analysis of the annual financial statements over a period of three consecutive financial years is representative of the proposed model (Veli, 2019).

### **3. Research methodology**

The basis of the study was the audit opinions issued on the financial statements of the companies for the year 2020. Taking into account the type of audit opinion issued, the division of the sample took into account the classification of the sample companies into companies with and without risk of associated fraud. The consideration from which we start in this study is based on a multiple regression analysis through which we establish the following research hypotheses:

H0: companies classified by bodies authorized to issue audit opinions as having an associated risk of fraud are not prone to the risk of bankruptcy;

H1: companies classified by bodies authorized to issue audit opinions as having an associated risk of fraud are at risk of bankruptcy in the following financial years;

In addition to classifying the sample into the two categories according to the associated risk (with and without the associated risk of fraud), this study took into account the assumption and classification of audit opinions according to the general audit opinion (unreserved opinion, opinion with reservations and contrary opinion).

The sample formed totaled 64 entities divided into two risk groups, according to the audit reports analyzed, namely entities that do not present a risk of economic fraud and entities with an associated risk of fraud.

### **4. Findings**

#### **4.1. Management indicators in assessing the risk of bankruptcy**

In order to establish the risk of bankruptcy among the companies that form the analyzed sample, we also considered the evaluation of the structure indicators of the entities, in order to establish their ability to finance assets based on equity and available loans.

Thus, in this group of indicators, the application of some economic reasoning was considered, for which we conclude that it is important to analyze these indicators in establishing the risk of bankruptcy:

1. Rate of fixed assets - because this category of assets represents resources for the production of goods / services available to entities in the production circuit;

2. Current assets rate - this category is integrated in the category of salable goods that can be easily converted into financial resources;

3. Trade receivables rate - it is necessary to establish the material resources that the entity can obtain from debtors, and the importance of estimating future revenues based on existing receivables is an important aspect in budgetary and cash flow analyzes;

4. Inventory rate - being in the category of the most salable goods available to the entity, they can be easily exchanged for financial resources and thus the inability to pay can be avoided;

5. The rate of treasury assets - the existence of financial resources is what governs the principle of profit-oriented private companies and the existence of liquidity is the most important aspect in the estimates of insolvency and bankruptcy;

6. Inventory financing rate - the ability of companies to finance their current activity is dictated by the calculation and interpretation of this indicator;

7. Capital ratio to fixed assets - is a calculation tool for estimating the ability of creditors to recover debts; it is mainly used in opening new lines of credit;

8. Share of current assets - determining the percentage of inventories in total current assets is one of the first steps in estimating future production, purchasing power and technical calculations in the production and supply of goods and services.

Each of the indicators chosen in this type of analysis plays a key role in respecting the principle of business continuity, the results obtained can be extrapolated later in establishing a risk of future bankruptcy.

From the point of view of the structural indicators, the analyzed sample knows the following values, according to Table number 1:

Table no. 1: Analysis of the structural and management indicators

	Descriptive Statistics											
	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Act_imob_18	64	,07	,59	,66	,6269	,00189	,01511	,000	,783	,299	1,060	,590
Act_imob_19	64	,07	,59	,66	,6266	,00260	,02080	,000	,127	,299	-,380	,590
Act_imob_20	64	,07	,59	,66	,6231	,00270	,02159	,000	,167	,299	-,451	,590
Act_circ_18	64	,07	,34	,41	,3731	,00189	,01511	,000	-,783	,299	1,060	,590
Act_circ_19	64	,07	,34	,41	,3734	,00260	,02080	,000	-,127	,299	-,380	,590
Act_circ_20	64	,07	,34	,41	,3769	,00270	,02159	,000	-,167	,299	-,451	,590
Creante_com_18	64	10,34	,00	10,34	,2064	,16103	1,28824	1,660	7,973	,299	63,703	,590
Creante_com_19	64	11,36	,00	11,36	,2258	,17687	1,41497	2,002	7,981	,299	63,791	,590
Creante_com_20	64	9,05	,00	9,05	,1873	,14093	1,12747	1,271	7,956	,299	63,512	,590
Rata_stoc_18	64	21,87	,01	21,88	,4728	,34097	2,72777	7,441	7,919	,299	63,080	,590
Rata_stoc_19	64	15,86	,00	15,86	,3781	,24753	1,98022	3,921	7,835	,299	62,093	,590
Rata_stoc_20	64	13,69	,01	13,70	,3553	,21380	1,71038	2,925	7,790	,299	61,561	,590
Act_trez_18	64	2,09	,00	2,09	,0419	,03256	,26044	,068	7,966	,299	63,624	,590
Act_trez_19	64	1,55	,00	1,55	,0353	,02414	,19311	,037	7,904	,299	62,936	,590
Act_trez_20	64	1,80	,00	1,80	,0372	,02803	,22422	,050	7,960	,299	63,557	,590
Fin_stoc_18	64	438,81	-176,21	262,60	2,5330	5,87363	46,98907	2207,972	1,755	,299	17,998	,590
Fin_stoc_19	64	309,93	-166,57	143,36	,8963	5,46877	43,75014	1914,074	-,504	,299	7,156	,590
Fin_stoc_20	64	252,71	-161,19	91,52	,5884	4,06053	32,48425	1055,226	-1,477	,299	11,439	,590
Cap_prop_act_imob_18	64	143,67	-8,66	135,01	3,3559	2,11805	16,94437	287,112	7,674	,299	60,492	,590
Cap_prop_act_imob_19	64	136,54	-11,40	125,14	3,3031	1,98293	15,86341	251,648	7,411	,299	57,636	,590
Cap_prop_act_imob_20	64	100,25	-11,52	88,73	2,6834	1,43612	11,48898	131,997	6,889	,299	51,938	,590
Pond_stoc_act_circ_18	64	58,11	,02	58,13	1,2641	,96604	7,24835	52,539	7,912	,299	62,996	,590
Pond_stoc_act_circ_19	64	47,04	,01	47,05	1,0869	,73383	5,87063	34,464	7,866	,299	62,460	,590
Pond_stoc_act_circ_20	64	40,59	,03	40,62	1,0114	,63339	5,06715	25,676	7,830	,299	62,041	,590
Valid N (listwise)	64											

Source: own processing using SPSS 20.0

The fixed assets rate remains constant from one analysis period to another. With an average of 62% and a standard error in the range {0.00189; 0.00270}, we can conclude that the share of fixed assets falls within the limit established by economic theory and the operational and production process can take place under normal conditions. Also, the weight of this indicator represents a guarantee of recoverability of creditors' claims. The values of the flattening and vaulting indices refer to a platocurtic distribution, without significant deviations from the average.

Current assets are the second category of assets that make up the first part of the balance sheet. The aggregation of the two indicators creates further confirmation of the correctness of the data extracted from the annual financial statements. Similar to the fixed rate, the current assets rate provides a confirmation of business continuity to creditors, and the average of 37% shows a balanced asset management policy.

The rate of trade receivables varies in the analyzed period, observing an increase in the period 2018 - 2019 by 1.02% (11.36 - 10.34), followed by a decrease in the period 2019 - 2020 by 2.31% (11,36 - 9.05). The decrease in 2020 is explained by the decrease in the trading capacity of the goods and services of the companies that make up the sample, attributed to the Covid-19 pandemic. The only "winners" of this period are companies that have been able to adapt to e-commerce platforms. The values of the flattening and vaulting indices show average values of the indicator that deviate significantly from the average, especially among companies classified as at risk of fraud, a topic detailed below.

The share of stocks in total assets decreases constantly during the analyzed period. The decrease takes into account the impact of two factors. In the period 2018 - 2019, the entities that make up the sample registered constant increases in sales, according to the registered turnover. This has led to higher stock turnover and reduced stock holdings over longer periods of time. Given that stocks are purchased for processing and resale, the policy of the entities was to introduce them into the production process as soon as possible. In the period 2019 - 2020, the Covid-19 pandemic stopped a

large part of sales, and the adaptation in this sense of the companies aimed at limiting the holding of stocks in the conditions in which they could not be transformed with the same ease in financial resources. The same observation is applicable to the indicator of the share of inventories in current assets.

To support the above assumption, the rate of treasury assets fluctuates in an increase in their growth in 2020. The forecast in the sales markets has forced companies to maintain a higher level of liquidity to cover unpredictable expenses and to and could retain employees and business partners. This result of the analysis is supported by the 0.19% increase in treasury assets (0.0372 - 0.0353).

Calculated according to the formula permanent capital - fixed assets / stocks, the financing rate of stocks shows the ability of companies to cope with the needs of maintaining and / or increasing production. During the period under review, this indicator is affected by a steady increase due to the influence of long-term debt and risk provisions, according to the database underlying this study. The current period faces the most diverse phenomena for which financial estimates are no longer relevant (natural phenomena - drought, floods, explosions, fires, health crises, economic crises, demographic crises - Romanian population migration, illegal emigration, etc.). Thus, increasing the value of provisions and long-term debt can be a challenge in financing the day-to-day running of businesses and resuming productive activity.

The equity ratio of fixed assets is an indicator that guarantees the recovery of receivables by creditors, this being the main category of users of financial information provided by companies (Asthana, 2010). The indicator decreases constantly in the analyzed period mainly due to equity. Detailed in the groups of indicators analyzed above, equity decreases due to the need to cover current debts by companies listed on the Bucharest Stock Exchange by issuing new shares and securities on the capital market, not fully covered. Also, the carried forward result representing the uncovered loss plays a key role in the decrease of equity, a decrease influenced by both companies at risk of fraud and those without risk of fraud. The leptocurtic distribution shows values of the indicator that deviate from the general average (the positive value representing positive deviations from the average that significantly influence the general average by increasing the average). However, the value taken by the indicator is above the limit dictated by economic theory and does not influence the future decisions of investors.

The division of the sample into the two already known groups creates a more detailed picture of the premise from which we start in our research, namely the fact that entities classified as at risk of fraud are heading for bankruptcy. The situation of the structure indicators on the two risk groups is detailed in Tables number 2 and 3:

Table no. 2: Analysis of structure indicators - no fraud risk associated

	Descriptive Statistics											
	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Act_imob_18	36	.07	.59	.66	.6281	.00267	.01600	.000	.779	.393	.617	.768
Act_imob_19	36	.07	.59	.66	.6269	.00316	.01895	.000	.308	.393	.133	.768
Act_imob_20	36	.07	.59	.66	.6222	.00372	.02231	.000	.097	.393	-.619	.768
Act_circ_18	36	.07	.34	.41	.3719	.00267	.01600	.000	-.779	.393	.617	.768
Act_circ_19	36	.07	.34	.41	.3731	.00316	.01895	.000	-.308	.393	.133	.768
Act_circ_20	36	.07	.34	.41	.3778	.00372	.02231	.000	-.097	.393	-.619	.768
Creante_com_18	36	10.33	.01	10.34	.3389	.28602	1.71613	2.945	5.982	.393	35.849	.768
Creante_com_19	36	11.35	.01	11.36	.3692	.31422	1.88532	3.554	5.988	.393	35.902	.768
Creante_com_20	36	9.04	.01	9.05	.3019	.25036	1.50214	2.256	5.970	.393	35.742	.768
Rata_stoc_18	36	21.86	.02	21.88	.7747	.60499	3.62991	13.176	5.941	.393	35.490	.768
Rata_stoc_19	36	15.84	.02	15.86	.6078	.43881	2.63287	6.932	5.878	.393	34.928	.768
Rata_stoc_20	36	13.69	.01	13.70	.5472	.37903	2.27418	5.172	5.851	.393	34.680	.768
Act_trez_18	36	2.09	.00	2.09	.0686	.05783	.34696	.120	5.977	.393	35.805	.768
Act_trez_19	36	1.55	.00	1.55	.0567	.04282	.25693	.066	5.933	.393	35.437	.768
Act_trez_20	36	1.80	.00	1.80	.0603	.04978	.29867	.089	5.973	.393	35.774	.768
Fin_stoc_18	36	230.93	-176.21	54.72	-6.4217	6.43879	38.63276	1492.490	-3.135	.393	12.194	.768
Fin_stoc_19	36	231.11	-166.57	64.54	-5.9136	6.57114	39.42683	1554.475	-2.830	.393	10.310	.768
Fin_stoc_20	36	251.32	-161.19	90.13	-3.9844	6.22407	37.34441	1394.605	-2.088	.393	9.952	.768
Cap_prop_act_imob_18	36	143.67	-8.66	135.01	4.7014	3.75676	22.54057	508.077	5.828	.393	34.619	.768
Cap_prop_act_imob_19	36	136.54	-11.40	125.14	4.4158	3.50226	21.01354	441.569	5.711	.393	33.694	.768
Cap_prop_act_imob_20	36	100.25	-11.52	88.73	3.3036	2.50519	15.03115	225.936	5.504	.393	32.160	.768
Pond_stoc_act_circ_18	36	58.08	.05	58.13	2.0700	1.60747	9.64485	93.023	5.935	.393	35.441	.768
Pond_stoc_act_circ_19	36	47.00	.05	47.05	1.7561	1.30134	7.80803	60.965	5.901	.393	35.137	.768
Pond_stoc_act_circ_20	36	40.59	.03	40.62	1.5711	1.12336	6.74019	45.430	5.879	.393	34.939	.768
Valid N (listwise)	36											

Source: own processing using SPSS 20.0

Table no. 3: Analysis of structure indicators - with fraud risk associated

	Descriptive Statistics											
	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Act_imob_18	28	,07	,59	,66	,6254	,00265	,01401	,000	,749	,441	2,274	,858
Act_imob_19	28	,07	,59	,66	,6261	,00440	,02331	,001	,024	,441	-,765	,858
Act_imob_20	28	,07	,59	,66	,6243	,00397	,02098	,000	,315	,441	-,072	,858
Act_circ_18	28	,07	,34	,41	,3746	,00265	,01401	,000	-,749	,441	2,274	,858
Act_circ_19	28	,07	,34	,41	,3739	,00440	,02331	,001	-,024	,441	-,765	,858
Act_circ_20	28	,07	,34	,41	,3757	,00397	,02098	,000	-,315	,441	-,072	,858
Creante_com_18	28	,17	,00	,17	,0361	,00622	,03292	,001	2,735	,441	9,850	,858
Creante_com_19	28	,18	,00	,18	,0414	,00712	,03768	,001	2,371	,441	6,749	,858
Creante_com_20	28	,17	,00	,17	,0400	,00626	,03311	,001	2,525	,441	8,405	,858
Rata_stoc_18	28	,25	,01	,26	,0846	,01132	,05991	,004	1,189	,441	1,878	,858
Rata_stoc_19	28	,21	,00	,21	,0829	,01026	,05429	,003	,614	,441	,501	,858
Rata_stoc_20	28	,52	,01	,53	,1086	,01832	,09694	,009	3,217	,441	13,470	,858
Act_trez_18	28	,02	,00	,02	,0075	,00132	,00701	,000	,392	,441	-,810	,858
Act_trez_19	28	,03	,00	,03	,0079	,00140	,00738	,000	,965	,441	1,657	,858
Act_trez_20	28	,02	,00	,02	,0075	,00132	,00701	,000	,392	,441	-,810	,858
Fin_stoc_18	28	293,72	-31,12	262,60	14,0461	10,30404	54,52386	2972,851	3,864	,441	16,854	,858
Fin_stoc_19	28	263,70	-120,34	143,36	9,6518	9,08252	48,06020	2309,783	,943	,441	4,461	,858
Fin_stoc_20	28	116,96	-25,44	91,52	6,4679	4,59287	24,30317	590,644	2,475	,441	6,669	,858
Cap_prop_act_imob_18	28	13,13	-,63	12,50	1,6261	,45480	2,40660	5,792	3,686	,441	16,103	,858
Cap_prop_act_imob_19	28	18,86	-,12	17,65	1,8725	,62681	3,31676	11,001	4,250	,441	20,392	,858
Cap_prop_act_imob_20	28	20,99	-,92	20,07	1,8861	,70560	3,73370	13,941	4,578	,441	22,700	,858
Pond_stoc_act_circ_18	28	,67	,02	,69	,2279	,02982	,15777	,025	1,176	,441	1,879	,858
Pond_stoc_act_circ_19	28	,61	,01	,62	,2264	,02842	,15036	,023	,721	,441	,754	,858
Pond_stoc_act_circ_20	28	1,37	,03	1,40	,2918	,04820	,25505	,065	3,217	,441	13,435	,858
Valid N (listwise)	28											

Source: own processing using SPSS 20.0

The assumption of the risk of bankruptcy among entities classified as at risk of fraud is also respected in this situation.

The rate of fixed assets is similar in both categories of the sample, keeping a constant of 62% of total assets throughout the analyzed period. Applying the principle if it's successful, don't change the formula, two thirds of the total assets represented by fixed assets represent the threshold established by the economic theory regarding the efficient management of a company. The structuring in the same way of the assets of both risky and risk-free entities creates the premises for a quick and complete recovery of receivables by investors, in case of liquidation of the business.

The first distinct aspect of current and future cash flows can be seen in the calculation of the trade receivables rate. The difference of 0.3061 (0.3838 - 0.0361) in 2018, 0.3278 (0.3692 - 0.0414) in 2019 and 0.2619 (0.3019 - 0.04) in 2020 is a certainty that companies classified as at risk of fraud have achieved inefficient management of trade receivables, presenting a low degree of recovery and a higher risk of declaring insolvency due to lack of customers. However, the difference will be reduced in 2020, atypical from all points of view, this variation being expected. Flattening and vaulting indices are higher in the case of companies without risk of fraud, which refers to an even higher indicator value in some companies that are an integral part of the sample. In the absence of liquidity provided by customers through the sale of goods and services on the market, companies at risk of fraud are targeted by insolvency and thus bankruptcy.

Stocks are one of the most important resources of companies. A satisfactory share of them does not jeopardize the production process, and their rapid conversion into money can save an entity in difficulty. The inventory rate for the two types of companies shows a substantial difference between companies with and without the risk of associated fraud. In the case of companies without the risk of associated fraud, the inventory rate occupies a significant share of total assets, which translates into a possibility to transform them into financial resources in a short time, which can prevent the declaration of insolvency of entities. The importance of stocks is given by the production activity of the sampled companies that rely on them for a good development of the activity and a constant cash flow path. Entities classified as at risk of fraud have a share of stocks that prevents the optimal development of the production process. To avoid confusion regarding belonging to a field of activity, out of the 28 companies classified as at risk of fraud, 21 belong to the field of industry.

A similar situation is encountered in the case of treasury assets. The difference of 0.0611 in 2018 (0.0686 - 0.0075), 0.0488 in 2019 (0.0567 - 0.0079) and 0.0528 (0.0603 - 0.0075) in 2020 confirms the fact that entities with an associated risk of fraud have lower liquidity and an inability to pay debts that have become due. The first stage of bankruptcy is that of declaring insolvency and entities classified as at risk of fraud are much closer to declaring this state.

Calculated as the difference between permanent capital and fixed assets in relation to the value of stocks, the rate of financing of stocks presents an atypical situation in this type of analysis. In the case of entities without risk of fraud, the values taken by this indicator during the analyzed period are negative, in contrast to the entities at risk where the indicator takes positive and very high values. This difference is due to a lower amount of permanent capital relative to fixed assets. Entities without the risk of associated fraud have fixed assets that allow them (in the event of liquidation) to cover outstanding debts to creditors, which makes them a much more attractive business partner than in the case of companies with an associated risk of fraud. A similar situation is applicable to the equity ratio of fixed assets.

### 3.2. Profitability indicators in assessing the risk of bankruptcy

Profitability rates are expressed as the ratio between the indicators of results (profit or loss) and those that show an activity flow (receivables, turnover, resources involved in the production process, etc.). These types of rates aim to express the degree to which the resources invested in the production process bring future economic benefits, thus reflecting the results of the activity in all stages of the activity circuit (Vladu, 2011).

Regarding the determination of an imminent bankruptcy risk, in our analysis the following indicators are used, each one being applied a distinct reasoning:

1. Rate of return (ROE) - due to the importance of investors knowing the profit resulting from the invested capital, they being the main users of this type of information;
2. Net sales margin - the importance of establishing the volatility of companies is the importance in the investment policy of shareholders / associates;
3. Asset rate of return (ROA) - the safety interval of the capital invested in the entity is one of the most important indicators in assessing the overall profitability of companies, investors being interested in this case by the profit obtained by the entity for each leu invested;
4. Receivables turnover rate (number of revolutions) - in assessing the continuity of a company's activity it is necessary to know the effectiveness of collecting its receivables, thus avoiding excessive provisions for receivables that can lead to decreased liquidity and difficulties in the production circuit.

Regarding the sample chosen for the study, the profitability indicators are presented according to Table number 4:

Table no. 4: Variation of profitability indicators - period 2018 - 2020

	Descriptive Statistics								
	N	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Rent_fin_18	64	-,0011	,05722	,45773	,210	-6,896	,299	52,559	,590
Rent_fin_19	64	-,0186	,03728	,29826	,089	-4,815	,299	30,288	,590
Rent_fin_20	64	-,0022	,03108	,24863	,062	-3,550	,299	20,458	,590
Marj_vanz_18	64	-,0162	,03692	,29532	,087	-2,499	,299	9,215	,590
Marj_vanz_19	64	-,0722	,04369	,34954	,122	-2,360	,299	7,128	,590
Marj_vanz_20	64	-,1275	,05121	,40965	,168	-2,531	,299	6,779	,590
Rent_act_18	64	,0102	,02256	,18052	,033	-1,149	,299	12,918	,590
Rent_act_19	64	,0136	,01931	,15444	,024	3,844	,299	25,552	,590
Rent_act_20	64	-,0273	,01765	,14122	,020	-3,391	,299	15,587	,590
Rot_crean_18	64	30,2727	5,21759	41,74068	1742,285	3,769	,299	17,896	,590
Rot_crean_19	64	27,6377	4,59348	36,74786	1350,405	3,369	,299	13,504	,590
Rot_crean_20	64	24,9517	4,22893	33,83146	1144,568	3,622	,299	15,664	,590
Valid N (listwise)	64								

Source: own processing using SPSS 20.0

The financial profitability at the level of the chosen sample takes negative values throughout the analyzed period. The negative values recorded by this indicator appear as a result of the influence on the one hand of the companies that record losses, and on the other hand, of those whose value of equity is negative and also of the companies that combine both influences.

A negative value of this indicator as a whole shows that at the sample level, companies are not profitable from the point of view of shareholders and the ability to recover their investments is very low.

The net sales margin also takes negative and continuously decreasing values during the analysis period, due to the unfavorable influence of the companies that record losses during the analysis period. A negative value of the indicator refers to an unstable situation in the sample in terms of the flow of goods sold, a low average labor productivity and a lack of profitability of the activity in general.

Shareholders are mainly interested in making a profit from investments made in an economic entity. In the absence of a profitability at the end of a management period, their main concern becomes the recovery of the amounts invested as a contribution to the capital of those entities. From this point of view, the return on assets has a variation in the analyzed period, characterized by an increase in 2018-2019 and a decline below the negative threshold in 2020. The change is explained by the influence of two factors. First of all, the increase from 2018 to 2019 is explained by a general increase in the value of assets held by the sampled companies as a result of the desire and need to increase the capacity produced and sold, the effect of increasing demand in the markets. The decrease from 2019 to 2020 is explained by the influence of the same pandemic that acted as a domino effect in the market, the limitation of circulation has the effect of decreasing sales, this translates into the impossibility of normal production circuits, which leads to layoffs, decreased liquidity from the market and the sharper decline in demand. The decrease occurs as a result of the numerous reports of economic loss made by the constituent entities of the sample.

The importance of debt recovery is crucial in self-financing the production activity and thus in maintaining a financial balance. At the sample level, the value of this indicator decreases continuously, a favorable aspect mainly influenced by the decrease in maturities for goods and services sold on commercial credit due to an increasingly acute need to finance the activity. The pandemic, on the other hand, dramatically reduced trade credits, with most of the entities in the sample having to request payment at the time of delivery of the goods and services.

The breakdown of the sample into the two categories, similar to the groups of indicators analyzed above, helps us to understand more accurately the difference between entities that are at risk of fraud and those that are not. Thus, the information regarding the rates of return on the two analysis groups is presented in Tables number 5 and 6.

Table no. 5: Analysis of profitability indicators - entities without risk of fraud

	Descriptive Statistics								
	N	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Rent_fin_18	36	,0397	,02299	,13791	,019	,026	,393	4,305	,768
Rent_fin_19	36	,0014	,03180	,19079	,036	-1,845	,393	5,648	,768
Rent_fin_20	36	,0306	,02738	,16430	,027	-,846	,393	4,586	,768
Marj_vanz_18	36	-,0914	,05969	,35816	,128	-2,071	,393	5,302	,768
Marj_vanz_19	36	-,1231	,07253	,43521	,189	-1,876	,393	3,869	,768
Marj_vanz_20	36	-,2161	,08459	,50756	,258	-1,933	,393	3,125	,768
Rent_act_18	36	-,0164	,03885	,23311	,054	-,654	,393	7,499	,768
Rent_act_19	36	,0125	,03291	,19745	,039	3,430	,393	17,647	,768
Rent_act_20	36	-,0550	,02893	,17356	,030	-2,904	,393	10,341	,768
Rot_creat_18	36	26,4436	5,27163	31,62980	1000,444	2,446	,393	6,639	,768
Rot_creat_19	36	25,3000	5,36293	32,17757	1035,396	2,875	,393	9,684	,768
Rot_creat_20	36	23,9242	5,02604	30,15627	909,400	2,671	,393	8,016	,768
Valid N (listwise)	36								

Source: own processing using SPSS 20.0

Table no. 6: Analysis of profitability indicators - entities with risk of fraud associated

	Descriptive Statistics								
	N	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Rent_fin_18	28	-,0536	,12805	,67759	,459	-4,935	,441	25,538	,858
Rent_fin_19	28	-,0443	,07540	,39897	,159	-4,471	,441	22,365	,858
Rent_fin_20	28	-,0443	,06152	,32555	,106	-3,395	,441	15,102	,858
Marj_vanz_18	28	,0804	,02673	,14143	,020	,882	,441	4,650	,858
Marj_vanz_19	28	-,0068	,03363	,17797	,032	-1,412	,441	2,032	,858
Marj_vanz_20	28	-,0136	,03469	,18355	,034	-1,258	,441	1,324	,858
Rent_act_18	28	,0443	,01110	,05872	,003	,505	,441	,692	,858
Rent_act_19	28	,0150	,01352	,07152	,005	-,488	,441	-,600	,858
Rent_act_20	28	,0082	,01357	,07180	,005	-,963	,441	,732	,858
Rot_creat_18	28	35,1957	9,86295	52,18980	2723,776	3,784	,441	16,131	,858
Rot_creat_19	28	30,6432	8,00025	42,33333	1792,111	3,603	,441	14,975	,858
Rot_creat_20	28	26,2729	7,29136	38,58223	1488,588	4,220	,441	19,884	,858
Valid N (listwise)	28								

Source: own processing using SPSS 20.0

The financial profitability calculated for the two categories of the sample is higher among companies without risk of associated fraud. The gap between the two groups in the sample appears as a result of a much higher profit in the case of companies without risk of fraud, corroborated with a value of assets that are perfectly balanced in the production process. As a result, in the case of the first category in the sample, the assets are not purchased in excess, are not recorded as conserved goods, participate in their entirety in the production process, and their annual depreciated value is less than the rate of return obtained by capitalization. goods and services sold in this category. In the mirror, the explanation is similar for entities with an associated risk of fraud.

As a result of the negative accounting result obtained by a quarter of the sample formed, the net sales margin is negative for the first category. Although they are not assigned a risk of fraud, the negative result recorded by some of them negatively influences the value of the indicator, which leads to the assumption of low profitability and lower profitability of entities in this category, which should not be but generalized, due to a low number of loss-making companies out of the total of this category (13 companies out of a total of 36). In the case of companies with associated fraud risk, this indicator has at least a higher value of the indicator for 2018, this being influenced by the non-recognition of all expenses and revenues (especially provisions, adjustments for depreciation, financial expenses, etc.). , in the following periods this indicator also taking negative values, as a result of a low profitability of the business in general and the consecutive losses reported in the financial period.

The rate of return on assets seems at first sight to be in favor of companies at risk of associated fraud. The higher values taken by this indicator in the case of the second category in the sample occur as a result of a lower value balance sheet asset than in the case of companies in the first category, corroborated with an operating result that is not presented accurately. The negative influence of companies with losses in the first category of the sample leads to a negative value of the indicator at the end of 2018 and 2020, but lower values of the indicator do not always reflect reality, due to lack of good practice among companies at risk of associated fraud.

Debt recovery policy, on the other hand, is better among companies without associated risk. In our analysis it is found that in 2018, the difference in the number of days between companies with and without risk of fraud is approximately 9 days (35.19 - 26.44 = 8.75), in 2019 it is 5 days (30.64 - 25.30 = 5.34 ), and in 2020 for two days (26.27 - 23.92 = 2.35). Although the difference in days becomes smaller in the period under review (tending to align in subsequent periods), a better debt recovery policy for the first category makes non-fraudulent entities have a better ability to finance debt. current activity from own resources, thus avoiding the temporary inability to pay. This aspect is also supported by the previous analysis of liquidity indicators.



#### 4. Conclusions

The analysis undertaken on the main economic-financial indicators was based on a pre-established model developed in 1999 by Beneish, updated in 2007 by Penman and in 2011 by Romanian researchers Mironiuc and Robu.

The model we updated considers the addition of new variables in the analysis, given the complexity of current business, increasing consumption, telework, development of e-commerce platforms, market opening and interculturalization through globalization.

The model proposed by Beneish in 1999 was for two consecutive financial years, and we currently consider that two financial years are not sufficient to determine a risk of bankruptcy due to changes in insolvency legislation and the general legislative trend at the level of The European Union to give a second chance to the insolvent debtor, so our study is carried out over a period of three consecutive financial years (2018-2020).

The results of the study showed that entities with an associated risk of fraud have lower results on all groups of indicators analyzed, as follows:

- Structural indicators: Although the share of assets is similar for both categories and the proportions seem similar, the debt recovery policy is not easy for companies at risk of associated fraud, the financing rate of stocks is low, cash is more limited and the equity ratio of fixed assets does not encourage investors because the recoverability of their claims in the event of the declaration of insolvency of these companies is very low. Also, the share of stocks is lower in the case of these companies and presents non-performing or conserved fixed assets, aspects that refer to an inefficient management of these companies as a whole;

- Profitability indicators: the rate of economic return, the rate of financial profitability and the net sales margin were lower throughout the analysis period of the two groups in the sample. The lower values in the case of entities with associated fraud risk confirm once again the lack of attractiveness on the market, an aspect also proven by the analysis of the stock market capitalization in the period 2018 – 2020.

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## Study on Bank Interest Rates in the European Union

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### Abstract

*The study of interest rates is a topic of interest to financial analysts, investors, the public, managers in the banking system and the monetary authority. The paper adds to the group of studies investigating the evolution of bank lending rates under the influence of monetary policy decisions.*

*The issue is significant for the economy because more than 70 percent of private credit is provided through the banking system and as a result its movement has effects on financial stability. A large part of non-government credit is provided by banks and the change in interest rates to the private sector is consumer credit.*

*The study examines the monetary policy interest rate for EU countries, as well as the spread between the lending and deposit facility interest rates. Interest rates on loans falling due were analysed and the maximum and minimum values were highlighted. The high volatility of these rates at present makes our study topical.*

**Key words:** monetary policy interest rate, banking system, spread

**J.E.L. classification:** G01, G20, G21, G24, G30, E50

### 1. Introduction

Banking is an important part of financial systems. At EU level, the banking system accounts for more than 70% of the financial system. Within household credit, consumer credit is growing.

The interest rate on loans is influenced by changes in the monetary policy interest rate. The paper will study the evolution of monetary policy interest rates in European countries. A monetary contraction is known to reduce the volume of credit in the banking sector, even if there is a stretched response (lag) (Dawood, 2019).

European economies and beyond are interlinked. As a result, the study of monetary policy interest rates in European countries is justified because monetary policy in one country and interest rates abroad have an effect on domestic credit.

Domestic credit determines financial intermediation. In Romania, financial intermediation in 2013 was at the same level as in 2006. In the last 15 years, the degree of financial intermediation has increased in Romania and in the EU (Munteanu & Dobre, 2021).

Studies on the causality between monetary policy and the banking or fiscal system as well as the effects on the economy have also been conducted by Lipară & Dănilă, (2015) and Ionascu & Zaif (2019).

### 2. Theoretical background

The subject of the relationship between the lending rate and monetary policy decisions has often been discussed in the literature. Established authors who have studied the impact of monetary policy on bank credit volume include Altunbas, Gambacorta and Margues Ibanez, (2010), Jumenez, Ongena, Peudro and Saurina (2012), Bruno & Shin (2015), Curdia & Woodford (2016).

A pioneering work in this regard is that of Baranek & Blinder (1992). They empirically studied the influence of monetary policy on bank credit in the US. They concluded that an increase in the federal funds rate led to a decline in bank credit, but with a lag.

An extension of this work was done by Vera (2012), who reached similar conclusions: increasing the policy interest rate led to a decline in bank lending.

Atlbas, Gambacorta & Margues Ibanez have demonstrated that there is a bank lending channel operating in the euro area under bank risk. Financial innovation and international transfers have allowed standard ratios, calculated using bank balance sheet information, to fall nominally. They pointed out that traditional indicators such as liquidity, bank capitalisation, etc. should also be taken into account when assessing bank and credit risk, so that banks' ability and willingness to provide new loans can be correctly assessed. This information is important for investors.

### 3. Research methodology

The study will analyse the evolution of the monetary policy and standing facility lending networks for EU countries.

The monetary policy interest rate is the interest rate used for the main money market operations of central banks.

Standing facilities are the lending facility and the deposit facility granted to eligible participants by the Central Banks, to which they have access on their own initiative.

For the consumer credit interest rate survey, out of the 27 EU countries, 20 countries have data organised by three initial maturities of consumer credit: less than or equal to 1 year, between 1 and 5 years inclusive and over 5 years. The Central Bank of Denmark has data organised by four original maturities: up to and including 1 year, between 1 and 2 years inclusive, between 2 and 5 years inclusive and over 5 years, and the Central Banks of Estonia, Finland, Italy, Latvia, Malta and Sweden have published average interest rates on consumer loans.

It should be noted that in the case of Croatia, interest rates on loans with original maturities between 1 and 5 years inclusive were not published for the whole period under review, and for Luxembourg interest rates on loans with original maturities over 5 years were not available. Ireland, Italy and the Netherlands have not published data as of February 2022 at the time of the survey. Some data are not available in the countries: Latvia and Hungary, at the Central Bank of Latvia for average interest rates for December 2021 and at the Central Bank of Hungary for most data.

### 4. Findings

#### 4.1. Evolution of monetary policy interest rates

Below we have presented and analysed key interest rates in the European Union from January 2017 to February 2022.

Figure no. 1. Policy interest rates at EU level

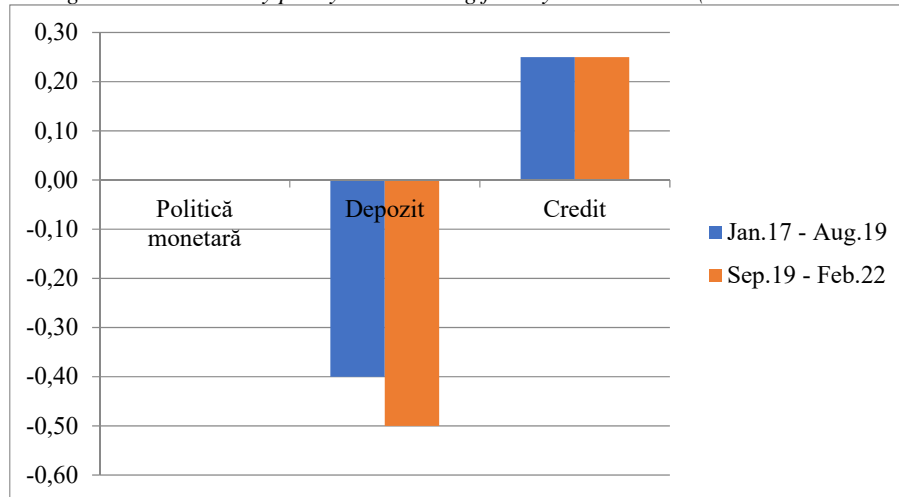
	Valid from date of:	Interest rate of monetary policy (%)	Deposit interest rate (%)	Lending interest rate (%)
Eurozone	18.09.2019	0,00	-0,50	0,25
Bulgaria	01.02.2022	0,00	-	-
Czech Republic	06.05.2022	5,75	4,75	6,75
Croatia	02.10.2017	0,05	0,00	2,50
Denmark	01.10.2021	-0,60	-0,60	-0,45
Poland	06.05.2022	5,25	4,75	5,75
Romania	11.05.2022	3,75	2,75	4,75
Sweden	04.05.2022	0,25	0,15	0,35
Hungary	27.04.2022	5,40	5,40	8,40

Source: own processing based on data provided by ECB & non-euro EU central banks [accessed 20.05.2022]

As the Central Banks of Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Portugal, Slovakia, Slovenia, Spain and the Netherlands are part of the Eurosystem and use the euro as their national currency, references to them as a whole are made by the term Eurozone.

Figure 1 shows that most central banks have adjusted their monetary policies in 2022.

Figure no 2. Monetary policy and standing facility interest rates (Euro area . Jan 2017 - Feb 2022)



Source: own processing based on ECB data [accessed 20.05.2022].

In the year 2022, among the non-euro EU countries, Romania made the most changes in the monetary policy interest rate, In May (11.05.2022) it increased by 0.75 percentage points, from 3.00% to 3.75%. The same change occurred in the standing facilities, i.e. the interest rate on the lending facility increased from 4.00% to 4.75% and the interest rate on the deposit facility increased from 2.00% to 2.75%.

#### 4.2. Changes in interest rates charged by credit institutions on consumer credit

In order to analyse the relationship between official central bank interest rates and bank interest rates, we have chosen to look at the area of consumer bank lending. Thus we studied the evolution of consumer credit interest rates for the period 2017 to February 2022. We highlighted the categories: existing consumer loans outstanding and new loans in euro currency for EU countries.

We considered annual as well as quarterly averages to observe the impact of the COVID-19 pandemic on consumer credit interest, as well as differences between pre-pandemic, pandemic and current periods.

For Eurozone countries, where the monetary policy interest rate and the lending facility rate have remained constant, for loans with an original maturity of one year or less, the minimum interest rate is 0.94% (March 2019, Luxembourg) and the maximum interest rate is 14.68% (February 2022, Greece), for loans with an original maturity between 1 and 5 years inclusive the minimum rate is 1,94% (March 2020, Luxembourg) and the maximum rate is 9.88% (December 2018, Greece), for loans with an original maturity of more than 5 years the minimum rate is 2.52% (December 2021, Netherlands) and the maximum rate is 7.02% (February 2019, Slovakia), and for average interest rates the minimum rate is 4.34% (December 2021, Italy) and the maximum rate is 330.51% (March 2019, Malta).

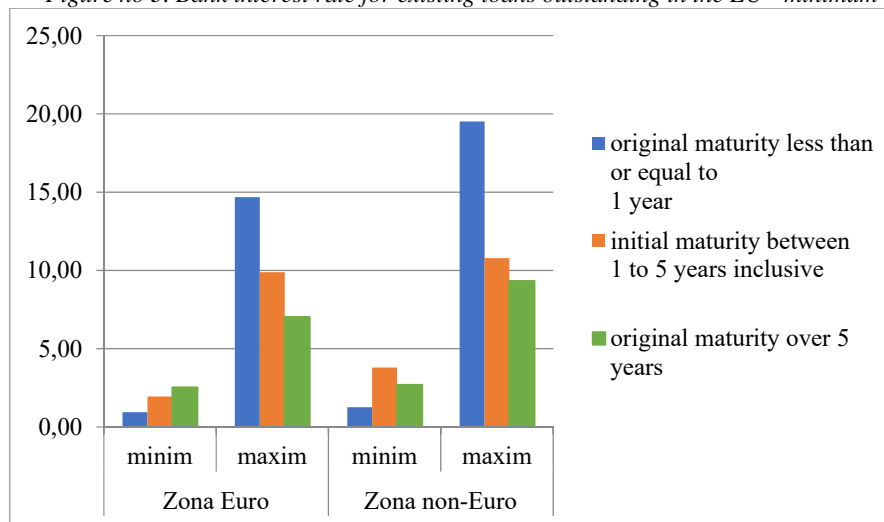
The differences between interest rates in February 2019 and February 2020 are between a decrease of 299.21 percentage points (Malta) and 1.47 percentage points (Lithuania), respectively, and an increase of 3.59 percentage points (Lithuania). The differences between March 2019 and March 2020 interest rates are between a decrease of 307.58 percentage points (Malta) and 1.38 percentage points (Lithuania), respectively, and an increase of 3.47 percentage points (Lithuania).

The differences between interest rates in March 2020 and December 2020 are between a decrease of 5.22 percentage points (Malta), and an increase of 0.55 percentage points (Cyprus). The differences between interest rates in February 2020 and February 2021 are between a decrease of 6.35 percentage points (Malta), and an increase of 0.55 percentage points (Lithuania). The differences between interest rates in March 2020 and March 2021 are between a decrease of 5.24 percentage points (Malta), and an increase of 0.72 percentage points (Cyprus). The differences between interest rates in February 2020 and February 2022 are between a decrease of 4.51 percentage points (Malta), and an increase of 1.01 percentage points (Lithuania).

For non-euro area countries, for the period January 2017 to February 2022, for loans with an original maturity of one year or less, the minimum interest rate is 1.26% (December 2021, Denmark) and the maximum interest rate is 19.52% (December 2017, Czech Republic), for loans with an original maturity of 1 to 5 years inclusive the minimum rate is 3.80% (December 2021 and February 2022, Bulgaria) and the maximum rate is 10.79% (December 2017, Czech Republic), for loans with an original maturity of more than 5 years the minimum rate is 2.69% (February 2022, Denmark) and the maximum rate is 9.32% (December 2017, Czech Republic), and as regards average interest rates, these are only found at the Central Bank of Sweden, with the minimum rate being 4.86% (December 2017) and the maximum rate 6.92% (February 2022).

The differences between interest rates in February 2019 and February 2020 are between a decrease of 1.48 percentage points (Bulgaria) and an increase of 1.84 percentage points (Sweden). The differences between March 2019 and March 2020 interest rates are between a decrease of 1.52 percentage points (Bulgaria) and an increase of 1.95 percentage points (Bulgaria). The differences between interest rates in March 2020 and December 2020 are between a decrease of 1.60 percentage points (Poland), and an increase of 0.16 percentage points (Denmark). The differences between interest rates in February 2020 and February 2021 are between -1.70 percentage points (Poland) and -0.04 percentage points (Sweden). The differences between interest rates in March 2020 and March 2021 are between -1.60 percentage points (Poland) and -0.08 percentage points (Denmark). The differences between interest rates in February 2020 and February 2022 are between a decrease of 2.79 percentage points (Romania), and an increase of 0.30 percentage points (Poland).

Figure no 3. Bank interest rate for existing loans outstanding in the EU - minimum and maximum



Source: developed by the authors based on the collected data Eurostat

### 4.3. Interest rate developments on new consumer loans

Of the 27 EU countries, 16 have data organised by three fixed initial interest rate periods for consumer credit: less than or equal to 1 year, between 1 and 5 years inclusive and over 5 years. The Central Banks of Croatia, Denmark, Ireland, Italy and Lithuania have data organised by two fixed initial interest rate periods, less than or equal to 1 year and more than 1 year. The Central Banks of

Estonia, Finland, Latvia, Malta, Poland and Sweden published average interest rates on consumer loans.

Thus, for Eurozone countries for loans with an initial fixed interest rate period of one year or less, the minimum rate is 0.90% (March and December 2021, Luxembourg) and the maximum rate is 11.37% (February 2022, Greece).

The differences between interest rates in February 2019 and February 2020 are between a decrease of 2.13 percentage points (Lithuania), and an increase of 7.94 percentage points (Latvia). The differences between March 2019 and March 2020 interest rates are between a decrease of 2.01 percentage points (Netherlands) and an increase of 1.85 percentage points (Greece). The differences between interest rates in March 2020 and December 2020 are between a decrease of 1.08 percentage points (Belgium), and an increase of 2.30 percentage points (Latvia). The differences between interest rates in February 2020 and February 2021 are between a decrease of 9.08 percentage points (Latvia), and an increase of 1.93 percentage points (Austria). The differences between interest rates in March 2020 and March 2021 are between a decrease of 2.53 percentage points (Estonia), and an increase of 0.73 percentage points (Austria). The differences between interest rates in February 2020 and February 2022 are between a decrease of 8.33 percentage points (Latvia), and an increase of 4.02 percentage points (Slovakia).

For non-euro area countries, for loans with an initial fixed interest rate period of one year or less, the minimum rate is 1.07% (February 2020, Denmark) and the maximum rate is 10.88% (December 2017, Czech Republic).

The differences between interest rates in February 2019 and February 2020 are between a decrease of 2.03 percentage points (Denmark) and an increase of 1.93 percentage points (Czech Republic). The differences between March 2019 and March 2020 interest rates are between a decrease of 1.28 percentage points (Bulgaria) and an increase of 1.93 percentage points (Sweden). The differences between interest rates in March 2020 and December 2020 are between a decrease of 1.43 percentage points (Bulgaria), and an increase of 0.31 percentage points (Sweden). The differences between interest rates in February 2020 and February 2021 are between a decrease of 1.76 percentage points (Bulgaria), and an increase of 0.96 percentage points (Croatia). The differences between interest rates in March 2020 and March 2021 are between a decrease of 3.62 percentage points (Bulgaria), and an increase of 0.48 percentage points (Croatia). The differences between interest rates in February 2020 and February 2022 are between a decrease of 2.75 percentage points (Bulgaria), and an increase of 1.34 percentage points (Sweden).

## 5. Findings

Monetary policy in EU countries has common elements, but there are also differences. All central banks set the monetary policy interest rate as well as lending and deposit facility rates as monetary policy instruments. However, the rate corridors differ from country to country. In this paper we have analysed the spread between the interest rate on the lending facility and the interest rate on the deposit facility. We present these analyses for countries where the spread is greater than 0.5 percentage points.

In the case of the Czech Republic, the difference of 0.50 percentage points between the facility rate between February 2019 (2.75%) and February 2020 (3.25%) can be seen in the difference of 1.93 percentage points between the interest rates charged by credit institutions on new loans with an initial fixed interest rate period of 1 year or less; the decrease in the lending facility rate by 0.75 percentage points between March 2019 (2.75%) and March 2020 (2.00%) is reflected in the decrease in the interest rate on new loans with an initial fixed interest rate period of more than 1 year and less than 5 years inclusive by 0.64 percentage points; the difference of 2.25 percentage points in the credit facility rate between February 2020 (3.25%) and February 2021 (1.00%) had the effect of decreasing the interest rate on new loans with an initial fixed interest rate period less than or equal to 1 year and between 1 and 5 years inclusive by 1.45 and 1.12 percentage points, respectively.

The 0.50 percentage point difference in the interest rate on the Danish Central Bank's lending facility between February 2020 (0.05%) and February 2022 (-0.45%) influenced interest rates on both existing outstanding and new loans. In Denmark, existing outstanding loans organised into four initial maturities: less than or equal to 1 year, between 1 and 2 years inclusive, between 2 and 5 years

inclusive and over 5 years, where the difference was 0.72, 0.90, 1.09 and 0.89 percentage points respectively, and the 0.90 percentage point difference in new loans was found in loans with an initial fixed interest rate period of less than or equal to 1 year.

Data from the Central Bank of Poland put almost all values above the 0.50 percentage point threshold. Thus, the one percentage point difference between March 2019 (2.50%) and March 2020 (1.50%) in the lending facility is almost entirely reflected in the difference in interest rates on existing outstanding loans with original maturities of one year or less in the same period; the one percentage point difference in the credit facility between March 2020 (1.50%) and December 2020 (0.50%) and between March 2020 (1.50%) and March 2021 (0.50%) yield differences on existing loans of between 1.20 percentage points and 1.60 percentage points for all original maturities; the two percentage point difference in the credit facility between February 2020 (2.50%) and February 2021 (0.50%) yielded differences of between 1.20 percentage points and 1.70 percentage points for all original maturities.

The evolution of the monetary policy interest rate and the spread between the interest rate on the lending facility and the deposit rate announced by the National Bank of Romania had a stronger effect on interest rates on existing loans with a maturity of one year or less, ranging from 1.08 percentage points to 1.36 percentage points.

## 6. Conclusions

The study confirmed that there is a link between the change in the policy interest rate and the evolution of bank lending, even if it occurs with a delay.

From January 2017 to February 2022, the interest rate set by EU central banks was found to be directly linked to the interest rate on bank loans in general and consumer loans in particular. The study found that some central banks such as Denmark, Sweden and Hungary had negative official interest rates in some periods.

The evolution of interest rates charged by credit institutions on existing outstanding and new consumer loans in euro showed that there is an impact of the COVID-19 pandemic on consumer credit interest rates.

Thus, for outstanding consumer loans, interest rates ranged from 0.94% to 14.68% in the Eurozone and from 1.26% to 19.52% in non-Euro countries. Denmark, Poland and Romania had large differences of more than one percentage point in the interest rates charged by credit institutions as a result of changes in the interest rate on the credit facility. These had a greater impact in Poland, where the credit facility rate differed by one percentage point between March 2020 and December 2020, and by two percentage points between February 2020 and February 2021, both causing differences of more than 1.20 percentage points on all outstanding consumer loans, regardless of original maturity.

For interest rates on new consumer loans we used data only for loans with an initial fixed interest period of less than or equal to one year, which showed that the interest rate was between 0.90% and 11.37% in the Eurozone and between 1.07% and 10.88% in non-Euro countries. We found differences of more than one percentage point in interest rates charged by credit institutions on new loans in the Czech Republic. Thus, the 0.50 percentage point difference in the credit facility between February 2019 and February 2020 resulted in a difference of 1.93 percentage points on loans with an initial fixed interest period of less than or equal to one year, while the difference of 2.25 percentage points between February 2020 and February 2021 resulted in differences of more than 1.12 percentage points on loans with an initial fixed interest period of less than or equal to one year and between 1 and 5 years inclusive.

As a future research direction, the influence of monetary policy on bank risk indicators can be analysed based on balance sheet information in which credit plays an essential role.

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## Aspects Regarding the Instrumentalization in Accounting of the Financing Systems

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### Abstract

*The purpose of this work consists in the schematic scoring of the accounting of instruments accessible to the financing of different categories of entities in the economy. Currently we can observe the increase in the cost of financing economic activities, in the context of an increasing inflationary spiral, generated by the steep increase in energy prices. Thus, the requirement for solutions to make the financing systems of the entities more flexible, with the corresponding reflection in the accounting, emerges. What are the ways forward? It is difficult to offer simple solutions to a complex of problems arising in front of the financing of economic activities. The extension of the application of financial instruments - to the extent of their accessibility, correlated with the use of tools, software solutions provided by Information Technology (IT), is necessary in the management of the accounting of entities.*

**Key words:** financial solutions, accounting, technologies.

**J.E.L. classification:** M41, G32.

### 1. Introduction

The ROBOR index recorded another sharp increase. The ROBOR index was established as follows starting on August 1, 2022: ROBOR 3 months = 8.01%, registering an increase of 0.04%; ROBOR 6 months = 8.13%, registering an increase of 0.05%; ROBOR 12 months = 8.24%, registering an increase of 0.05%.

The total lending for the population and companies reached in November 2021 a balance of 321.98 billion lei. Loans in lei increased by 14.6% compared to October 2020, while foreign currency loans increased by 4.7%. Total deposits registered in November 2021 an annual increase of 12.7% to the amount of 462.46 billion lei. ([www.insse.ro](http://www.insse.ro))

The year 2021 was a year out of the ordinary, with many challenges but - simultaneously - and opportunities in front of the banking sector. The activities of the financial-banking and lending sectors have had to adapt to the rigid context of constraints on economic activities. The banking system presents the necessary resources - material and human - through which it has done and continues to successfully face the challenges posed in the conduct of banking activities. It is found the use of a flexible working regime in the banking activity through which it is made available to its customers in multiple variants in the offer of banking products. The use of computer tools, the use of internet banking applications adapted to the new requirements, ensures quality and operative banking services for customers. ([www.insse.ro](http://www.insse.ro))

The level of systemic risks to financial stability in Romania remains significant, analogous to international dynamics, given that the outlook for future economic activity continues to be marked by uncertainty, fueled mainly by the multitude of effects associated with the COVID-19 pandemic. The measures to support the economy, implemented by the authorities, as well as the relaxation of restrictions on social distancing have contributed to mitigating the negative effects caused by the health situation. The National Bank of Romania will continue to monitor the evolution of the macro-financial framework and implement the necessary measures, aiming at achieving an adequate and balanced mix of economic policies, able to reduce both structural vulnerabilities and the negative effects generated by the current pandemic. ([www.insse.ro](http://www.insse.ro))

## 2. Theoretical background

Financial instruments are generally the legal obligations of a party to transfer an asset / value (usually cash) to another party at a future date and under certain conditions. (Nicolae, 2010)

Financial instruments are, in fact, assets that can be traded. These assets can be cash, contractual rights to deliver or receive money or another type of financial instrument or proof of ownership of an economic entity. (Nicolae, 2010)

Financial instruments fall into two broad categories (Nicolae, 2010) :

- Basic financial instruments are instruments whose value is determined directly by the markets. They are mainly used by savers / borrowers to transfer resources directly to investors / those in need of funds.

- They improve the efficient allocation of resources;

- They are liquid and easily transferable;

- Examples of financial instruments - for this category we note: shares and bonds.

- Derivative financial instruments: derivatives are those instruments whose value and remuneration is derived from the underlying instruments / assets.

Examples of financial derivatives are futures or options contracts or CFDs (exchange rate contracts). (Nicolae, 2010)

The main purpose of derivatives is to disperse investor risk.

For most traders who are just starting out in trading, financial instruments are the first tools or products they come in contact with. In addition, opening a trading account is fairly straightforward.

As it is a product with high leverage and due to decentralized exchanges, all you have to do is open an account with a broker, transfer funds and start the actual trading.

## 3. Research methodology

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 non-performing rate of non-financial companies that resorted to the suspension of rates was 12.3% in March 2021, compared to 5.2% for companies that did not resort to moratoriums, while in the population segment the values were 7.4 % and 3.1%, respectively. ([www.insse.ro](http://www.insse.ro)) Another important vulnerability is the poorer financial position of companies that have resorted to suspending payment rates, their financial health indicator being in the risk zone according to data from June 2020. Unlike all credit companies, they are characterized by a low level of profitability, a significantly higher degree of indebtedness and a lower capacity to recover debts, but with a super-unit liquidity. The forecast of the probability of default for the period March 2021 - March 2022, in the case of non-financial companies, indicates an average value of 4.8%, a level below the maximum recorded in the previous crisis, without taking into account the positive effects of measures to support the real sector. ([www.insse.ro](http://www.insse.ro))

If the negative economic effects of the pandemic will continue over a longer period, the high level of indebtedness of companies is a vulnerability, the difficulties of these companies being able to spread both along the commercial chains and to the banking sector. The most risky companies from a debt perspective are of significant importance, both for the company sector as a whole (38% of turnover and 41% of the number of employees, respectively) and for credit institutions (55% of the loan portfolio). Unlike the degree of indebtedness, the distribution of companies according to the level of liquidity shows a significantly better resilience, 73% of companies having values of the indicator above the signal threshold of 100%. And in this case, however, companies with subunit liquidity values are of high importance: (i) they generate 26% of turnover, (ii) they employ 34% of employees and (iii) they hold a share of 43% of bank credit . ([www.insse.ro](http://www.insse.ro))

The insolvency phenomenon improved in 2020. Although insolvency companies account for only 3% of the stock of loans granted, they are responsible for 30% of non-performing exposures. However, the number of insolvencies is expected to increase, similar to the European trend, which calls for a re-evaluation by the authorities of the regulatory framework for exit, so that this process is more efficient. ([www.insse.ro](http://www.insse.ro))

#### **4. Survey on the evolution of the use of financial instruments in the accounting of financing activities of national entities**

There are a multitude of financial instruments to meet the needs of an investor or a speculator, depending on the purpose of each. For example, some investors prefer to settle for lower but safer profits and invest in government bonds. (Nicolae, 2010)

Bonds will usually yield lower returns than equity investments. The advantage here is that the bonds are less risky and safer. Most of the time they have government guarantees. (Nicolae, 2010)

Investing in stock markets may seem more interesting from the point of view of an investor with a higher risk appetite. To assume this risk, the investor will be rewarded with higher returns, but there are no guarantees.

The decision to invest in capital or debt markets has a lot to do with managing the risks associated with a portfolio. (Nicolae, 2010)

As far as foreign exchange markets are concerned, again it all comes down to the choice and purpose of the investor or speculator. An exporting company will be more interested in investing in the foreign exchange market to cover the risks associated with the currencies in which it operates, than in investing in the stock market, for example. (Nicolae, 2010)

In other words, a person interested in saving for retirement will probably be more interested in bonds and stocks than in investing in the foreign exchange market.

When proposing to invest in financial instruments, you need to evaluate those financial instruments in terms of the following parameters (Nicolae, 2010):

- yield - the ratio between the result obtained and the effort made to obtain that result
- net profit - the difference between the amount of money received from the transaction and the amount of money spent on it
- risk - financial instruments may present different degrees of risk, from losing all or part of the amount invested to making profits below expectations
- liquidity - is the ability of a financial instrument to be converted into cash without losing value.

As a result, each investor can choose the financial instruments that suit him according to his risk appetite (Nicolae, 2010):

- banking financial instruments such as bank deposit correspond to very low risk investments, with very low return and are preferred by defensive investors with very low risk appetite
- government bonds and securities are financial instruments with a slightly higher risk and a potentially appropriate return. They are preferred by conservative investors who prefer fixed, guaranteed profit and low risk
- stocks and mutual funds are preferred by balanced investors who are comfortable with a higher degree of risk and a potential gain to match
- Financial derivatives and speculation in the Forex market are the preference of aggressive investors, who prefer large gains also associated with high risks.

It is essential to know as many types of financial instruments as possible and how they work in order to maximize the efficiency of your investments.

Diversification is the foundation of a balanced portfolio that aims to minimize risks while keeping the potential for profits as high as possible. So it is advisable to invest in a wide range of financial instruments, depending on your risk profile.

#### **4. Findings**

##### **4.1. The observation of the accounting issues associated with financial instruments used in accounting for the financing sector of the entities**

Derivative financial instruments or derivative securities are exchange products, based on contracts concluded between an issuer and a beneficiary, and confer on the beneficiary rights over the issuer's assets at a future maturity, in accordance with the terms of the contract. They are called derivatives because they are exercised over assets, not over the monetary profit of the issuer. (IASB,2018).

There are three categories of securities (Nicolae, 2010):

- Futures contracts;
- Options contracts;
- CFDs - Exchange rate contracts.

#### Derivative Financial Instruments - Futures Contracts

Futures contracts are an agreement between two entities to sell or buy an asset at a set price at a future date.

Futures can be used for financial investments or stock market speculation in hopes of making future gains. Or to hedge the risk on the assets on which those securities are based.

#### Derivatives - Options Contracts

Options are contracts between two entities, one seller and one buyer, whereby the buyer has the right, but not the obligation, to buy or sell an asset at a later date. In exchange for this right, the purchasing entity pays a premium. (IASB , 2018).

Types of options depending on the right it confers:

- put option - Put - the buyer acquires the right to sell an asset at a certain price, set a priori;
- call option - Call - the buyer acquires the right to buy an asset at a certain price, set a priori.

Options and futures contracts are futures contracts, standardized by the market operator where they are traded.

When different financial assets are combined, new financial instruments are created called synthetic products. They can result from a combination of futures contracts, or a combination of options, or a combination of different types of options and futures.

Stock market contracts are the most well-known synthetic financial securities. It provides investors with additional investment and risk management opportunities for a stock-based investment portfolio.

Stock index contracts allow you to trade upwards or downwards without holding the actual shares in the portfolio.

## 4.2. Contracts for Exchange Rate Difference – CFD

The exchange rate contract, or CFD, is essentially a contract between an investor and an investment bank or broker. At the conclusion of the contract, the parties shall transfer to each other the difference between the opening and closing price of the contract relating to a particular financial instrument. (Nicolae, 2010)

CFDs are contracts based on differences in price levels, without having to actually own those assets.

Contracts for difference are derivative financial instruments. With the help of CFDs you can speculate the increase or decrease of the prices of financial instruments with large fluctuations. CFDs can be used for a wide range of underlying assets from currencies, stocks and indices to bonds and commodities. (Nicolae, 2010)

You can trade CFDs through a regulated broker. However, it is important to keep in mind that trading CFDs online can be very risky for your capital, as it is most often based on leverage. It amplifies your profits, but also your losses. So, it is recommended that you first test trading on a demo account before trading for real money. (Nicolae, 2010)

When you trade CFDs, you do not sell or buy that underlying asset, but the financial instrument that is based on that asset.

Financial instruments that can be traded in the form of CFDs are (Nicolae, 2010):

- Currency pairs (Forex) – EUR/USD, GBP/JPY, USD/RON, USD/CHF,
- Goods - WTI oil, Brent oil, gold, silver, corn,
- Shares - Google, Amazon, Facebook, Airbus,
- Indices - Dow Jones, FTSE 100, DAX30, CAC40, NASDAQ, Nikkei 225,
- Bonds.

The trading costs of CFDs through brokers are generally reduced to the spread you pay with the opening of the transaction.

Trading CFDs has several major advantages that have attracted a great deal of popularity over the last decade (Nicolae, 2010):

- High leverage and lower margin requirements and higher yield potential
- Access to global markets through a single platform
- There are no downward selling rules or the need to borrow assets
- Professional execution of orders without commissions
- There are no minimum daily trading requirements
- There is a wide variety of trading opportunities

### Example

*Table no. 1 Cash versus cash (net cash payment)- transactions related to the case study*

Transactions	Textual description of the transactions
Assumptions	The forward purchase contract for the own shares of a company will be settled net in cash, ie there are no inflows and outflows of equity instruments of the company at the settlement of the forward contract. (Nicolae, 2010)
February 1, 2023	On February 1, 2023, Alfa5 entered into a contract with Beta7 to collect the fair value of 10,000 of the outstanding common shares outstanding of entity A until January 31, 2024 in exchange for the transfer of the amount of 10,400,000 m.u. (monetary units) in cash (ie 1040 m.u. per share) on January 31, 2024. The contract will be paid net in cash.

Source: Case study data proposed by the author

*Table no. 2 Registrations to date February 1, 2023*

Transactions	Textual description of the transactions
Assumptions	The price per share when the contract is concluded on February 1, 2023 is 1000 m.u. The initial fair value for the forward contract on 1 February 2023 is zero.
	No accounting is required because the fair value of the derivative is zero and no cash receipts or payments are made.

Source: Case study data proposed by the author

*Table no. 3 Registrations to date December 31, 2023*

Transactions	Textual description of the transactions
Assumptions	The price per share rises to 1100 m.u. and, as a result, the fair value of the forward contract increases to 11,000,000 m.u.

Source: Case study data proposed by the author Source: Case study data proposed by the author

*Table no. 4 Recording the increase in the fair value of the forward contract*

Account - Debit	Account - Credit	Amount
Account for financial investments at term	Financial results account	11,000,000

Source: Case study data proposed by the author

*Table no. 5 Registrations to date January 31, 2024*

Transactions	Textual description of the transactions
Assumptions	The market price per share fell to 1,060 m.u.
	The fair value of the term contract is $(1,100 \text{ u.m.} \times 10,000) - 10,400,000 \text{ m.u.} = 200,000 \text{ m.u.}$
	On the same day, the contract is paid in cash. The Alfa5 entity assumes the duty to transfer 10,400,000 m.u. to the Beta7 entity, and the Beta7 entity assumes the duty to pay 10,600,000 m.u. to the Alfa5 entity, so the Beta7 entity pays the net amount of 200,000 m.u. to the Alfa5 entity.
	Recording the decrease of the fair value of the term contract, ie $= 10,600,000 \text{ m.u.} - 200,000 \text{ m.u.} = 10,400,000 \text{ m.u.}$

Source: Case study data proposed by the author

*Table no. 6 Recording the decrease of the fair value of the term contract*

Account - Debit	Account - Credit	Amount
Financial results account	Account for financial investments at term	10,400,000

Source: Case study data proposed by the author

Table no. 7 Registration of the payment of the term contract

Account - Debit	Account - Credit	Amount
Cash accounts at banks	Account for financial investments at term	200,000

Source: Case study data proposed by the author

#### 4.3. A case study of the accounting records for financial instruments

Table no. 8 Table of transactions related to the case study for financial instruments

Transactions	Textual description of the transactions
January 1, 2022	The entity concludes a contract granting 70 shares to 30 employees in the general financial and administrative sector, at a price of 3,500 m.u. (monetary unit) per share. (Nicolae, 2010).
	The contract provides for the granting of equity instruments for a period of 4 years.

Source: Case study data proposed by the author

#### Accounting data

(Making entries by the author)

Table no. 9 Registration of granted capital instruments

Calculations and records
Total fair value of equity instruments granted = 30 employees x 70 shares x 3,500 m.u. = 7,350,000 m.u.

Source: Calculations made by the author

Table no. 10 Recognition of expenses for year 2022

Account - Debit	Account - Credit	Amount
Expenses with remuneration of employees in equity instruments	Amounts granted to employees through equity instruments - stock options	7,350,000 m.u. x 1/4 = 1,837,500 m.u.

Source: Calculations and records made by the author

Table no.11 The profit tax related to the non-deductible expenses for year 2022

Calculations and records
Corporate profit tax calculated = 1,837,500 m.u. x 16% = 294,000 m.u.

Source: Calculations made by the author

Table no. 12 Registration of expenses with profit tax

Account - Debit	Account - Credit	Amount
Current profit tax expenses	Current profit tax	294,000

Source: Calculations and records made by the author

Table no. 13 Recognition of expenses for year 2023

Account - Debit	Account - Credit	Amount
Expenses with remuneration of employees in equity instruments	Amounts granted to employees through equity instruments - stock options	7,350,000 m.u. x 1/4 = 1,837,500 m.u.

Source: Calculations and records made by the author

Table no.14 The profit tax related to the non-deductible expenses for year 2023

Calculations and records
Corporate profit tax calculated = 1,837,500 m.u. x 16% = 294,000 m.u.

Source: Calculations made by the author

Table no. 15 Registration of expenses with profit tax

Account - Debit	Account - Credit	Amount
Current profit tax expenses	Current profit tax	294,000

Source: Calculations and records made by the author

Table no. 16 Recognition of expenses for year 2024

Account - Debit	Account - Credit	Amount
Expenses with remuneration of employees in equity instruments	Amounts granted to employees through equity instruments - stock options	7,350,000 m.u. x 1/4 = 1,837,500 m.u.

Source: Calculations and records made by the author

Table no. 17 The profit tax related to the non-deductible expenses for year 2024

Calculations and records
Corporate profit tax calculated = 1,837,500 m.u. x 16% = 294,000 m.u.

Source: Calculations made by the author

Table no. 18 Registration of expenses with profit tax

Account - Debit	Account - Credit	Amount
Current profit tax expenses	Current profit tax	294,000

Source: Calculations and records made by the author

Table no. 19 Recognition of expenses for year 2025

Account - Debit	Account - Credit	Amount
Expenses with remuneration of employees in equity instruments	Amounts granted to employees through equity instruments - stock options	7,350,000 m.u. x 1/4 = 1,837,500 m.u.

Source: Calculations and records made by the author

Table no. 20 The profit tax related to the non-deductible expenses for year 2025

Calculations and records
Corporate profit tax calculated = 1,837,500 m.u. x 16% = 294,000 m.u.

Source: Calculations made by the author

Table no. 21 Registration of expenses with profit tax

Account - Debit	Account - Credit	Amount
Current profit tax expenses	Current profit tax	294,000

Source: Calculations and records made by the author

Table no. 22 Exercising options in the 2025 year

Calculations and records
The balance of the account Amounts granted to employees through equity instruments - stock options is = 7,350,000 m.u.
Total profit tax related to the non-deductible expenses for 2022- 2025 = 294,000 x 4 = 1.176.000 m.u.

Source: Calculations and records made by the author

Table no. 23 Registration for exercising options in the 2025 year

Account - Debit	Account - Credit	Amount
Amounts granted to employees through equity instruments - stock options	Paid subscribed capital	7,350,000

Source: Calculations and records made by the author

When implemented in practice, entities may also consider other accounting records alternatives as long as there is a fair presentation of the results in profit and loss statement and other comprehensive.

## 5. Conclusions

In my opinion, there are multiple elements that need to be considered in order to be able to implement financial instruments in the day-to-day activities of the entities, in a manner that is appropriate and tailored to the specific needs of each entity.

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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# Trends in the Development of Digitalized Paradigms of De-construction in Accounting

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## Abstract

*The purpose of this paper is the issue of the new paradigms applicable to the digitization of accounting - a set of processes and phenomena generated by the application of new technologies and tools with a major impact on accounting activities. The paradigms currently developing in the notional field of accounting are influenced by the need to adapt Accounting to the new challenges generated by the applicability of a set of new IT technologies. The widespread use of smart terminals - phones, laptops - for the primary acquisition of input data in the accounting computer system allows real-time processing of accounting data, generated by economic flows in the world businesses. Multi-dimensional and multi-criteria processing of accounting data opens new perspectives in financial, accounting reporting. Thus, a new perspective appears, compared to the traditional paradigm of accounting. How will multiple parties materialize in accounting? The possible perspectives are open.*

**Key words:** accountings paradigms, new technology.

**J.E.L. classification:** M41, F60.

## 1. Introduction

Blockchain technology, digitization and data provide a significant opportunity for the finance function to improve business partnership by guiding and facilitating decision-making within an organization. Technological progress drives efficiency and at the same time provides the basis for value-added roles. ([www.hyperledger.org](http://www.hyperledger.org))

A multi-capital approach provides an enabling framework for rethinking how value is created and measured over time. The accounting and finance function must know and communicate how value is created today, how it will be created in the future, and whether profitability is sustainable. ([www.hyperledger.org](http://www.hyperledger.org))

Financial information tells only part of the story of value creation. Value is created and destroyed outside of the statement of financial position. Strategic and operational factors, often intangible and difficult to capitalize on, make up a large part of the enterprise's market value. The drivers of future cash flows, which represent key areas of opportunity and risk, are varied and include governance and culture, social license to operate and firm reputation, innovation and intellectual property, talent and human capital, data, operational excellence, business processes quality business and quality relationships with customers and suppliers. ([www.hyperledger.org](http://www.hyperledger.org))

Transforming finance functions to be at the heart of decision-making and value creation is a tough endeavor and cannot be achieved overnight. It involves investing in four key factors, which require the involvement and support of the entities' executive managements.

## 2. Theoretical background

In Accounting digitization and the existence of multiple capitals challenge the role and contribution of the accounting function and accounting professionals and have important implications for the accounting profession and its members who work as employees. At a time when most of the value of companies is not reflected in the statements of financial position of entities, and

digital, data-driven activity is decisive for future success, accounting and accounting professionals must move from isolated roles in processing data to roles that are central to the decision-making process. ([www.hyperledger.org](http://www.hyperledger.org))

Although the use of digital technologies is essential for all accounting information systems, each field has its own particularities, determining different speeds of implementation. Following the analyzes carried out in the market studies, the following can be concluded: ([www.hyperledger.org](http://www.hyperledger.org))

- BigData technologies (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 comparison platforms of prices and in e-commerce;

- The implementation of BD solutions brings general benefits, valid for any sector in which they were implemented, such as: optimization of operational/technical processes, efficiency of operational costs and resources, but also for a series of activities specific to each field of activity;

- Investments in the digitization of accounting are consistent, involve significant resources and long implementation periods;

- Barriers/ risks in the implementation of BD technologies in accounting are generated by the high costs related to the purchase/development and implementation of solutions, the inherent complexity of the data, the lack of skills within the companies to interpret the data, the difficulty of hiring specialized personnel, ensuring security and preserving data confidentiality;

- The use of BD 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 supply and demand.

Companies' use of identical/ similar algorithmic models, a common database, and similar pricing strategies can facilitate coordination, driving up prices. ([www.hyperledger.org](http://www.hyperledger.org))

If companies end up implementing machine learning (ML) algorithms, which automatically adjust the price, the coordination brings a series of challenges at the level of activities of prevention/monitoring/identification of anti-competitive practices and requires an adaptation of the competition authorities in resource perspective. The need for specialists and specific analytical tools to analyze cases where the use of algorithms is suspected to result in tacit coordination or facilitate anti-competitive understandings is thus accentuated. ([www.hyperledger.org](http://www.hyperledger.org))

It is important to emphasize that, from the perspective of the objective pursued and the consequences generated by a certain policy of using price algorithms, the relevant decision-making factor is still the human one. Even if, from a technical perspective, we often talk about algorithm decisions, from a business perspective, the decision to follow a certain strategy is a human one, algorithms being only means chosen to follow a certain objective. Therefore, we are still talking about business decisions and their associated effects, even if they involve a delegation of implementation to an algorithmic component. ([www.hyperledger.org](http://www.hyperledger.org))

### 3. Research methodology

The research methodology used in this article consists of empirically researching a data set available on the Internet and building models of accounting records. ([www.hyperledger.org](http://www.hyperledger.org))

The notion of BigData (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 Internet access globally 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 big data - BD. The term BD refers to tools, the processes and procedures that allow the creation, processing, storage and management of large data sets. The explosion of data volume characteristic of the BD phenomenon also comes from unstructured data, and the large volume of data that must be processed requires specific techniques, tools and architectures. BD 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 evolution of BD is related to the evolution of modern technology and includes a series of preliminary stages: the evolution of computers, the development of the Internet, the development of processing and storage capacities, the emergence of new analysis methodologies, etc., and on the

other hand, the emergence of the Internet of Things (IoT) and of smart phones, bank cards and social media provide ever-increasing amounts of data, changing the nature of data volumes. ([www.hyperledger.org](http://www.hyperledger.org))

BD platforms/ technologies are associated with large sets of varied and complex information that require a set of specific techniques and technologies for their collection, processing and analysis, most of them in real time. These generally consist of data storage systems, servers, databases, data management and other utilities for managing large volumes of data.

Major BD challenges include collecting, storing and analyzing data in a reasonable amount of time, querying, viewing, transferring, updating and keeping information and data sources confidential. Lately, the main characteristic of BD is no longer the large volume of available data, but the use of specific methods of their analysis, such as predictive, behavioral or social network analysis. ([www.hyperledger.org](http://www.hyperledger.org))

## 4. Findings

### 4.1. Survey of the specific evolutions regarding the application of information technologies (IT) in accounting

BigData (BD) represents the technology 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 concept has 5 main characteristics, also called 5-V: ([www.hyperledger.org](http://www.hyperledger.org))

- The large volume of data available and the number of data sources – operational, public, commercial or social data;
- The high speed with which data is created, processed and analyzed;
- The great variety of data – the increase of data sources and their types – tabular data, documents, e-mails, blogs, instant messages, metering data, static images, audio, video, etc.;
- Data veracity – data accuracy is essential in obtaining correct results. The variety of sources and the large volume of data makes it difficult to control the accuracy of the information;
- Data value – BD access aims to increase the value of primary data. As a rule, initial information has little value compared to its volume. The increase in value is achieved by analyzing and processing large volumes of data. ([www.hyperledger.org](http://www.hyperledger.org))

There is no predefined threshold of the 5 characteristics, which indicates entry into the domain of BD. Due to the constant evolution of technologies, the sizes of data sets, which can be characterized as BD, are constantly increasing. ([www.hyperledger.org](http://www.hyperledger.org))

In addition to the 5 characteristics, BD differs from other databases by the type of data that is processed and analyzed: structured data (which exists in a database and can be selected through simple search algorithms) and unstructured data (documents text, e-mails, video, pictures, audio files, presentations, web pages). ([www.hyperledger.org](http://www.hyperledger.org))

The most widely used BD architecture uses the Hadoop platform, developed by Apache in 2005. The open-source platform can process structured and unstructured data from almost all digital sources and is based on a cluster-type architecture that stores and processes quickly and cost-effectively reduced large volumes of data, with different structures. ([www.hyperledger.org](http://www.hyperledger.org))

Since 2010, Hadoop has been widely adopted by organizations, both for the purpose of storing large volumes of data and as a platform for their analysis. Currently, Hadoop is used by many companies for which the volume of data generated daily exceeds the processing and storage capacities specific to conventional systems: Adobe, AOL, Amazon.com, EBay, Facebook, Google, LinkedIn, Twitter, Yahoo. ([www.hyperledger.org](http://www.hyperledger.org))

BigData Analytics (BDA) is the process of analyzing large volumes of data. BDA is the complex process of analyzing BD to discover patterns, correlations, market trends, customer preferences that help organizations make better strategic and operational decisions. BDA contains 2 main stages: Data Management and Analytics (data analysis). ([www.hyperledger.org](http://www.hyperledger.org))

The data analysis process started in the 80s with existing data analysis tools and statistical reports (Data Warehouse, Business Reporting), rapidly evolving in the following years to Descriptive, Diagnostic, Predictive (BDA), Prescriptive and Cognitive Analytics. ([www.hyperledger.org](http://www.hyperledger.org))

Descriptive analysis – answer the question – What is happening? It uses tools, such as Google Analytics, Excel, Data Warehouse, which, based on existing data, provide an accurate picture of the evolution of the business, in relation to comparable periods. ([www.hyperledger.org](http://www.hyperledger.org))

Diagnostic analysis - answer the question - Why is it happening? Diagnostic analysis is an advanced form of analysis that uses technologies such as Business Intelligence and Data Mining to understand, based on existing data, the causes of how the business has evolved.

Predictive analytics – answers the question – What is going to happen? It is an advanced form of analysis, which uses the results of descriptive and diagnostic analyses, predictive algorithms and technologies such as Business Analytics to identify patterns, behaviors, exceptions and predict possible trends. ([www.hyperledger.org](http://www.hyperledger.org))

Prescriptive analysis – answers the question – What actions need to be taken? It uses advanced analytical techniques – AI (Artificial Intelligence) and BDA, to make strategy recommendations and provide business directions. ([www.hyperledger.org](http://www.hyperledger.org))

Cognitive analysis - also called BD 2.0, represents the new generation of BD. Cognitive analysis represents the new approach in identifying information and making decisions. Inspired by the way the human brain processes information and draws conclusions, the analysis extends the capabilities offered by the first generation of BD, learns from data and extracts hidden patterns from it. Cognitive analytics uses a combination of technologies such as: artificial intelligence algorithms, machine learning, deep learning, BD, predictive analytics. The analysis searches the entire database and provides real-time solutions. Apple's Siri, Google Now and Microsoft's Cortana currently use cognitive analytics. ([www.hyperledger.org](http://www.hyperledger.org))

In conclusion, BD platforms answer the following questions:

- - What and why is it happening?
- - What is going to happen?
- - What actions should be taken?

BD technologies have revolutionized industries and changed human culture and behavior. They are used in a number of fields that have a common characteristic: the processing of large volumes of data in order to perform predictive analyses. ([www.hyperledger.org](http://www.hyperledger.org))

BD systems can provide information not only to businesses, but also to government organizations and individuals. BD can be used to achieve national objectives, such as: optimizing resources, the ability to respond to natural disasters and improving transport infrastructure management systems. BD technologies are among the 5 areas considered by the European Commission to be a priority for the digital single market, along with 5G communications, cloud computing, the Internet of Things and cyber security. ([www.hyperledger.org](http://www.hyperledger.org))

BD has proven its usefulness in areas such as: ([www.hyperledger.org](http://www.hyperledger.org))

- Electronic commerce - the most revolutionized field of BD. Uses BD technologies, in particular, to identify preferences, consumer behavior, target markets and consumers, update inventory in real time, develop personalized offers and predict consumer purchasing decisions;
- The medical system – BD is used to reduce costs and improve the quality of the medical service, in the medical monitoring system of patients. It includes unstructured data – doctors' notes, medical tests, etc. BDA helps to predict, prevent and cure diseases;
- Data security – preventing and combating the phenomena of fraud, terrorism and crime, helps to reduce costs or make critical decisions;
- Mobile telephony – the use of location capabilities, including video cameras, microphones, motion sensors, GPS and Wi-Fi capabilities has enriched the volume of data collected and the methods of its collection and use;
- Energy sector – helps in the process of monitoring and controlling the use of electricity. BD is used to pinpoint power outages or other problems that occur in networks, including cyber attacks or natural disasters;
- Traffic management and control – used in traffic optimization and/ or the electronic toll charging system, allowing differentiated rates depending on the distance traveled, vehicle type, etc.;
- Traditional trade - allows optimizing the assortment selection process, identifying stocks in real time, identifying consumer preferences;

- Banking services – in particular, in the case of fraudulent card payments, by implementing mechanisms to identify, in real time, suspicious transactions, but also in the case of facilitating the risk analysis for granting loans;

- Production processes – BD can be used to identify process variations and quality problems;

We can see from this enumeration the interaction with **accounting computer systems**, applicable for various categories of activities.

BD 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 BD offers a new perspective by improving the practices of analysis and predictive modeling, with a positive effect in the real-time decision-making process. ([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 also comes with a series of challenges regarding the acceptance and implementation of these specific technologies, as follows:

- The media industry - provides information at a global level, messages or content can be transmitted, consistent with the attitudes, preferences and ideas of the information consumer;

- Research - rapid information processing, facilitating interdisciplinary approaches through more effective integration of different research fields.

#### 4.2. 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
Initially	On January 1, 2021, an entity acquired a complex distributed ledger accounting software system based on blockchain technology, for which the fair value of 200,000 m.u. (monetary units). The complex blockchain accounting software system has an estimated useful life of 8 years and will be used to organize the entity's accounting, thus being accounted for in the category of intangible assets – computer programs. (Nicolae, 2010).
December 31, 2021	In accordance with its accounting policies, at the end of each reporting period, the entity will update the complex blockchain accounting software system. The accounting specialists of the company exercise their professional judgment, estimate that there have been works to update and modernize the blockchain software in the amount of 100,000 m.u. invoiced by suppliers and 50,000 m.u. made by the entity's specialists. The remaining useful life is re-estimated at 8 years.
December 31, 2022	The accounting specialists of the company find that there have been works to update and modernize the blockchain software in the amount of 70,000 m.u. invoiced by suppliers and 30,000 m.u. made by the entity's specialists. The remaining useful life is re-estimated at 5 years.
December 31, 2023	The accounting specialists of the company find that there have been works to update and modernize the blockchain software in the amount of 50,000 m.u. invoiced by suppliers and 40,000 m.u. made by the entity's specialists. The remaining useful life is re-estimated at 10 years.

Source: Case study data proposed by the author

#### Accounting data

(Making entries by the author)

Table no. 2 Recording of the purchase of complex distributed ledger accounting software system based on blockchain technology

Account - Debit	Account - Credit	Amount
Intangible assets - blockchain software	Providers of Intangible Assets - blockchain software	200,000

Source: Calculations and records made by the author

Table no. 3 Calculations for amortization for year 2021

<b>Calculations and records</b>	
As of December 31, 2021, the entity calculates and records the amortization for the period January 1 - December 31, 2021 = 200,000 m.u. / 8 years = 25,000 m.u.	

Source: Calculations made by the author

Table no. 4 Record for amortization for 2021 year

<b>Account - Debit</b>	<b>Account - Credit</b>	<b>Amount</b>
Operating expenses on amortization of blockchain software	Amortization of blockchain software	25,000

Source: Calculations and records made by the author

Table no. 5 Recognition of works to update and modernize the blockchain software as of December 31, 2021

<b>Account- Debit</b>	<b>Account - Credit</b>	<b>Amount</b>
Intangible assets - blockchain software	Providers of Intangible Assets - blockchain software	100,000
Intangible assets - blockchain software	Revenue from the production of blockchain software	50,000

Source: Calculations and records made by the author

Table no. 6 Calculations for amortization for year 2022

<b>Calculations and records</b>	
Annual depreciation = 200,000 - 25,000 + 150,000 = 325,000 m.u. / 8 years = 40,625 m.u.	

Source: Calculations made by the author

Table no. 7 Record for amortization for 2022 year

<b>Account - Debit</b>	<b>Account - Credit</b>	<b>Amount</b>
Operating expenses on amortization of blockchain software	Amortization of blockchain software	40,625

Source: Calculations and records made by the author

Table no. 8 Recognition of works to update and modernize the blockchain software as of December 31, 2022

<b>Account- Debit</b>	<b>Account - Credit</b>	<b>Amount</b>
Intangible assets - blockchain software	Providers of Intangible Assets - blockchain software	70,000
Intangible assets - blockchain software	Revenue from the production of blockchain software	30,000

Source: Calculations and records made by the author

Table no. 9 Calculations for amortization for year 2023

<b>Calculations and records</b>	
Annual depreciation = 325,000 - 40,625 + 100,000 = 383,475 m.u. / 5 years = 76,695 m.u.	

Source: Calculations made by the author

Table no. 10 Record for amortization for 2023 year

<b>Account - Debit</b>	<b>Account - Credit</b>	<b>Amount</b>
Operating expenses on amortization of blockchain software	Amortization of blockchain software	76,695

Source: Calculations and records made by the author



Table no. 11 Recognition of works to update and modernize the blockchain software as of December 31, 2023

Account- Debit	Account - Credit	Amount
Intangible assets - blockchain software	Providers of Intangible Assets - blockchain software	50,000
Intangible assets - blockchain software	Revenue from the production of blockchain software	40,000

Source: Calculations and records made by the author

Table no. 12 Calculations for amortization for year 2024

Calculations and records
Annual depreciation = 383,475 - 76,695 + 90,000 = 396,780 m.u. / 10 years = 39,678 m.u.

Source: Calculations made by the author

Table no. 10 Record for amortization for 2023 year

Account - Debit	Account - Credit	Amount
Operating expenses on amortization of blockchain software	Amortization of blockchain software	39,678

Source: Calculations and records made by the author

## 5. 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 Multiple Party Accounting.

The use of information technology tools on an unprecedented scale - smartphones, tablets, laptops, wireless accounting information transmission devices and 5G, 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 into a system of integrated financial reporting. Integrated financial reporting allows the enrichment of information for the financial-accounting decisions of different categories of users. 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 smart phones, tablets, laptops, 5G devices, etc., much higher consumption compared to the traditional paper-based processing of accounting data.

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# Analysis of the Linkage Between Health Public Expenditures and Health Outcomes at the European Union Level

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## Abstract

*The paper investigates the linkage between public health expenditure and general health among all the European Union member states. Using the regression analysis we considered three independent variables (health expenditure, GDP/capita growth and number of nurses and midwives per 1000 inhabitants) and 2 dependent variables (life expectancy and infant mortality rate) to build two multifactorial regressions. Following the results, we were able to see that an increase in health expenditure generates an increase in life expectancy. Nevertheless, an increase in health expenditure generates a decrease in the infant mortality rate.*

**Key words:** health public expenditure, life expectancy, European Union

**J.E.L. classification:** D60, H11, H51

## 1. Introduction

A large body of literature has investigated the connection between public health expenditure and health outcomes, especially in what concerns the low and middle-income countries (Oladosu et al., 2022). However, the studies that investigated the same connection in the case of European Union countries are far less numerous. Nixon and Ulmann (2006) reached the conclusion that increasing public healthcare expenditure in the period 1980-1995 in the case of the 15 old member states of European Union proved to be beneficial in terms of infant mortality, but only marginally beneficial in the case of life expectancy. More recently, Onofrei et al. (2021) have analysed the relationship between government expenditure on health and health outcomes in the case of the new member states of the European Union and have concluded that these variables are in a long-term equilibrium relationship.

In general, examining the relationship between health government expenditure and different health indicators is not an easy task, given the fact that public health is influenced by a lot more factors other than the government expense that is done in this direction.

The purpose of this paper is to investigate the linkage between public health expenditure and general health among all European Union member states. Using the regression analysis we considered three independent variables (health expenditure, GDP/capita growth and number of nurses and midwives per 1000 inhabitants) and 2 dependent variables (life expectancy and infant mortality rate) in order to analyse this connection.

## 2. Theoretical background

In the last two decades, a growing interest has been paid to the potential economic benefits in terms of growth and development, of improving population health. There is a long-term relationship between the health of the citizens and the dynamics of per capita income (Romer, 1996). Bloom et al. (2004) point out the mechanisms through which an increased state of health of individuals actually leads to economic benefits: first, the increased productivity at the



workplace, leading to higher wages; then, the ability to work for longer periods, including later retirement; the possibility of supporting financially their education; the increased saving and investment; and the economic safety. The idea was mentioned first by Rosen (1993) long time ago, which made clear that the welfare of nations depended partially on the health of their citizens. However, this theme became a subject of attention with the 2001 Commission’s report on macroeconomics and health, which suggested once again that improving health is a strategic policy in increasing income and reducing poverty in developing countries (Commission on Macroeconomics and Health, 2001). A few years later, in 2005, Suhrcke et al. (2005) provided evidence on the importance of health on the economy in well-developed countries. They implied that if Europe wants to become more competitive world-wide, investment in human capital is needed. Health should definitively be seen as a “consumer good” appreciated as an important component of general welfare and not only as a “capital good” that improves economic productivity.

There are many empirical studies that emphasized the significant relationship between public health spending and health (Raeesi et al., 2018; Edeme et al., 2017; Arthur et al., 2017; Malhotra et al., 2016). However, the evidence provided mixed results, although the positive results of increasing health public spending prevailed in front of the negative ones (Jakovljevic et al., 2016; Ray et al., 2020; Kaur, 2020).

As far as concerns the European Union countries case, there are not many studies investigating the relationship between public health expenditure and relevant health indicators. Before the COVID-19 pandemic, health spending was growing faster than the economy. This led to an increase in the share of health expenditure in GDP from 6,4% in 2000 to 7,5% in 2018 across the European Union. In absolute figures, current health spending has increased from \$1,4 trillion to \$2,2 trillion. The amount spent by high- and middle-income countries on health is showing the same trend, but there are still high inequalities between countries. Health expenditure has increased at a much faster rate in middle-income countries than in higher-income countries. As a result, the difference in health expenditure per person between high- and middle- and low-income countries has fallen from 51-fold in 2000 to 28-fold in 2018.

### 3. Research methodology

We considered it appropriate to carry out an econometric analysis that would match health expenditure as an independent variable on the one hand and indicators describing the health system of EU member states on the other.

The sample taken into consideration covers the European Union member states, while the analysis period is 2008-2019. The source of the data for all variables used in econometric study is the database World Development Indicators, supplied by the World Bank.

The study of panel structure data allows the joint analysis of cross-section data series (in our case the countries belonging to the European Union), as well as chronological data series. The software package used for data analysis was E-views 11 Student Lite.

The simple linear regression model for panel data is as follows:

$$y_{it} = \alpha + X'_{it}\beta + \delta_i + \lambda_t + \varepsilon_{it} \quad (1)$$

where:

$y_{it}$  - dependent variable

$i=1,2,\dots,N$  (countries)

$t=1,2,\dots,T$  (time)

$X'_{it}$  - vector of explanatory variables (regressors)

$\alpha$  și  $\beta$  – model parameters

$\delta_i$  și  $\lambda_t$  - specific effects (random or fixed)

$\varepsilon_{i,t}$  - error term

The econometric model has three explanatory (independent) variables, which are described in Table no.1. As dependent variables, we took into account life expectancy at birth, respectively mortality rate below 5 years. The structural forms of the used regressions are shown below:

$$SVN_{it} = a_0 + a_1 \times CHS_{it} + a_2 \times PIB + a_3 \times AM_{i,t} + \delta_i + \lambda_t + \varepsilon_{it} \quad (2)$$

$$RM_{it} = a_0 + a_1 \times CHS_{it} + a_2 \times PIB + a_3 \times AM_{i,t} + \delta_i + \lambda_t + \varepsilon_{it} \quad (3)$$

Table no. 1. Variables used in the econometric model

<u>Variables</u>	<u>Symbol</u>	<u>Computation</u>
<b>Dependent variable</b>		
<u>Life expectancy rate at birth</u>	SVN	<u>years</u>
<u>Mortality rate (under 5 years)</u>	RM	<u>reported at 1000 live births</u>
<b>Independent variables</b>		
<u>Health expenditure</u>	CHS	<u>% in GDP</u>
<u>GDP/capita growth</u>	PIB	<u>annual %</u>
<u>Nurses and midwives</u>	AM	<u>reported at 1000 inhabitants</u>

Source: realized by authors

#### 4. Findings

Performing Likelyhood ratio-Redundant test analysis and also Hausman test (See Table 2 and Table 3), we have reached the conclusion a fixed-effects model is more appropriate.

Table no.2 Redundant fixed-effects test

Redundant Fixed Effects Tests  
Equation: Untitled  
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	101.973173	(26,242)	0.0000

Source: realized by authors

Table no.3. Hausman Test

Correlated Random Effects - Hausman Test  
Equation: Untitled  
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	28.920244	3	0.0000

Source: realized by authors

In the following tables (Table 4 and Table 5), we present the results of the FEM econometric models. The results of the first model show a direct relationship between the independent variables (health expenditure, GDP/capita growth and the number of nurses and midwives per thousand inhabitants) and the dependent variable, life expectancy at birth. A one-percent increase in health expenditure generates a 0.28-year increase in life expectancy at birth. A one percent increase in GDP results in an increase in life expectancy at birth of 0.1 years. For nurses and midwives, an increase of one percent would result in an increase in life expectancy of 0.12 years. The estimated coefficients of independent variables are statistically relevant. The standard error values of the regression function coefficients are small compared to the coefficients values, which proves the soundness of their estimation. The coefficient of determination of the model has a very

high value, of 95,5%, which shows that the explanatory variables explain to a great extent the variation of the dependent variable.

*Table no. 4 Results of the first econometric model (dependent variable: life expectancy at birth)*

Dependent Variable: SVN  
Method: Panel EGLS (Cross-section weights)  
Sample: 2008 2019  
Periods included: 12  
Cross-sections included: 27  
Total panel (unbalanced) observations: 272  
Linear estimation after one-step weighting matrix  
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	75.53364	0.717041	105.3407	0.0000
CHS	0.285719	0.069797	4.093597	0.0001
PIB	0.101780	0.012789	7.958428	0.0000
AM	0.124900	0.060216	2.074204	0.0391

Effects Specification

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Cross-section fixed (dummy variables)

Weighted Statistics			
Root MSE	0.689044	R-squared	0.955016
Mean dependent var	95.51608	Adjusted R-squared	0.949626
S.D. dependent var	39.13718	S.E. of regression	0.730505
Sum squared resid	129.1405	F-statistic	177.1636
Durbin-Watson stat	0.755294	Prob(F-statistic)	0.000000

Unweighted Statistics			
R-squared	0.944352	Mean dependent var	79.05588
Sum squared resid	134.1080	Durbin-Watson stat	0.673171

*Source:* realized by authors

The results of the second model show a direct relationship between independent variables (health expenditure, GDP/capita growth, number of nurses and midwife per 1000 inhabitants) and mortality rate, under 5 years (per 1000 live births). An increase in health expenditure of 1% results in a reduction in the infant mortality rate of 0.20. There is no significant influence between the independent variable nurses and midwives and the dependent variable infant mortality. An increase of one percent in GDP would result in a decrease in the infant mortality rate of 0.04. The estimated coefficients of independent variables are statistically relevant. The standard error values of the regression function coefficients are small compared to the coefficients values, which proves the soundness of their estimation.

The coefficient of determination of the model has a very high value, of 93,7%, which shows that the explanatory variables explain to a great extent the variation of the dependent variable.

*Table no. 5 Results of the second econometric model (dependent variable: mortality rate -under 5)*

Dependent Variable: VD2  
Method: Panel EGLS (Cross-section weights)  
Sample: 2008 2019  
Periods included: 12  
Cross-sections included: 27  
Total panel (unbalanced) observations: 272  
Linear estimation after one-step weighting matrix  
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.197519	0.316471	19.58322	0.0000
CHS	-0.202527	0.037538	-5.395277	0.0000
PIB	-0.041968	0.004908	-8.551832	0.0000
AM	0.019666	0.016887	1.164520	0.2454

Effects Specification

---

Cross-section fixed (dummy variables)

Weighted Statistics			
Root MSE	0.572520	R-squared	0.937798
Mean dependent var	9.533802	Adjusted R-squared	0.930344
S.D. dependent var	6.508805	S.E. of regression	0.606970
Sum squared resid	89.15596	F-statistic	125.8118
Durbin-Watson stat	0.432695	Prob(F-statistic)	0.000000

Unweighted Statistics			
R-squared	0.900263	Mean dependent var	4.640441
Sum squared resid	104.7016	Durbin-Watson stat	0.194742

*Source:* realized by authors

## 5. Conclusions

The results indicate that when public health expenditure increases, the overall mortality of a population reduces and an increase in life expectancy is being generated. An increase with 1 % of the public health expenditure leads to a 0.20% decrease in infant mortality. We have also identified a positive and significant relationship between public health spending and population life expectancy at birth. A 1% increase in public spending leads to an increase in life expectancy at birth of 0.28 years.

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## Crypto Currencies and Block Chain System

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### Abstract

*A blockchain is a decentralized ledger of all transactions across a peer-to-peer network. Using this technology, participants can confirm transactions without a need for a central clearing authority. Potential applications can include fund transfers, settling trades, voting and many other issues. Blockchain, sometimes referred to as distributed ledger technology (DLT), makes the history of any digital asset unalterable and transparent through the use of decentralization and cryptographic hashing.*

*The purpose of this paper leads to an analysis of the question: if Bitcoin is already here, why have thousands of additional cryptocurrencies been launched? The answer is that several other cryptocurrencies aim to compete with Bitcoin as general purpose currencies. Coins and tokens - all except Bitcoin are known as altcoins - and their purpose is to meet specific needs.*

**Key words:** blockchain, cryptocurrencies, investments, capital markets

**J.E.L. classification:** G1, G11, G15

### 1. Introduction

The cryptocurrency market is very diverse, with hundreds of different coins, but also very consolidated - it is estimated that 99% of trading volume is concentrated in just 20 of these hundreds of cryptocurrencies. The first cryptocurrency, launched in 2009, was Bitcoin, and today there are many virtual currencies built on this model, such as Litecoin, Peercoin or Ethereum.

Bitcoin. At the end of March 2021, a single Bitcoin was worth 229,306.72 lei, and there were 18.7 million Bitcoins in circulation.

Ether. Launched in 2015 and built on blockchain technology, the Ethereum platform quickly became very popular. One ether was worth 7,024.65 lei at the end of March 2021, but the historical record was 8,380.22 lei.

Tether. Tether was the first cryptocurrency claimed to be 100% backed by FIAT coin reserves, which was later proven to be false, surrounding the coin with controversy.

Cryptocurrencies certainly have a sensational side. Most of us have heard about cryptocurrencies in glowing articles that highlight their earning potential. There are not a few stories about people who invested in bitcoin and after years became millionaires (Schwager J., 1999).

While the earning potential certainly exists, it is important to stress that it is not guaranteed. Less popular are stories about people who invested in cryptocurrencies at the wrong time and lost money, but they do exist. Cryptocurrencies are volatile, especially nowadays, with many new cryptocurrencies being launched and not knowing which ones will take hold over time (Bogle J., 2007). Moreover, getting fabulous amounts for a small initial investment, as in the case of people who invested early in bitcoin, takes a lot of time and patience.

If you want to invest in cryptocurrencies, you have two options:

1. An existing cryptocurrency

To get started, you need to opt for an exchange (examples include Coinbase, LDV Bank, Binance, Kraken, Crypto) - simply put, a platform where you make an account, using which you will exchange money from your debit card with the cryptocurrency of your choice. Many cryptocurrencies are expensive, so it's good to know that you can also buy fractions. What's more, in addition to the exchange, you have the option of a Bitcoin ATM.

2. A cryptocurrency to be launched

Before a cryptocurrency is launched, a capital-raising process - ICO (Initial Coin Offering) - takes place. This ICO has several stages, including a crowdsale, a period during which anyone can buy the future cryptocurrency. However, it's good to know that this period can be very short, especially if the cryptocurrency has generated enthusiasm. Depending on the chosen cryptocurrency, you may have to exchange your money into Bitcoin or Ethereum, as not all ICOs accept FIAT payments, i.e. in traditional currencies. In the short history of cryptocurrencies, investments in ICOs have been the ones with the highest potential to bring substantial returns to investors.

## 2. Theoretical background

The name of cryptocurrency is, to a certain extent, quite suggestive: cryptocurrency is a virtual or digital currency secured by cryptography. According to a more detailed definition, cryptocurrencies are those digital assets in a cryptographically secured network, for which the securitisation takes place in a peer-to-peer computer network (O'Neil W., 1988).

To understand cryptocurrencies, you should know what blockchain technology is, on which most of them are based and which has many other applications outside this field. In simple terms, it is a decentralised ledger of cryptocurrency transactions, composed of blocks, hence the name blockchain (Bulkowski T. 2000). This technology is open source, secure and fast.

You will also surely have heard of mining - the process by which computing technology solves a mathematical problem that validates transactions on the blockchain and results in obtaining a fraction of the respective virtual currency. Therefore, you can obtain cryptocurrencies not only by buying them, but also by mining them (Collins J.L 2016).

Romanians have polarized opinions on the definition of cryptocurrencies: - the majority agree that they are digital currencies (92%), whose value is constantly changing (90%), respectively that they can be used to make online payments (68%). - At the same time, only 1 in 5 (22%) agree that there is no centralised institution regulating cryptocurrencies; moreover, there is no unanimous opinion on the existence of only a few types of cryptocurrencies - only a minority (13%) believe that these coins are accepted by most shops (Lynch P., 1989).

Two-thirds of people familiar with the concept of cryptocurrencies believe they represent both the future of online payments and the future of investing. The majority opinion is that the value of cryptocurrencies will increase in the next 12 months (58% agree). 6 out of 10 respondents would prefer to replace cash with cryptocurrencies in the event of the disappearance of cash, while more than half (55%) agree that banks should offer current accounts in cryptocurrencies. 54% of respondents agree that cryptocurrencies are purely speculative in nature - especially current (62%) or previous (59%) holders. Half believe that people who have bought cryptocurrencies are currently happy or that they are a fast track to wealth. Despite the enthusiasm for cryptocurrencies and although most Romanians would be willing to use them in various activities - from buying plane tickets, making national or international payments, saving for children's education to buying a coffee - only 4 out of 10 Romanians who are familiar with cryptocurrencies would accept to cash their monthly salary in this way, the main barrier being related to the perceived risks (25%). The most open to cashing their salary in cryptocurrencies are previous (56%) or current (50%) holders.

### **3. Research methodology**

When you enter a market to buy a product, and the same goes for the purchase of cryptocurrencies, you want to do some minimal analysis beforehand to maximise your profits. You've probably heard about the approaches traders take to determine the evolution of a currency: fundamental analysis, technical analysis and market sentiment assessment (McAllen F., 2021).

This article discusses technical analysis, that is, the method of studying historical price movements and trading volumes, which is carried out to estimate future currency prices. Technical analysis is based on three fundamental premises, namely:

technical analysis market trend market development

Prices show you all the data you need - analysing the historical evolution of a currency's price and interpreting the patterns and formations it forms on the chart allows you to make a trading decision without taking into account fundamental factors or using other indicators.

Prices move in trends - once a trend is established (up, down or sideways), future price movements will most likely occur in the direction of that trend. Of course, such a trend does not continue indefinitely, but until that trend is exhausted, when a new trend emerges.

History repeats itself - once a certain pattern has worked in the past, it is very likely that it will work in the future, precisely because human psychology remains the same. This principle could be rephrased as: to know the future, we need to know the past (Murphy J., 2022)..

In other words, the research method used in this paper is one of quantitative and qualitative analysis of cryptocurrency investments. The data used are those published on international websites and then interpreted.

### **4. Findings**

#### **4.1. The concept of decentralisation and types of cryptocurrencies**

We always wonder about bitcoin, finance, our money market and blockchain. Society is constantly transforming, and sometimes the speed of transition from one phase to the next is far greater than our awareness of everything that is happening around us. We are always interested in new things, in how to make money out of something we have never heard of before, we almost chase money, but do we understand why we are chasing it? Do we understand how the whole economic system works and what the financial markets are?

The traditional financial market is based on centralisation. Central authorities issue that currency which is then used by banks, governments and various traders. Central banks therefore have the power to manage and regulate the flow of cash and the supply of these currencies to the market.

The population has several ways of increasing its money supply - in most cases by ceding control to financial organisations such as banks.

You have a card linked to a customer account for banking services. You consider that you have some or most of your money on the card. In fact, you don't have it on the card. The card is just a piece of plastic. You trust a banking service provider, a bank, a business, to manage part of your wealth and money, which you can "access" with a card. And as is well known, deposits and savings accounts earn interest, and banks use that capital to give higher interest loans to people who often buy things they don't really need.

Another alternative to growing your money is investing in stocks, mutual funds and other such instruments. These investments are usually made through brokers or specialist firms, so there is very little control over them.

Problems arise when central authorities decide to issue more money to meet market demand. This leads to inflation, devaluation of money, and then interest rate control methods are needed to reduce the profitability of savings.

## 4.2. DEXs and open markets

Unlike centralised exchanges such as Coinbase and Binance, DEXs are peer-to-peer protocols without a central authority. The advantage of this approach is that there are no registrations, no identity checks or withdrawal fees.

Like centralised platforms, DEXs use innovative methods such as atomic swaps to convert cryptocurrencies. Many also claim to use non-custodial methods to ensure the exchange of one asset for another with minimal settlement time or risk.

The reality is that many DEXs use semi-centralised or hybrid systems to ensure their operation. Also, liquidity on these platforms depends largely on the number of users.

Among the most popular DEXs are IDEX - a dapp on the Ethereum blockchain, Binance DEX, Radar Relee and EtherDelta. The Kyber network and 0x are two other examples of decentralised exchanges. DMEX is also a decentralised exchange created by a Romanian, Max Nicula.

Other types of open marketplaces focus on trading non-fungible tokens (NFTs), known as collectibles. OpenSea and Rarebits are two examples of platforms dedicated to non-fungible token collectibles.

Platforms dedicated to security tokens and investments

This sector covers a wide range of platforms offering both trading and issuance services for security tokens. Some examples are Overstock's tZERO, Polymath and Harbour.

They provide the framework, tools and resources for any issuer to launch tokenised securities on a blockchain. Platforms of this type automate regulatory compliance services and customize metrics to meet regulatory requirements.

In addition, they are also integrated with various service providers such as custodians, broker-dealers, corporate entities to help issuers.

## 5. Conclusions

Bitcoin and other cryptocurrencies are volatile investments. Prices rise to new heights and the value sinks quickly and frequently. Large price swings create both opportunities and risks for investors.

You may think that a currency that doesn't rise or fall in value has no business investing in crypto, but experts say that stable coins are valuable for their purposes. Among the most interesting is the fact that they can perhaps be set up as currency reserves in fiat investments.

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## **Evolutions and Trends on the Romanian Capital Market in the Post-Covid-19 Period**

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### **Abstract**

*The stock market, be it cryptocurrencies or securities, is meant to bring a passive income from investments, so we recommend that when investing in the stock market you have a solid financial base and a steady source of income in case of losses. The market is also very unpredictable, the analyses and theories presented are quite accurate and are based on thorough research, but the market can be unpredictable at times, which is why we consider these predictions to be pure speculation.*

*The purpose of this paper is to point out that most of the time if you invest without a solid basis on how the charts work and when to enter the market, you will most of the time come out at a loss, or, you will not make a profit that matches your expectations.*

**Key words:** capital market, stock market, investment, saving

**J.E.L. classification:** G1, G11, G15

### **1. Introduction**

To start investing in the stock market, we first need to understand exactly what the stock market is.

The stock exchange is the market on which any financial instrument is traded, which allows anyone to make a passive income from the rise or fall in the price of the assets they are buying or selling, which allows companies to promote themselves by selling parts of their equity in the form of shares. Under another concept, the stock market allows investors to directly enter into the influence of a company and collect dividends if the company distributes them.

To better understand the market, we need to understand what stocks are. A company's shares are the ownership of a right to a share in that company, which is more like a certificate of ownership. Companies (especially medium-sized and large companies) are not owned by one person, ownership is shared between the holders of shares in that company. Companies issue these shares to accumulate money from investors who invest their money, which the company then uses to grow its business. Listing shares on the stock exchange means increasing the price appreciation through the law of supply and demand in the market, which is why listing that company on the stock exchange also brings a greater degree of credibility, as they can double or even triple their profits. In this way companies can finance themselves very efficiently (O'Neil W., 1988).

When you start investing in the stock market, you will first and foremost need an account with a brokerage firm, then in order to trade, you need a trading account that you open with an intermediary, it must be funded and then you can trade directly through the platform that has been

made available to you, but not before you find out about the commissions that the broker charges (Murphy J., 2022).

Once you have decided which companies you want to invest in, you need to create an investment portfolio. The investment portfolio dates back to 1952, the theory of which was developed by Harry Markowitz in an article he wrote, which says that it involves selecting securities that offer a high degree of return for an assumed risk.

The much more current definition says that the investment portfolio is defined as a broad range of financial instruments in which an investor invests his or her capital in order to earn potential returns. In short, it involves diversifying an investment to limit risk without excessively reducing the potential return (McAllen F., 2021).

The main objective of the stock market is to bring a passive income to the investor, it is not recommended to invest if you do not have a stable job and a steady income that allows you to invest consistently over the long or medium term (Schwager J., 1999).

The main players involved in the stock market are:

- Issuers: represent corporations, governments and other entities that issue securities.
- Investors: these can be individuals, companies or investment funds that provide their own capital in order to make a profit.
- Intermediaries: these are those entities which make the purchase of securities possible and which simultaneously make securities available to economic agents.
- Regulators: these are responsible for ensuring and checking that the financial markets operate within the correct parameters. In Romania, for example, the competent institution directly responsible for this is the ASF (Financial Supervisory Authority).

## 2. Theoretical background

The market is made up of financial instruments and the sellers are corporations, governments, banks issuing securities. As they are very large, they do not manage transactions directly with investors (Collins J.L, 2016). So when you want to invest, you will need a broker who can give you access to the instruments you are interested in. Brokers are normally members of specific associations and are certified, and for brokers working on the capital market, they have an operating licence from the Financial Supervisory Authority (ASF).

The most important aspect of the broker you choose is that he is authorised by the Romanian Financial Supervisory Authority (ASF). The investor can check on the ASF website whether or not the broker is legally compliant (Bogle J., 2007).

Some brokers also offer investment advice, providing partially profitable areas to their clients. Some offer direct management of an investment portfolio, making decisions without reference to the client for whom they are making it. They have an obligation to put the client's interests above others.

The role played by a brokerage company is to provide an investor or potential investors with access to certain financial instruments, in particular listed shares. If a person is interested in investing from their savings in the stock market with the aim of obtaining a higher return than the current bank interest rate, this can be done using the services of a brokerage company. The broker offers its clients an online trading platform through which an investor or group of investors can sell shares listed on the stock exchange. For some novice investors, the brokerage company in some cases offers courses specific to their level of knowledge (Bulkowski T, 2000).

For example, brokerage companies in Romania offer three main types of services:

- trade intermediation, financial investment advice and discreet portfolio management, which can be offered in part or in full depending on the client's request.
- Adjacent services such as advisory services for companies wishing to conduct capital market operations.
- Specialised consultancy aimed at training beginner investors and providing them with a very useful tool, namely the Bet Tradeville ETF, which allows beginners to invest in all 10 companies that make up the BET index, benefiting from its diversity and evolution on the stock market.

BET Index: the benchmark index of the local capital market (Romania), reflecting the evolution of the 19 most traded companies on the regulated market of the Bucharest Stock Exchange, the exclusive financial investment companies. It is also a price index weighted by free float capitalisation, which is the main criterion for selecting companies whose index is liquidity (Lynch P., 1989).

The free float is the shares that can be traded on the stock exchange at any given time, the higher the free float, the larger the secondary market for a company's shares. So it makes it easier to trade a company's shares, which means that company will grow (Nison S., 1991).

### **3. Research methodology**

Technicians (sometimes called chartists) are only interested in price movements in the stock market. Despite all the fancy and exotic tools they use, technical analysis is only meant to study supply and demand in a market in an attempt to determine the future direction or trend. Technical analysts do not attempt to measure the value of a security, but use charts and other tools to identify patterns that may suggest future activity. Just as there are many styles of investing on the fundamental side, there are also many different types of technical traders, some relying on chart patterns and others using oscillating technical indicators, and most using a combination of the two.

The paper analyzes the Romanian capital market, as well as the cryptocurrency market, highlighting its developments and trends in the period after Covid 19. In this paper, statistical data series taken from the platforms used by the firms that are enabled to play on the capital market and that have been archiving in the brokerage field for 30 years uninterrupted were processed.

The research method used is also a descriptiv that performs a global analysis that provides the opportunity to compare global market prices and financial data to identify new opportunities to invest. You can search for your desired stock by region, industry, volatility to market gap and currency it is listed in, it shows you many charts and analysis done on the market about the stock. The search filters give you the ability to select criteria such as: region, asset class, industry and currency in which it is available.

### **4. Findings**

Cryptocurrencies are those decentralised currencies that circulate via the internet that are not created and administered by a single, official or private entity, but have all the functionality of money. The emergence of these currencies is due to blockchain technology, which is a more special branch of decentralised public accounting. This ubiquitous ledger is not located on a central server and is not subject to any administrator's intermediation or verification, storing and constantly updating all transactions and their information to be as accessible as possible from anywhere and at any time to any user. Transactions taking place on a blockchain platform are disintermediated, with the main actors acting as equals on a peer-to-peer basis. Transactions once made cannot be retroactively changed (block) and are recorded as a chain in a continuously growing database that maintains the transaction chains.

The distribution and storage of this ledger on a network, available to any user, decentralised, is a good way of preventing recording errors and possible fraud. Assuming that the information and transactions have a much higher degree of security if they are distributed to the whole community, so that one person or group of people does not have a monopoly or control over the information stored. Information having unlimited access, which means control, thus no justification and loss of information, while decentralisation implies fairness, the correct segmentation of cognitive work. Cryptocurrencies also constitute dematerialised digital units of accounts secured through encryption, to which only the owner of the two keys (public and private) can have access, with which one can access the interior of the decentralised digital system it hosts.

In order to exchange value, participants act as peers without the need for the presence of an intermediary, commercial or central bank. As they are not physical currencies, cryptocurrencies can be split and multiplied, and their circulation can be both full and partial, meaning that both whole units and subdivisions can be held. In conclusion, these computer coins are based solely on the trust that users place in the decentralised system.

Transactions with digital currencies have a high degree of attractiveness because they give the appearance of anonymity. Unlike physical money transactions, with digital currencies a permanent record remains in the decentralised public accounting system, information that can later be retrieved by IT specialists. According to Mervyn King, former governor of the Bank of England, such transactions are pseudonymous rather than anonymous. Officially, cryptocurrencies are not legally recognised as money. Both central and commercial banks say the potential for fraud that cryptocurrencies hide is of great concern, as there is a risk of losing the monopoly on the creation of money-debt and subsequently the degree of control over a society's economy. As the former Governor of the Bank of England Mervyn King has asked himself, he wonders whether we really need physical money to buy things in order to quantify the value of production, labour, resources and wealth, and whether technological innovations could make money, and therefore banks, superfluous, as we rarely use physical money anyway, replacing it with electronic transfers, with banks as intermediaries bearing the costs.

This extension of cryptocurrencies is very much due to the rapid improvement of blockchain technology where bilateral value transactions have become possible, as a result of which there is no longer any need for a bank to be present. Moreover, from a tax point of view, these transactions cannot be traced, which makes it impossible to collect taxes on the movement of these digitised goods. One of the problems with these digitised currencies is that they do not represent an indicator of current value, contemporaneous with its issue and circulation; on the contrary, it is an estimated, future value. Those who transact in crypto-currencies rely on the confidence that this value will be maintained or even increased in the future.

The mechanism on which blockchain technology works allows us, at least in theory, to intertwine intermediation, which is also very risky because the intermediation is the trade itself. If we were to move to a system of two-way transactions where everyone buys and sells goods, services and assets through the method of fractional wealth transfers, without the intermediation of a merchant or a bank, then neither money nor banks would make sense in their current form. In the event of the disappearance of money as a means of payment, there would still be a need for a stable unit of account (a reference, a unit of measurement, just as we use units of measurement for length, weight, temperature) to determine the price of goods and services.

The steps towards this system of units of value measurement have already been taken, giving rise to virtual wallet technology as an example of this evolution. The content of this virtual wallet is the accumulation and storage of units of account, fractions of one's wealth, instead of actual currency (including digital money). With this virtual wallet it is possible to make payments, but without having to move from one account to another, as we currently use with our bank account and bank card, but by transferring electronic devices (computer, mobile phone, tablet or other devices) that have an internet connection or are effectively linked together directly and in real time, a unit of the buyer's wealth to the seller's card in exchange for a good or product purchased.

These types of payments are extremely popular in China. About 90% of all payments in Chinese commerce (an estimated \$14.5 billion a year) are made in this way. The internal source of this non-monetary payment system is the so-called social credit, a system of rating points, adapted to the daily behaviour of a citizen or consumer, with these points can be purchased, subsequently, all goods and services that are necessary for personal or even family consumption.

The behaviour under scrutiny involves both attitudes towards the laws and behaviour of society and the way in which a consumer complies or fails to comply with debts arising from commercial or financial transactions. The type of recalcitrant citizen, with no respect for society, or even a bad debtor will have a much lower rating, tending towards zero depending on the deviant act they have committed against good morals. Conversely, this rating will increase. As a result, this social credit represents the degree of trust or social honour of each individual, in a double guise, that of a citizen who conforms to the laws and social mores, but also as a consumer who is subject to a commercial contract, without which the ordinary citizen may or may not have access to the purchase of consumer goods or services.

## 5. Conclusions

Buying shares on the capital markets has never been easier. Buying shares from companies is a very useful facility that brings you steady income whether from the stock markets, cryptocurrencies or ETFs. Nowadays many stocks can be bought through traditional channels because US banks recognize their demand in the market.

If we take it in the concept of the pandemic, investing has opened up huge opportunities for amateurs as stock market declines have helped attract funds, as a result, at the end of the pandemic they have enjoyed significant growth with some figures reaching as high as 100%. The main disadvantage of these stock market investments is that an investor can lose money if the equity price falls or depreciates and the stock is sold at a loss. That's why it's a good idea when investing in the stock market to do your research and keep up to date with news about the company. Information is an asset when investing because it provides a degree of security. Investing in the stock market is purely speculative, the market is very unpredictable, even a professional analyst loses out once in a while due to unexpected situations, after all, this is the flow of the market.

The stock market also generates high returns when you have a solid investment base behind you, i.e. you need to have a steady income from another source to be able to maintain this investment flow in case of eventual losses. Stocks are purely speculative, most of the time they can be deduced by thorough technical or fundamental analysis. The market is always going to be volatile no matter what stocks you decide to buy and if you don't know what you're doing when you invest, it's best to first educate yourself on what you're doing.

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## Study on the Organization and Implementation of the Internal Managerial Control System at the Level of Public Institutions

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### Abstract

*The control itself has purpose and finality, permanently presenting an active role in the decision-making process, with implications on how the decision maker manages to choose the best option from the multitude of solutions, such as the trajectory followed to achieve the finality of the managerial act. The correct correlation between the management activity and the fulfillment of the objectives at the level of any organization cannot be achieved if an efficient internal managerial control system is not permanently implemented. This study is about the organization and implementation of the internal managerial control system at the level of public institutions and especially in the field of defense in Romania.*

**Key words:** internal managerial control, defense, economic, public institutions

**J.E.L. classification:** H83

### 1. Introduction

At the level of any public institution, ensuring compliance with economic and managerial standards can be achieved only by complying with a regulatory framework that implements various forms of control, both internally and externally to the institution. Thus, this control function is an attribute of management, which any manager must assign and apply, representing a permanent source of information for the optimal elimination of risks and deficiencies, allowing the achievement of objectives effectively and economic.

An effective internal management control system must ensure compliance with all legal rules and procedures, the code of conduct and other rules both internal and external to the organizational environment, this being considered one of the most important objectives of the control system internal managerial. At the same time, the efficiency of internal control is measured by the possibility of ensuring the governance of economic entities with useful and verifiable information, credible, easy to understand, and most importantly, qualitative and relevant to optimize business and ensure performance.

The most important objective of the study is to analyze how the internal managerial control environment specific to the development of each field of activity in public institutions, is implemented and organized. This being favorable and appropriate respecting and assigning all established rules and legal procedures, respectively unfavorable in which rules of conduct and internal rules are violated, thus the probability that the objectives of the organization will not be fulfilled.

### 2. Literature review

Internal managerial control is represented by all the elements and measures applied in an entity, at any level within its organizational framework, to ensure effective control leading to the achievement of the proposed objectives ( Hurloiu et al., 2014). Internal control is an ongoing process

by which the entire organization must identify existing deficiencies that diminish performance, and generate solutions to address them. At the same time, this type of control must also identify the risks related to the activity, thus contributing to the permanent development of the activity and the orientation towards improvement (Spatacean, 2014). Being a component of management that is encountered at any hierarchical level, internal control is closely linked to the management of any entity, directly influencing its functions. The purpose of internal control refers to the verification part of any management process, even designating a part of management governance, preventing irregularities and eliminating errors and possible risks to occur as the activity progresses (Saghi-Zedek et al., 2015).

In order to ensure uniform compliance with the rules of ethical conduct and legal norms and prerogatives, but also for the existence of a unitary control model, the General Secretariat of the Government has made available to economic entities a set of internal managerial control standards that allow a hierarchy and comparability of an entity's performance and evolution. These standards of internal management control are applicable to any field of activity, respectively to any specific of the economic entity, being formulated in general, easy to understand and accessible, and being classified according to control environment, risk management, performance, activities information and communication, control and evaluation, but also audit.

### 3. Research methodology

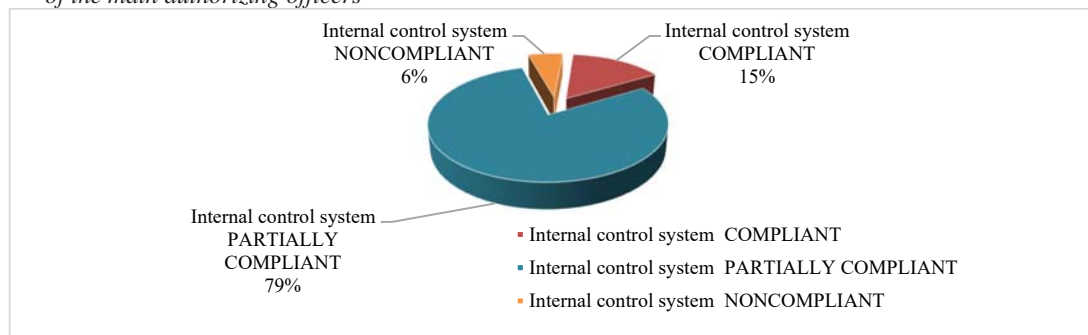
The main objective of the study was achieved by using different research methodologies, such as the analysis of the literature, economic analysis, empirical analysis, analysis and observation of various phenomena and information.

All the data from this article are extracted from different situations which were published on websites of the Ministry of Finance, on the websites of the Court of Auditors and also we extracted and analyzed economic data from the website of the Ministry of Defense.

### 4. Findings

The implementation of financial control in public institutions that fulfill the role of main credit officers in Romania, is analyzed by the Ministry of Public Finance through the Central Unit for Harmonization of Financial Management and Control Systems, which, since 2011, has published an annual report on these date. Thus, reports on internal control were published in 2011-2014, which assess both the stage and process of implementation of internal control and the activity of own or delegated preventive financial control to various public entities in Romania that have the quality of chief authorizing officer credit, and more. Following the analysis of the Reports on these internal management control systems at the end of each year, reports published on the official website of the ministry in the category "Official documents", some data and information on the degree of implementation of control at any level of the main authorizing officers, ranking according to their compliance with the standards in force. We analyzed this data in the following graphs, as follows:

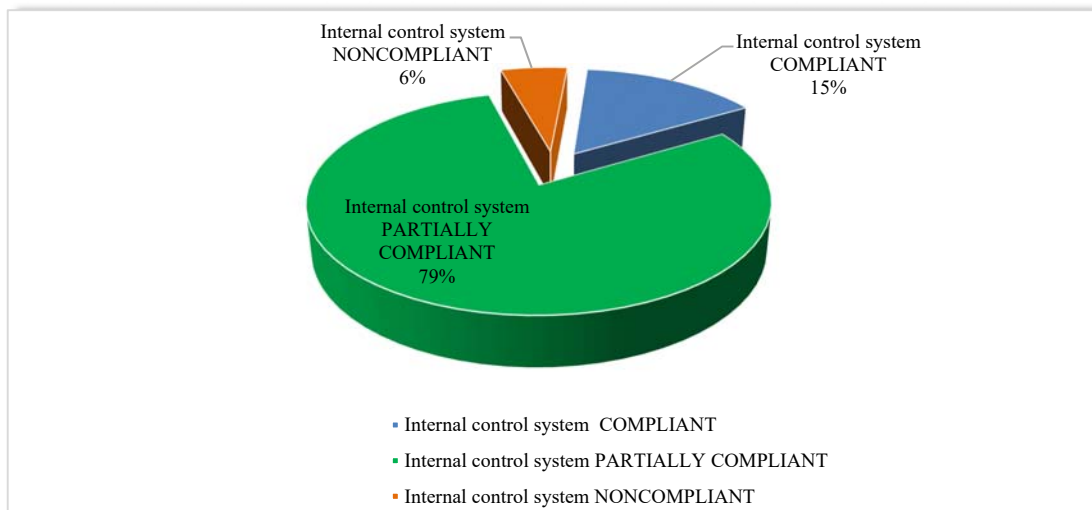
Figure no. 1: Degree of compliance of the internal managerial control system as at 31.12.2011 at the level of the main authorizing officers



Source: [https://mfinante.gov.ro/documents/35673/228074/raport\\_2011\\_controlintern.pdf](https://mfinante.gov.ro/documents/35673/228074/raport_2011_controlintern.pdf)

We find that the quality assurance of the management of the patrimonial resources within the public entities is achieved through the internal control, the implementation of which must be permanent. Although at the level of 2011, some authorizing officers were reserved regarding the reality of data and information concerning the internal managerial control system, the Central Unit for Harmonization of Financial Management and Control Systems subordinated to the Ministry of Public Finance, published in the report its annual classification of authorizing officers by the degree of implementation of internal control. The classification is made according to the measure of compliance with the standards in the field, respectively the compliant, partially compliant and non-compliant implementation, as follows: approximately 15% of the main authorizing officers, out of a total of 53 since then, have implemented internal control with the standards in place, about 79% of the public institutions in a number of 42, carried out a partially compliant internal system, and the difference of about 6%, 3 public institutions, reported that the whole control system was non-compliant with the standards in force.

Figure no. 2: Degree of compliance of the internal managerial control system on 31.12.2012 at the level of the main authorizing officers

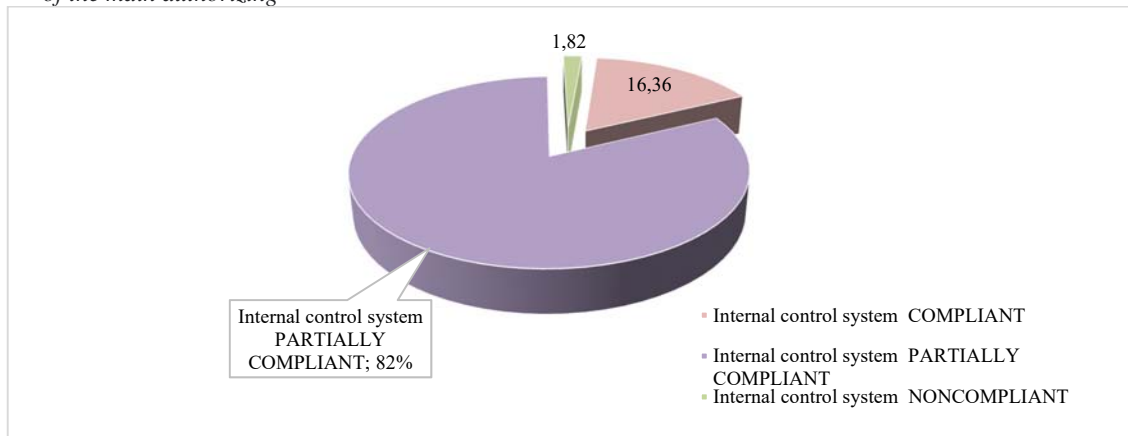


Source: [https://mfinante.gov.ro/static/10/Mfp/control\\_prev/raport\\_2012\\_controlintern.pdf](https://mfinante.gov.ro/static/10/Mfp/control_prev/raport_2012_controlintern.pdf)

At the level of 2012, the Central Unit for Harmonization of Financial Management and Control Systems did not report any significant changes, so that the data and information on the implementation of internal control at the level of the main authorizing officers were identical to those of 2011, in terms of percentage. At the level of compliance with the standards in the field, there were small, but not significant, developments, as follows: out of total of 53 of the main authorizing officers, approximately 15% implemented internal control in accordance with the standards in force, about 79% of public institutions partially implemented according to internal control, and the difference of about 6%, reported that the entire control system was not in accordance with the standards in force.



Figure no. 3: Degree of compliance of the internal management control system on 31.12.2013 at the level of the main authorizing

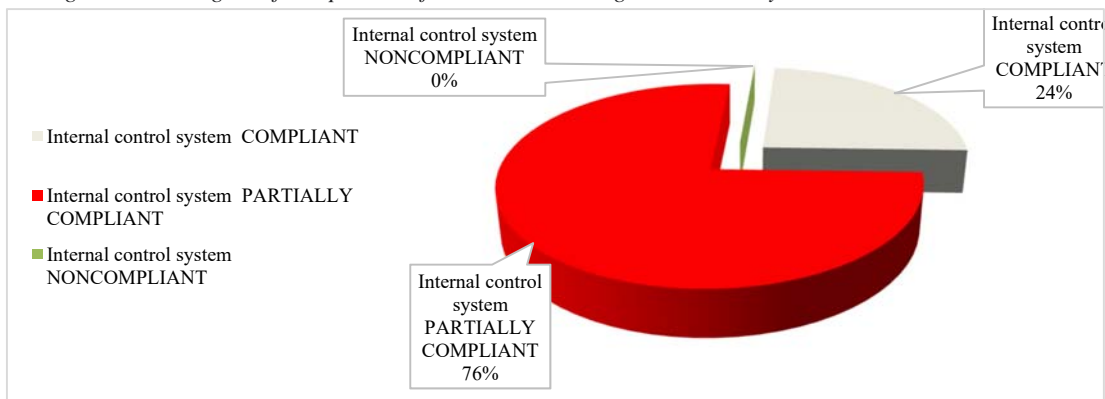


Source: [https://mfinante.gov.ro/documents/35673/228074/RAPORT\\_UCASMFC\\_2013\\_LG\\_FINAL.pdf](https://mfinante.gov.ro/documents/35673/228074/RAPORT_UCASMFC_2013_LG_FINAL.pdf)

In 2013, at the level of the 55 main authorizing officers, approximately 16% of them implemented internal control according to the standards in force, approximately 82% of the public institutions in a number of 45, developed a partially internal system according to, and the difference of about 2%, 1 public institution, reported that the whole control system was not in line with the standards in force.

Unlike in 2012, we identified little progress from one category to another, respectively from the non-compliant category, to the partially compliant one, and an advance was also registered for the category that complies with the standards in terms of implementing internal control. There was no regression between categories during this period.

Figure no. 4: Degree of compliance of the internal managerial control system on 31.12.2014

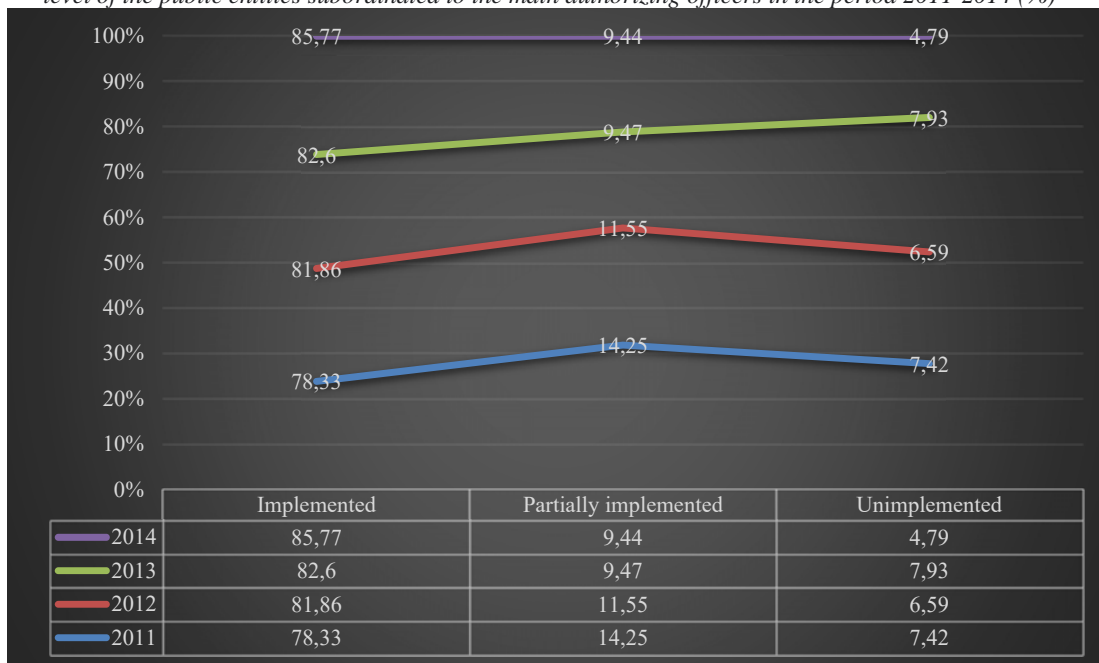


Source: [https://mfinante.gov.ro/documents/35673/228074/RAPORT\\_UCASMFC\\_2014\\_MFP.pdf](https://mfinante.gov.ro/documents/35673/228074/RAPORT_UCASMFC_2014_MFP.pdf)

Following the analysis of the Internal Control Evaluation Report from 2014, we identified that, at the level of the 54 main authorizing officers, approximately 24% of them implemented internal control according to the standards in force, approximately 76% of the institutions developed a partially compliant internal system, without any institutions that did not implement the internal managerial control system.

We noticed that in the period 2011-2014 there was an ascending degree of implementation of the internal control for all the categories of compliance with the standards, at the level of all the main credit authorizations in Romania. This evolution of the implementation of the internal managerial control system at the level of public institutions can be presented graphically in terms of percentage, as follows:

Figure no. 5: Degree of implementation of the internal managerial / managerial control standards, at the level of the public entities subordinated to the main authorizing officers in the period 2011-2014 (%)



Source: Authors' conception

All nine chief authorizing officers who in 2013 reported that they had implemented all 25 standards, namely: the Ministry of Public Finance; Ministry of National Defense; Ministry of Labor, Family, Social Protection and the Elderly; National Integrity Agency; Protection and Guard Service; Special Telecommunications Service; Office of the National Register of State Secret Information; AGERPRES National Press Agency; The National Health Insurance House kept them implemented in 2014.

Within the Ministry of National Defense, internal control is permanently implemented, and "The General Secretariat ensures the implementation, monitoring and evaluation, at the level of the Ministry of National Defense, of the provisions contained in public administration reform strategies and programs, developed on the basis of the Government Program. and the monitoring, coordination and methodological guidance of the implementation and / or development of the internal management control system."

The evaluation of the implementation of the control system is carried out by the Monitoring Commission of the ministry, which reports that the internal managerial control system has been implemented very correctly, ranking at the top of the public structures from this point of view. For this, implementation and action directions were provided for each standard, establishing a series of requirements. All directions and requirements have been published in the Official Gazette, thus ensuring the transparency of the entire process of implementing internal control at the level of the ministry and subordinate structures.

In the period 2011-2014, the Ministry of National Defense reported that both at the level of its own apparatus and at the level of subordinated public institutions, all 25 standards of internal managerial control were implemented.

We identified that after 2014, on the website of the Ministry of Public Finance, in the category "Public documents", no reports were published on the internal management control system implemented at the level of the main authorizing officers, which is why we could not perform study and other analysis after this year.

## 5. Conclusions

Maintaining and developing an effective system of financial control at the level of any public entity must ensure compliance with all applicable legislation and standards, by complying with their specific requirements. The coherence of the financial system is also verified through the efficient management of patrimonial resources, whose planning, regardless of the time horizon, is paramount. Only through their judicious use can correct decisions be made, based on elaborate studies, ensuring the fulfillment of the institution's objectives.

Considered an indispensable tool for the management of public entities, the control system must be flexible and constantly adapt to the specifics, objectives and roles of the entities, in order to fulfill the general goal at national level, of economic and efficient use of state resources. The formation of an organizational framework or environment in which an efficient flow of information is ensured, as well as the adaptation of the specifics of the activities with a set of clear procedures and effective risk management, allows at all hierarchical levels to maintain a balanced state to achieve performance, by permanently implementing the internal managerial control system.

We consider that the implementation and the rigorous performance of the control system in the financial-accounting field ensures the performance of the evaluation of the patrimonial situation of any public institution, reason for which this evaluation represents a real challenge, but also a major need to improve the organizational and management aspects characteristic of any entity significantly contributing to the progress and efficiency of financial activity.

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# The Impact of the Global Pandemic Crisis on East and Central EU Stock Markets

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## Abstract

*Our research is based on an examination of capital market dynamics in four European countries, namely Poland, Romania, Hungary, and the Czech Republic, during the pandemic crisis. The paper is divided into two parts and examines the relationship between macro-financial variables and the major stock market indices of Western European (UK, Germany, and Austria) and Eastern European markets. The analysis is based on the use of the autoregressive vector model (VAR), which shows that during the global pandemic crisis, macroeconomic factors had a significant impact on the financial performance of Eastern European countries' financial markets. In the second part, the correlation of the yields of the stock indices from the countries of Western and Eastern European countries is analyzed, using the multivariate GARCH model.*

**Key words:** stock indices, VAR model, conditional correlation, capital markets, Euro zone

**J.E.L. classification:** G15, F36

## 1. Introduction

The health crisis caused by the pandemic of 2020-2021 has resulted in high volatility on financial markets, with transmission from the American and British markets to those of Europe, Australia, and Singapore.

The transmission effect of cash flows and discount rates generated by the dependence between macroeconomic variables and stock returns influenced stock prices.

In Central and Eastern Europe, research on the evolution of financial markets was based on the comparison of macroeconomic variables and stock market returns, analyzed using VAR and VECM research and modeling structures. These models of analysis were found in the articles of the economists Horobet, Dumitrescu, 2009, and they are also found in other research works made by Condic, 2011; Kyzis, Pierdzioch, 2011; Al. -Jafari et al., 2011; Corradi et

The macroeconomic expectations generated by the evolution of the share price manifested themselves in the analysis of interest rates and financial sector risk. There are different levels of financial market return, according to Campbell's (1997) theory. With the caveat that the strong form is not a viable formula.

The study drew on literature from all fields of finance to assess the efficiency of financial markets in Central and Eastern Europe. The study is based on the markets of Poland, Hungary, and the Czech Republic, which have all completed a strong process of financial integration. Based on the assumption that financial market integration is high, it was concluded that the degree of correlation with the capital markets of Western European countries has reached a high level, which was felt even after the crisis.

Our study was based on an examination of the evolution of correlations between capital markets in Western Europe and capital markets in Eastern Europe. The impact of various macroeconomic indicators on capital market indices was also examined.

Our research confirms the close correlation between the capital markets of Eastern European countries and the international capital markets, which was felt as a result of the interconnections on both fundamental economic indicators and the speculative market generated by the market game during the 2020 pandemic crisis.

Even in these circumstances, the interconnectedness of financial markets has demonstrated that the integration process is positive, dynamic, and difficult to quantify, as evidenced by the use of empirical methods in market analysis.

Stock market returns exhibit high volatility under these conditions. To demonstrate the spread of volatility on the markets, the methods DVECH, BEKK, and the multivariate GARCH model were used.

## 2. Literature review

Our research on the integration of strong financial markets drew on a wide range of literature and was based on an examination of the correlation between the American and European stock markets. Karunanayake et al. (2010) conducted an analysis of the correlation between developed countries and Asian markets using a VECH diagonal model, which confirmed that the global pandemic crisis of 2021 has achieved a volatility transfer between these markets.

Xiao and Dhesi's (2010) VECH, BEKK, and Dynamic Conditional Correlation models assisted us in investigating the transmission of volatility and correlations of conditioned variables between markets in the United States and Western Europe before and after the crisis. While the UK was found to be an indicator of volatility between Europe and America, Germany and France were found to be closely correlated, indicating a high degree of interdependence.

In research, we typically use the multivariate GARCH model to examine the conditionality correlation between different markets. The conditional correlation between capital market performance and macroeconomic indicators can also be studied using this model. De Goeij and Marquering (2004) extended the VECH model to include asymmetric effects in covariates, provided the residues had the opposite sign. This type of asymmetric diagonal model has also been used to simulate the interaction of bond yields and equity prices. According to the modeling, there was a strong contagion effect in the case of negative shocks to the stock and bond markets in the case of the 2020-2021 pandemic crisis.

Lim and Brooks (2010) examined a sample of 50 markets and concluded that crisis volatility has a negative impact on GDP per capita. The Hurst coefficient (Caraianni, 2012), which was used to measure the variations in stock yields for the appreciation of multifractality in financial yields, revealed that the coefficient was extremely high during the pandemic crisis 2020-2021.

The dynamics of financial market returns were examined using methods of analysis and modeling for both interdependence and causality discovered in his research: Escanciano and Velasco (2006), Todea and Lazar (2012), and Karadigli and Donmez (2012). In addition, the component of integrability was examined using an appropriate test known as Engle-Granger, which was discovered in the literature (Nistor, Dumitriu, Stefanescu, 2012; Harrison, Moore, 2010). (Dajcman, Festic, Kavkler, 2012).

Petrowski and Horvath (2012). The VECH and BEKK diagonal models were also used to compare stock market movements in Western, Central, and Eastern European countries between 2011 and 2020. According to the study, there is a stronger correlation between Central Europe and developed countries, and the crisis has not changed the degree of integration of the European financial market.

Égert and Kocenda (2011) used a Dynamic Conditional Correlation Model to analyze 5-minute intraday movements between Western and Central European countries from 2006 to 2011. The results showed that there were significant correlations between developed capital markets and weak correlations with capital markets in Central and Eastern Europe, with the exception of Hungary, which showed a higher correlation trend. Aslanidas and Savva (2011) found an average degree of correlation between the yields of stock indices in Hungary, the Czech Republic, and Poland and the eurozone index between 2020-2021 and 2020 using VAR. The GJR-GARCH and STCC (conditional smooth transition correlation) models were used to identify the increase in correlation for the three countries beginning in 2020. While in Central Europe, the transition was gradual,

except in the Czech Republic, where financial integration was more rapid. Novotny (2010) obtained similar results when analyzing stock price increases.

Guido and Gupta (2010) used a VAR model and a multivariate GARCH model to conclude that there was a strong link between Western European markets and the three CEE countries between 1999 and 2009. Hansen demonstrated series co-integration, with an interruption in August 2020. The findings also revealed that correlations increased after Eastern European countries joined the EU.

### **3. Research methodology**

Xiao and Dhesi (2010) used the VECM, BEKK, and Dynamic Conditional Correlation models to investigate transmissible volatilities and variable correlations between developed and Eastern European capital markets prior to the crisis. According to research, there is a strong correlation between Western European countries and a weak correlation between Eastern European countries, with the United Kingdom serving as an indicator of volatility between the US and European markets.

Conditional correlation analysis was performed using GARCH multivariate models. The same models were also used to investigate the relationship between macroeconomic indicators and capital market returns. De Goeij and Marquering (2004) extended the diagonal VECM model to include asymmetric effects when the results were of the opposite sign.

The weekly closing prices of the major western stock exchanges, such as the DAX, FTSE, and ATX, as well as the Morgan Stanley Capital International indices, served as the statistical basis for the study. EMEE emerging markets indices, as well as EM emerging market indices The weekly closing prices on the stock exchanges of the Czech Republic, Poland, and Hungary were used for long-term research of the CEE Eastern European financial markets.

The Romanian market, which later became a member of the EU, was also examined. The information was obtained from DataStream between July 2020 and June 2021.

For developed-country capital markets, the EAFE index was used. The FRED databases were used to obtain weekly statistical data for macroeconomic indicators, specifically the price of oil (WTI) and the price of gold.

### **4. Findings**

Because VAR is an atheoretical model, we built the VAR model step by step. The following variables were employed: To begin, we looked at stock index returns such as the FTSE, DAX, ATX, MSCI for the European market (EAFE), MSCI for emerging Eastern European markets (EMEE), and MSCI for emerging markets. The spread between long-term and short-term interest rates, as well as the exchange rates for European and American currencies.

Except for one, all unit root tests (ADF and PP) revealed that all series were I (1). (0). The MSCI, EAFE, EMEE, and EM indices are collinear, so they cannot be used in step regression at the same time.

The results of the gradual regressions revealed that dynamic regressions use all three MSCI indices.

Our research shows that the indices' yields are important for other countries, but they do not correspond to the indices of the Eastern European stock exchanges, and the indices of the Bucharest BET stock exchange do not correlate with the indices of the Central European stock exchanges in Prague, Budapest, and Warsaw. 2020-June 2021. Our findings show that the indices (BET, BUX, PX, and WIG) are related to their own exchange rates; the interdependence will be investigated further using a multivariate model.

With the exception of the Warsaw stock exchange, which aspires to be a regional leader, the Austrian financial market, through the ATX index, has a significant interdependence with the European regional indices BET, BUX, and PX. This is supported by its close ties with the Frankfurt Stock Exchange (DAX), whereas Prague is influenced more by the London Stock Exchange (FTSE).

The capital markets of Hungary, Poland, and Romania are correlated with the MSCI EM index; gold yields affect both WIG and BET, while oil yields affect only WIG, TB3M only PX, and SPREAD only BET. EAFE regression results were compared.

For the four indices performed over six subperiods, several VARs were used. The variance decomposition was used to examine the effects of the shocks on index yields.

According to research on variance decomposition results, the influence of own shocks is weak during times of crisis, with VAR4 as the appropriate VAR for the fourth subperiod, when exchange rates, shocks in neighboring countries, and macroeconomic variables had a greater impact.

During the pandemic, the shock rate was higher in all three CEE countries, including Romania. External factors created a high level of shock for Romania during the crisis.

Because the normality tests for VAR (Lutkepohl, 1991) revealed that the results were heteroskedastic, we adapted the index yields in a multivariate GARCH framework to account for the effects of volatility spread in Eastern European countries.

The study of the conditional correlations of stock yield with macroeconomic data included six goods in each model because empirically, models with multiple assets were flawed. Four country indices and a combination of macroeconomic data were included in each adapted multivariate GARCH model, either diagonal VECH or BEKK.

The research findings were compared using the AIC information criteria, and it was determined that the BEKK models produced positive results. The matching of the models was investigated using a graphical representation of the standardized residue quantities. The findings revealed that the fat tails were not properly captured. A Student distribution of errors was used to solve part of the problem.

The conditional correlations between Central and Eastern European stock markets were examined, as well as the conditional correlation between the four EEC countries and the EAFE index.

The correlation was given a significance level of 0.4, with values above 0.9 interpreted as crises affecting all markets at the same time, or as a false correlation. There is empirical evidence that the multivariate GARCH model occasionally produces such a false correlation (Fuss and Gluck, 2012). Because both the DVECH and the diagonal BEKK models produced the same strong correlation, and because the strong conditional correlation results were associated with market information at the time, it was concluded that the correlations were not false and contributed to market integration.

We can conclude from the conditioned correlation research that, while dynamic, they exhibit long-term memory models or long clusters of dynamic volatility.

The dynamics of the correlation between BUX, PX, and WIG show that their capital markets had a strong correlation even before joining the EU, with an average of 0.5, and that after May 2020, the correlation increased to an average of 0.6, with WIG and BUX having the highest correlation. Before the crisis, the correlation between these three CEE countries was 0.7 on average, with a decrease between 2020 and 2021 and a correlation of over 0.75 after May 2021. At the same time, we discovered that prior to accession. In the EU, the correlation with EAFE was negligible at first, but it quickly became strong.

On the Romanian capital market, the conditional correlation with the Czech Republic, Hungary and Poland became strong only after joining the EU. BET's correlation with EAFE only became strong with the onset of the global financial crisis.

The overall structure of capital markets in Central and Eastern Europe showed a significant upward trend prior to the crisis, followed by a sharp decline during the crisis and a return to a slightly higher correlation after the crisis.

It was discovered that the Austrian index (ATX) is closely linked to BUX and PX, while the correlation with the Warsaw Stock Exchange is lower, and the Bucharest Stock Exchange has a low correlation, around 0.4, barely significant, with Pre-accession ATX.

Although the oil price was correlated with the EAFE index, the correlation increased after the crisis began in 2020 and increased significantly after the crisis ended. The BET index's correlation with oil increased during the financial crisis and then decreased. The model is similar to other regional stock exchanges.

The euro-dollar exchange rate jumped in correlation with all regional stock exchanges during the financial crisis, but in the post-crisis period the correlation became insignificant and remained so until May 2021, when it began to correlate again, a behavior that could be explained by the escalation of the sovereign debt crisis. The BET index has an inverse relationship with the EUR/RON exchange rate.

## 5. Conclusions

Our study looks at the evolution of the yields of four Central European indices before and after their membership in the European Union, as well as before and after the global pandemic crisis. The analysis spans two years, from 2020 to 2021, and is divided into six subperiods to provide a better understanding of index performance shocks.

The Czech Republic, Hungary, and Poland joined the European Union in May 2004, while Romania joined in January 2007. They examined the co-movements of stock index yields in the selected countries. First, the analysis was carried out using a vector autoregression model, and the impact of shocks on variance decomposition was assessed. The presence of heteroskedasticity in residues suggested using GARCH multivariate to account for fat tails and data grouping volatility. Two multivariate GARCH models, a diagonal VECH and a diagonal BEKK, each with a multivariate Student error distribution, were used.

Shock effects on index yields were measured using variance decomposition and impulse response. The variance breakdown for the six subperiods revealed that the index's own shocks had a significant influence during the crisis, when the shocks were strong on other variables such as the exchange rate and neighboring stock indices.

After May 2020, the Czech Republic was officially declared to be in recession, and it was discovered that the change in stock yields was similar to the change during the pandemic crisis, when yields were extremely vulnerable to external factors.

The VAR models, as well as the VECH diagonal and BEKK diagonal models, were registered in CEE countries, and they achieved a high increase in conditional correlations for all ECE stock market indices during the 2020-2021 pandemic crisis, followed by a decrease in correlation to the end of the crisis.

The BEKK model demonstrated the transmission of the shock waves of the sovereign debt crisis across the entire region in the following period.

The study found that, while there were no conditional correlations between the stock market indices of the Czech, Hungarian, and Polish capital markets and the main Western European indices prior to EU accession, the conditional correlations became significant after EU accession.

The Romanian capital market was significantly linked with the other three Central and Eastern European countries shortly before EU integration, and it has since been on an upward trend. Only at the start of the global financial crisis did the BET index become correlated with the EAFE index.

The effects of volatility on regional capital markets are limited by correlation jumps of approximately or greater than 0.9. The increases corresponded to international capital market uncertainties and were correlated with negative news that hit all capital markets at the same time. The end of the crisis was marked by a process of returning to a dynamic unique to each stock market in Central and Eastern Europe.

Our research's final conclusions highlight the Romanian capital market's vulnerability during adverse financial shocks, necessitating dynamic measures to protect it. Romania's capital market has developed interconnection with regional capital markets since joining the EU. However, the free flow of speculative capital made the Romanian capital market more vulnerable to financial shocks and weakened its resistance. The Romanian capital market was more vulnerable during the 2008 financial crisis than other CEE capital markets. Short-term capital inflows can have a negative impact on long-term development because they promote volatility, which can destabilize domestic investors.



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# The Impact of Returns and Influence of Crypto Assets on Different Asset Classes

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## Abstract

*The inception of financial digital assets has attracted young, innovative and tech savvy entrepreneurs, which created the foundation for a new breed of investors. The participants of this ecosystem went through some paradigm shifts till they captured the attention of institutional investors. This market event has pushed the digital markets to new levels and forced the ecosystem to adapt to a traditional investment methodology.*

*This paper will analyze the relationship of crypto assets with other traditional and alternative asset classes, from the perspective of their returns. The aim of this study is to analysis and explore the impact of the investment behavior, over other asset classes, of the participants which operate in dynamic, volatile and high-risk digital markets.*

*We will try to assess how the returns generated in this novel asset class can influence the possibility of portfolio diversification, which extends towards traditional finance world and other alternative markets.*

**Key words:** Financial Digital Assets, Crypto Assets, Volatility, Returns

**J.E.L. classification:** G12, C52, D40, F32, F60

## 1. Introduction

Crypto assets have emerged in the recent years as a mainstream asset class within the spectrum of alternative investments. These assets have transformed and influenced the financial markets rapidly, having millennials and Gen Z as its main promoters. The popularity of these assets has led a dynamic growth within different financial institutions and SMEs, which have engaged using blockchain technology along with the usability and implementations of crypto assets. Most of the statistics that have been reported, indicate that the returns generated by financial digital assets represent the most important and major factor in this proliferation.

Based on the above, we can clearly say that the profits generated by this volatile market attracts new investors and, because of this, the volumes of trading and the participants to this new ecosystem, have been constantly increasing.

The learning curve of crypto assets trading has been steep, as many individuals become more familiar with the digital markets. A consequence of the traders acquisition, is directly proportional with the confidence and motivation for trading other alternative assets, such as metals, commodities and stocks.

This research study investigates the impact of the returns of crypto assets over the metals, stocks and commodities' returns. This analysis will also comprehend whether this impact is positive or negative and what is the magnitude of this influence.

The objective of the research is to compute the impact of these returns from the crypto assets and how it influences the metals, stocks and commodities market behavior. The hypothesis of the study is based on the principle that higher returns from crypto assets, increase the returns on metals, stocks

and commodities through improved acknowledgement and understanding of different markets and asset classes.

## 2. Literature review

In this section, we present a segment of the literature review of the previous studies conducted related to crypto assets, in order to find a research gap on the impact of returns of crypto assets which influence traditional and alternative assets.

Originally, Bitcoin and blockchain technology were approached by Satoshi Nakamoto in Bitcoin's whitepaper from October 2008. Generally, decentralized control systems and cryptography are essential technologies of cryptocurrencies that are used by crypto assets to facilitate security, verification of transactions and also to create additional, similar or more complex assets (Wang, 2021). While Bitcoin and other cryptocurrencies took years for acknowledgement and to become popular, in the recent years they have rapidly expanded and continue to proliferate on the internet, along with other innovations within the space of Blockchain and Distributed Ledger Technology (DLT) (Madey, 2017). Since the acknowledgement of the crypto assets, as a native and innovative asset class, multiple research studies have been conducted.

So far, many research efforts have been performed to evaluate crypto assets' relation with traditional assets through a Value-at-Risk (VAR) methodology. Stavros Stavroyiannis (2018) examined the VAR model and related measures for Bitcoin. He compared the findings with Standard and Poor's SP500 Index and the gold spot price time series. A GJR-GARCH model was implemented, in which the residuals follow the standardized Pearson type-IV distribution. A large variety of VAR measures and back testing criteria were implemented. It was found that Bitcoin was a highly volatile, violating the VAR measures more than the other crypto assets (Stavroyiannis, 2018).

The COVID-19 pandemic consequences provided the first widespread bear market conditions since the inception of crypto assets. Conlon et al. (2020) tested the widely mooted safe haven properties of Bitcoin, Ethereum and Tether from the perspective of international equity index investors. Bitcoin and Ethereum are not a safe haven for the majority of international equity markets examined, with their inclusion for a portfolio downside risk. As Tether successfully maintained its peg to the US dollar, it acted as a safe haven investment for all of the international indices examined.

Similarly, many other researchers put their efforts to analyze VAR for crypto assets. Akkuş & Dergisi (2020) modelled to forecast the cryptocurrency market volatility and VAR dynamics of bitcoin. Khairunnisa et al. (2022) performed a study to analyze cryptocurrency risk analysis during the covid-19 pandemic, where the VAR approach was used. Tan et al. (2021) investigated VAR and returns of cryptocurrencies before and after the crash: long-run relations and fractional cointegration. VAR model of cryptocurrencies has also been evaluated by Boako et al. (2019), Hrytsiuk et al. (2019), Khairunnisa et al. (2022), Stavroyiannis (2018), Trucios et al. (2020) and Uyar & Kahraman (2019).

Caferra & Vidal-Tomás (2021) examined the behavior of cryptocurrencies and stock markets during the COVID-19 pandemic through the wavelet coherence approach and Markov switching to an autoregressive model. The results showed that a financial contagion scenario was observed in March, since both cryptocurrency and stock prices fell steeply. Despite this turn-down, cryptocurrencies promptly rebounded, while stock markets were trapped in the bear phase. It was observed that the price dynamics during the pandemic depend on the type of the market and the investment behavior.

The examination of the impact of financial digital assets' market on the stock market performance is very important to evaluate the relationship between the incorporated assets. Sami & Abdallah, (2021) analyzed comparative analysis to distinguish the crypto assets and the stock market impact between Gulf countries and other economies in the region. The analysis used the information of crypto assets and the stock market indices of the Gulf countries. Granger causality testing and regression analysis were applied using the instrumental variable with generalized method of moments. The results indicated that there was a significant relationship between the crypto market and the stock market performance in the MENA region. Contrarily, increase in the crypto assets

returns reduces the stock market performance. On the other hand, for the non-Gulf the stock market performance had direct relationship with crypto assets’ returns.

Gil-Alana et al. (2020) investigated the stochastic properties of six major crypto assets and their bilateral linkages with six stock market indices using fractional integration techniques. Concerning bivariate results within the financial digital assets and testing for cointegration, no evidence cointegration between the six crypto assets was found, which implies that the crypto market is decoupled from the mainstream financial and economic assets. The findings indicated that the significant role of crypto assets in investor portfolios, as they serve as a diversification option for investors, confirming that crypto assets is a new investment asset class. To evaluate sentiment spillover and price dynamics: information flow in the financial digital assets and stock market, Caferra (2022) employed vector autoregressive model and found direct relation of crypto assets with economy.

The literature review suggests a significant gap for the current research study. Based on the fact that this is a valid research topic within the spectrum of alternative and traditional assets, we believe that a study to investigate the relationship among crypto assets, stocks, metals and commodities, is approachable.

### 3. Data used in the study

To proceed with the study, time series daily data from February 2017 till February 2022 has been used which were downloaded from Yahoo Finance. The total number of observations utilized, after excluding missing data, is 1022.

Four types of asset classes have been used in this study which are constructed by the author from other multiple sub-classes or components. These classes are composed of crypto assets, stocks, metals and commodities. Detailed classification of the asset classes used are presented in table below:

Table no. 1 Asset Classes and Sub-Classes used in the study

#	Asset Class	Sub-Class classification and details
1	Crypto Assets	Weighted average daily return on 4 crypto assets [ <i>Bitcoin</i> , , <i>Ethereum</i> , <i>Litecoin</i> , <i>Binance Coin</i> ]
2	Stocks	Weighted average daily return on 5 stocks [ <i>Google (Alphabet Inc.)</i> , <i>Amazon</i> , <i>Apple</i> , <i>Ford Motor Company</i> , <i>Microsoft Corporation</i> ]
3	Metals	Weighted average daily return on 5 metals [ <i>Rhodium</i> , <i>Gold</i> , <i>Copper</i> , <i>Iridium</i> , <i>Silver</i> ]
4	Commodities	Weighted average daily return on 5 commodities [ <i>Coffee</i> , <i>Cotton</i> , <i>Crude oil</i> , <i>Sugar</i> , <i>Soybean</i> ]

Source: Author’s creation

As stated above, each asset class consists of further different components or sub-classes. The weights are created as a share of total volume. Let  $V$  be the total volume of trades of crypto assets, stock, metals or commodities included in this study and  $V_{ij}$  is the volume of the sub-classes. The weight for crypto assets  $W_{ij}$  will be:

$$W_{ij} = \frac{V_{ij}}{V}$$

Where  $i$  represents the asset class and  $j$  represents the sub-class. The weighted average daily return is computed as follow:

$$X_{wj} = W_j * R_j$$

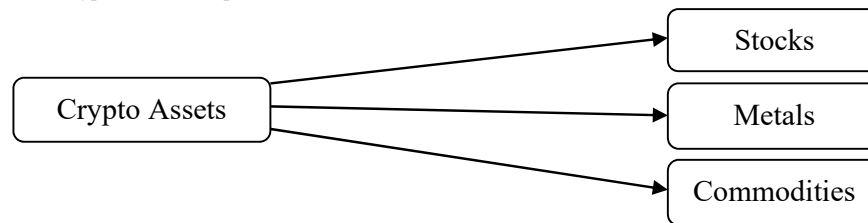
Where  $R$  is daily return and  $X_{wj}$  is the symbol used for weighted average.

### 3. Research methodology

We start from the premise that the returns of crypto assets are considered to have an impact on the returns of metals, stock and commodities. Crypto assets have yielded high positive returns, which gives the new investors, confidence in approaching this new alternative markets. With vast learning methods, which are free and accessible, the technological divergence, along with the innovation acumen and trading knowledge, will improve, and new skills can be achieved. Over time, the new alternative markets’ investors will get a sufficient level of information, knowledge and trading skills, in order to generate profits from crypto assets. These accumulated skills and profits, will clearly boost their confidence to invest in other markets such as stocks, metals, or commodities. Contrary to this, after a bad performing session within the crypto assets’ market, if the results are not as per their expectations, the learning curve for advancing their trading acumen towards other assets, will decrease. Hence, they will not try interacting with any other alternative or traditional assets. As a conclusion of our theory, we will analyze the returns from crypto assets and quantify the exerted impact on the returns of other assets from the perspective of new markets investors. We are assessing the influence of crypto assets, based on the volume of trading and their returns, to identify the impact on other assets which can lead to more complex phenomena, correlations and divergences.

Diagrammatically, this can be presented as follow:

Figure no. 1 Crypto Assets impact on Stocks, Metals and Commodities



Source: Author’s creation

In order to advance with our approach, we will engage a Multivariate GARCH model (MGARCH). The ARCH model was developed by Engle (1982) to incorporate conditional heteroscedasticity. This model went through different transformations to solve specific problems. Bauwens et al. (2006), Bollerslev et al. (1988), R. Engle (2009), Silvennoinen & Teräsvirta (2009) and Tim Bollerslev, Robert Engle et al. (1993) detail on Multivariate GARCH (MGARCH) models. A general mathematical equation of MGARCH model is given below:

$$Y_t = BX_t + \varepsilon_t$$

$$\varepsilon_t = H_t^{1/2} + v_t$$

$Y_t$  is an  $M \times 1$  vector of dependent variables,  $B$  is an  $M \times K$  matrix of parameters,  $X_t$  is a  $K \times 1$  vector of independent variables, which may contain lags of dependent variables;  $H_t^{1/2}$  is the Cholesky factor of the time varying conditional covariance matrix  $H_t$ , and  $V_t$  is an  $M \times 1$  vector of zero-mean, unit-variance, independent and identically distributed innovations.

This general MGARCH model transformed by Bollerslev (1990) to a Constant Conditional Correlation (CCC) model in which correlation matrix is time-invariant. This model is simple and have fewer parameters for estimation. However, it may be too restrictive in some empirical studies. Keeping in view these restrictions, R. Engle (2002) proposed Dynamic Conditional Correlation (DCC) MGARCH model where conditional quasi-correlations are used. The next significant addition to MGARCH model was made by Tse & Tsui (2002). In this model in which the conditional correlations at each period are a weighted sum of a time-invariant component, a measure of recent correlations among the residuals, and last period’s conditional correlations. Therefore, this model is called Varying Conditional Correlation (VCC).

After the estimation of these three models (CCC, DCC, and VCC) it is important to select the best model for the current dataset. For the purpose of our study, different tests have been developed such as Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC) and Lagrange Multiplier (LM) test. These criteria are estimators of prediction error. In other words, these tests estimated the quality of any estimated model performed in our study. A model which generates lower value of AIC/BIC is considered better because it has lower prediction errors. The best model is selected based on the results of these tests. The next section presents the results of the models and once the model selection has been performed, Spiro-Wilk test of normality is applied to confirm that the error terms generated from the selected model are normally distributed. Another problem of time series data is the serial correlation of the error terms. In this case the error term of current period represents an association with the error term from a previous period. To test the absence of the serial correlation, Q-test is applied. The p-value greater than 5% indicates absence of the related problem.

#### 4. Findings

In this section we will present the results and interpretation with regards to the current analysis and study. We will start with descriptive statistics which will be explained, followed by model selection criteria and detailed analysis of selected model.

##### 4.1. Descriptive Statistics

As previously explained, for the purpose of this study, we have selected a number of assets based on their market capitalization, influence, heritage and prestige, from different sectors of traditional and digital markets.

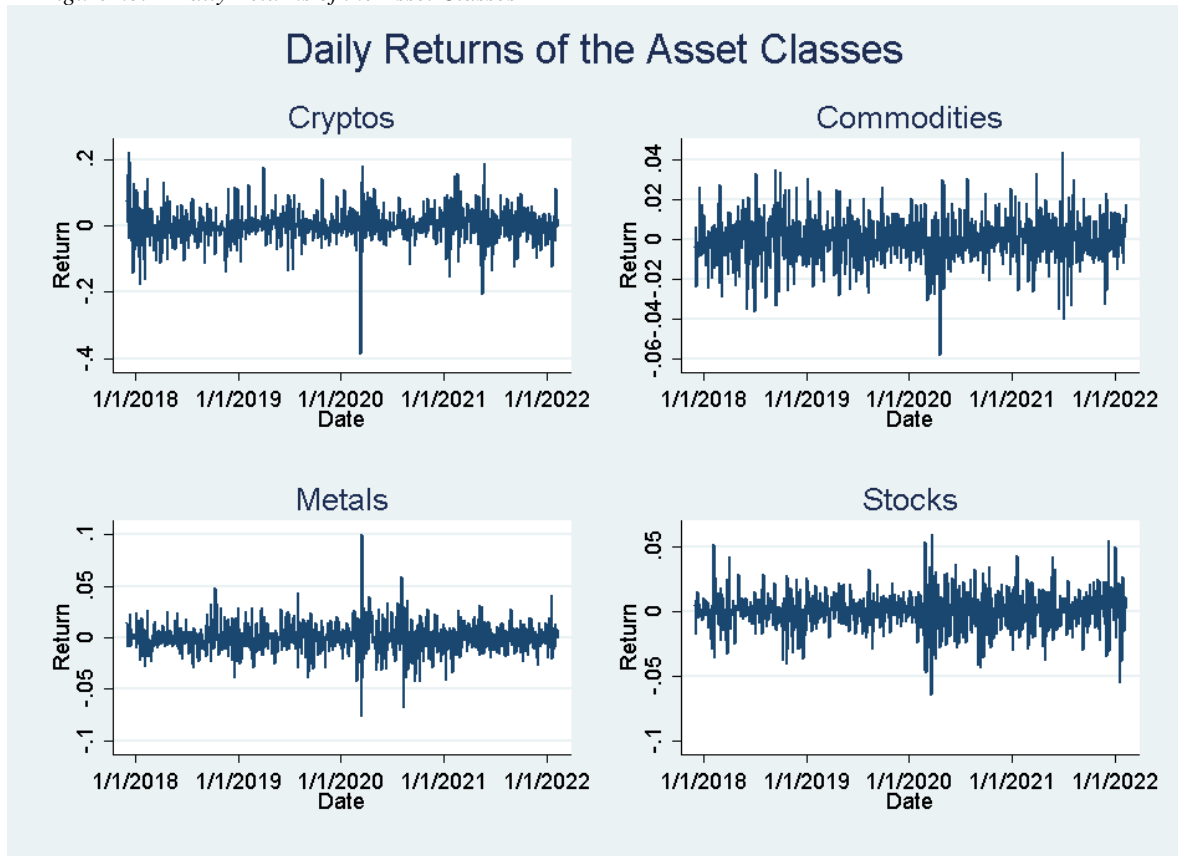
*Table no. 2 Descriptive Statistics*

<b>Asset Class</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Cryptos	1022	.0027	.0474	-.3852	.2218
Commodities	1022	-.0003	.011	-.0582	.0437
Metals	1022	-.0002	.0135	-.0765	.0998
Stocks	1022	.0003	.0136	-.0648	.0592

*Source:* Author's creation

Table 2 presents descriptive statistics of the asset classes used in this research: crypto assets, commodities, metals, and stocks. The descriptive statistics include total number of observations, mean value, standard deviation, minimum, and maximum. The average return of crypto assets, commodities, metals and stocks is 0.27%, -0.03%, -0.02% and 0.03% respectively. Commodities and Metals have negative average return while average returns from Stocks and Crypto Assets are positive. The Crypto Assets have highest average return among the four asset classes. The maximum return of cryptos is 22.18% while minimum return is -38.52%. The maximum returns of commodities, metals and stocks is 4.37%, 9.98% and 5.92% respectively. The standard deviations of all of the four asset classes is greater than mean values. This indicates greater spread/volatility in the returns. The visual presentation of the average return of all asset classes is presented in Figure 2. Commodities have lowest volatility among the variables while cryptos have highest volatility.

Figure no. 2 Daily Returns of the Asset Classes



Source: Author’s creation

Table no. 3 Matrix of correlations

Variables	(1)	(2)	(3)	(4)
(1) Cryptos	1.0000			
(2) Commodities	0.0726	1.0000		
(3) Metals	0.0848	0.0813	1.0000	
(4) Stocks	0.1271	0.1167	0.1318	1.0000

Source: Author’s creation

Table 3 presents the matrix of correlation between the Asset Classes. The correlation coefficient ranges between -1 and +1. The values closer to zero indicates weak linear correlation and value near 1 indicates a strong correlation. The linear correlation among the four asset classes is close to zero which indicates that all of the variables have a linearly weak correlation.

#### 4.2. Results of the Modelling

Following the methodology presented in previous section, Multivariate GARCH (MGARCH) model is applied. Within the MGARCH three models have been analyzed. The best model is then selected based on AIC, BIC, and Log Likelihood (LL) of the model. The best model for the same dataset produces minimum AIC/BIC values and improves significance of the coefficients and model as a whole. According to these criteria, the model which produces lowest AIC/BIC values or highest LL is considered the best model. The results of the criteria for three models have been presented in table 4. According to the selection criteria, Dynamic Conditional Correlational (DCC) model is the most suitable model among the three models. It produced lowest AIC/BIC values and highest LL values.

Table no. 4 Model Selection Criteria

Model	Obs	LL(model)	Df	AIC	BIC
CCC	1,021	9220.405	24	-18392.81	-18274.52
DCC	1,021	9227.539	26	-18403.08	-18272.94
VCC	1,021	9226.220	26	-18400.44	-18272.30

Source: Author's creation

After the DCC model has been selected based on model selection criteria stated above, the model statistics of the most suitable model (DCC) are presented in table 5. The number of observations used in the analysis are 1021. One observation is less than total observations that is because of inclusion of lagged variable in the analysis. Chi-Sq value of Wald test is 29.37 and its corresponding p-value is 0.0006 which is below 0.05. This indicated that the overall the model is statistically significant.

Table no. 5 Model Statistics

Mean dependent var	0.0003	SD dependent var	0.0136
Number of obs.	1021	Chi-square	29.37
Prob > chi2	0.0006	Akaike crit. (AIC)	-18403.08

Source: Author's creation

Table no. 6 Dynamic Conditional Correlation MGARCH model

Equation	Asset Class	Coef.	t-value	p-value	[95% Conf	Interval]	Sig
Eq1:Commodities							
	Cryptos	.019	2.65	.008	.005	.0334	***
	L.Cryptos	.0151	2.10	.0362	.001	.0293	**
	L.Commodities	-.0397	-1.19	.2332	-.105	.0256	
	Constant	-.0002	-0.49	.6226	-.0008	.0005	
ARCH Commodities							
	L.Arch	.0593	3.76	.0002	.0284	.0902	***
	L.Garch	.8838	29.18	0.000	.8245	.9432	***
	Constant	6.87e-06	2.61	.009	1.71e-06	0.000012	**
Eq2:Metals							
	Cryptos	.0183	2.23	.0255	.0022	.0343	**
	L.Cryptos	.0152	1.93	.0541	-.0003	.0306	*
	L.Metals	-.0053	-0.16	.8722	-.0692	.0587	
	Constant	-.0002	-0.64	.5232	-.001	.0005	
ARCH Metals							
	L.Arch	.0714	4.30	0	.0389	.1039	***
	L.Garch	.8881	31.38	0	.8326	.9435	***
	Constant	0.000	2.43	.0151	0.000	0.000	**
Eq3:Stocks							
	Cryptos	.0228	2.97	.003	.0078	.0379	***
	L.Cryptos	.0077	1.01	.3137	-.0072	.0226	
	L.Stocks	-.0671	-1.99	.0462	-.1331	-.0011	**
	Constant	.0007	2.04	.0412	0	.0014	**
ARCH Stocks							
	L.Arch	.1213	5.25	0	.076	.1666	***
	L.Garhc	.8504	33.15	0	.8001	.9006	***
	Constant	0.000	3.09	.002	0.000	0.000	***
Correlations							
	Commodities, Metals	.0809	1.16	.2456	-.0557	.2176	
	Commodities, Stocks	.1379	2.00	.0457	.0027	.2732	**
	Metals, Stocks	.0628	0.89	.3741	-.0757	.2014	
Adjustment							
	lambda1	.0136	2.38	.0175	.0024	.0249	**
	lambda2	.9723	65.32	0	.9431	1.0015	***

Source: Author's creation



The coefficients of DCC MGARCH model are presented in table 6. The model produces coefficients of independent variables, ARCH and GARCH terms, correlations and adjustments. Similarly for each coefficient the table presents its t-value, p-value, confidence interval, and significance (columns). According to the results, cryptos have statistically significant and positive contemporary effect on commodities, stocks and metals. This indicated that an increase in return from cryptos leads to a better return from stocks, commodities and metals. Crypto Assets have highest impact on stocks and lowest impact on commodities.

First column of the table 6 represents different equations estimated using DCC model. The first equation is for commodities followed by its ARCH equation. The return on crypto assets have positive impact on the returns of commodities. Its magnitude is 0.019 and it is statistically significant at 1% level of significance. The impact of lag of crypto assets on returns of commodities is positive and representative with regards to a 5% level of significance. The equation ARCH commodities is modelled on ARCH term and GARCH term. The ARCH term indicates that volatility or variance of error term is a linear function of previous error terms. The GARCH term is included to overcome the problem of autocorrelation in the variance of error. Both of the coefficients are significant at a 1% level of significance. The constant term is also valid at a 5% level of significance.

The second equation presents impact of returns on crypto assets on metals. The crypto assets have positive and significant impact on return of metals and it is statistically significant at a 5% level of significance. The lagged effect of cryptos on metals is minimal at a 5% level of significance, but we can note that it is still positive. The variance of metals has ARCH and GARCH term and both of the coefficients are statistically valid at a 1% level of significance.

The last equation presents the coefficients for the stocks equation. The contemporary effect of crypto assets on stocks is positive and statistically significant at a 1% level of significance. However, its lagged effect is unsubstantial at a 5% level of significance. Contrary to the previous equations, the lagged effect of the dependent variable of stocks, is negative and statistically significant. The variance of stock has significant ARCH and GARCH term.

The correlations between the pairs are insignificant except commodities and stocks, which are significant at a 5% level of significant. This means that the return of this pair is correlated, though the coefficient of correlation indicates not a very strong correlation.

$\lambda_1$  and  $\lambda_2$  are parameters that govern the dynamics of conditional quasi-correlations.  $\lambda_1$  and  $\lambda_2$  are positive (non-negative) and satisfy  $0 \leq \lambda_1 + \lambda_2 < 1$ . In other words, their sum must be between 0 and 1. In this analysis, both of these parameters are statistically valid, important and satisfy the conditions. This means that the covariances and correlations between the variables are dynamic rather than constant. These parameters further endorse our DCC model.

*Table no. 7 Shapiro-Wilk W test for normal data*

<b>Variable</b>	<b>Obs</b>	<b>W</b>	<b>V</b>	<b>Z</b>	<b>Prob&gt;z</b>
R_Commodities	1,021	0.9852	9.4920	5.5780	0.0000
R_Metals	1,021	0.9596	25.9740	8.0730	0.0000
R_Stocks	1,021	0.9720	17.9740	7.1600	0.0000

*Source:* Author’s creation

Table 7 presents Shapiro-wilk tests to check the normality of the residuals from the three equations. The p-value for all of the three tests is below .05 therefore we can reject the null hypothesis of non-normal error terms from the equations.

Table no. 8 Serial Correlations Test for Residuals from Metals

LAG	AC	PAC	Q	Prob>Q
1	-0.0182	-0.0182	.33942	0.5602
2	-0.0374	-0.0378	1.7741	0.4119
3	0.0312	0.0298	2.7712	0.4283
4	-0.0258	-0.0262	3.455	0.4848
5	0.0722	0.0739	8.8161	0.1166
6	0.0131	0.0127	8.9919	0.1740
7	0.0100	0.0179	9.0942	0.2460
8	-0.0112	-0.0153	9.2239	0.3238
9	0.0191	0.0231	9.5997	0.3838
10	0.0259	0.0200	10.294	0.4151

Source: Author's creation

Table no. 9 Serial Correlations Test for Residuals from Stocks

LAG	AC	PAC	Q	Prob>Q
1	-0.0457	-0.0457	2.1345	0.144
2	-0.0495	-0.0517	4.6428	0.0981
3	-0.0031	-0.0078	4.6526	0.1991
4	0.0121	0.0091	4.8021	0.3082
5	0.031	0.0318	5.7914	0.327
6	-0.0093	-0.0052	5.8811	0.4366
7	0.0087	0.0113	5.9592	0.5445
8	-0.0565	-0.0571	9.2487	0.3218
9	0.0111	0.0053	9.3754	0.4034
10	0.0038	-0.0016	9.3903	0.4955

Source: Author's creation

Table no. 10 Serial Correlations Test for Residuals from Commodities

LAG	AC	PAC	Q	Prob>Q
1	0.0222	0.0223	0.50615	0.4768
2	0.0852	0.085	7.9468	0.0188
3	-0.0081	-0.0119	8.0138	0.0457
4	0.0171	0.0103	8.3124	0.0808
5	-0.0003	0.0009	8.3125	0.1398
6	0.0115	0.0092	8.4488	0.207
7	0.0452	0.0456	10.552	0.1594
8	-0.0293	-0.0331	11.435	0.1782
9	0.0105	0.0046	11.549	0.24
10	-0.0077	-0.0021	11.61	0.312

Source: Author's creation

To further authenticate the model, serial correlation tests are presented in tables 8-10. The Q statistic and its corresponding p-value indicates no sign of the presence of serial correlation. The p-values are above 5% level of significance therefore we can reject the null hypothesis of presence of serial correlation up to lag 10 and conclude that residuals from the equations are serially independent.

## 5. Conclusions

Financial digital assets have been integrated within the investment environment as a novel alternative asset class. Most of the research performed on crypto assets have been from the perspective of understanding the performance of these assets, under the pressure of different traditional factors, which are thoroughly analyzed in the traditional finance world. As correlations, divergences and spillover effects have been a common subject of study, we wanted to assess how crypto assets influence and impact other asset classes.

Based on the overview of the descriptive statistics, crypto assets have highest aggregate average return among the four asset classes taken in consideration in this study. The standard deviation of the crypto returns is 0.031 which is relatively high. The value of aggregate average return suggests that investments in crypto assets is the most suitable option, from all the asset classes which were investigated. However, due to high standard deviation, there is a high risk associated to this asset class as well, which indicates that the investors must be careful in their decisions when considering allocations.

The developed MGARCH model is analyzed and tested using three models named; CCC, DCC and VCC. The most suitable model is DCC which is selected based on log likelihood, AIC and BIC. The MGARCH-DCC model is further tested for autocorrelation, heteroscedasticity and normality. The normality test rejects the null hypothesis and indicated that all of the three equations in the DCC generated normal residuals. The normal residuals are necessary for efficient and un-biased coefficients. Furthermore, there is no serial correlation between residuals and residuals are free from heteroscedasticity.

The MGARCH-DCC model analyzed three equations and the model is statistically significant and valid. Most of the coefficients of the model are statistically representative at a conventional 5% level of significance. The model analyzes contemporaneous impact of returns of crypto assets on metals, stocks and commodities. We have found that the returns of crypto assets have significant and positive impact on all the other asset classes studied in this research. This indicates that as the returns of cryptos provide a positive results, their influence for the other asset classes will create a momentum of interest from its main participants.

Another aspect drawn from our research is that the investment behavior of the participants within the crypto asset class is different from other traditional and alternative asset classes. This ecosystem is mainly composed of millennials and Gen Z investors who are tech savvy and can tolerate high risk scenarios. The investors generated by this new asset class differentiate themselves from the traditional finance world, as they understand and research technological innovations. The technological gap identified with the investors associated within these asset classes, is quite high and is directly proportional with the risk appetite. These are important factors to be considered, as we believe their acumen and cumulated knowledge in these digital markets create all the necessary conditions for them to diversify and interact with other financial markets.

The field of financial digital assets has been struggling with the adoption and acknowledgement of these assets for quite some time, and as a result, institutional and mature investors started paying attention to these digital markets quite late. An influx of capital was seen from the traditional finance world within the recent years, especially within the COVID-19 period.

As financial digital assets became a mainstream class within the spectrum of alternative assets, and many financial players invested in the space, we could clearly see signs of correlation with traditional market, especially in distressed periods. Our approach for this study, comes from the angle of understanding how the profile of a crypto assets' investor, interacts and impacts with other asset classes, especially coming for a novel, infant and dynamic environment which is representative for the financial digital asset class.

We can conclude that the investment methodology has not changed and, clearly, the investors which perform in high-risk digital markets, will always try to diversify their allocations. Based on our results, the exodus towards different investment fields is happening, but at a slow rate and in an organic way. The factors which affect these movement patterns are many, but the returns generated by crypto assets remains a major one. The volatility encountered in the digital markets cannot be matched by alternative and traditional markets, thus the returns and risks are different. We believe that as these new digital markets will mature, we will see a more stable and solid investment climate.

With stability, regulations and safety nets, the investment landscape will change and will accommodate a wide range of investment profiles.

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## Modernization of Public Financial Reporting in the Republic of Moldova in Accordance with IPSAS

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### Abstract

*The issues of preparation and presentation of financial reports of public sector worldwide are disclosed in the International Public Sector Accounting Standards. The Republic of Moldova, was aligned to other countries example and, currently is in process of reforming of budgetary accounting regarding to adoption of IPSAS. The research methodology was based on the detailed analysis of the domestic and international normative framework, on the use of the deductive and analytical approach to the theoretical concepts of the IPSAS financial reports and the method of their formation. Due to the logical synthesis, some fundamental recommendations were given, according to our consideration, and a draft component of financial reports was elaborated, which are aligned with the IPSAS requirements and at the same time maintain the specific characteristics of the Republic of Moldova.*

**Key words:** International Public Sector Accounting Standards, financial reporting, public sector, qualitative information

**J.E.L. classification:** H83, M40, M41, M48, Q56

### 1. Introduction

The complexity and development of government activities has triggered difficulties in interpreting public financial reports worldwide. There is also impossible to compare financial reports due to the application of different accounting principles and methods of regulating of government accounting systems.

This fact has encouraged some international accounting organizations to establish a basis for compatibility between various accounting systems. The International Federation of Accountants (IFAC) has confirmed the need for a unified global accounting framework for the public sector. Thus, International Public Sector Accounting Standards Board (IPSASB), to date, has developed 42 International Public Sector Accounting Standards (IPSAS) on an accrual and one on a cash basis (IFAC, 2021).

According to Josedilton (2015), the objective of the IPSAS is to improve the information from public sector accounting, permitting the comparability and providing tools for the social control of budgetary institutions, with a view to the further understanding of bookkeeping information and its disclosure in the financial reports, provoking profound changes in management, whether in the way the public patrimony is managed or in the form of recognition, measuring and disclosure of equity items.

IPSAS is a practical set of rules and a series of generally accepted principles that represent the general agreement of experts and professional accounting organizations, combining accounting practices worldwide by guiding the work of accountants, presentation and full disclosure of information in order of improving the quality of the government's financial reporting on the results of the activity and saving public money and providing high quality services.

IPSAS there are the benchmark of public sector's accounting reforms. Their adaptation is supported by such international organizations as well the World Bank and the IMF.

The global financial crisis, the impossibility of comparability of financial reports worldwide as well as the presentation of qualitative and meaningful information to the institutional organizations has urged countries to adopt IPSAS. Almost 168 countries have adopted or are in the process of adopting of IPSAS.

Following the example of the respective countries, the Republic of Moldova decides to reform the budgetary accounting and to align to IPSAS requirements. According to the Concept and the Action Plan for the elaboration of the National Accounting Standards for the Public Sector (OMF 159, 2016), Republic of Moldova follow to elaborate own national accounting standards for budgetary system through inspiration IPSAS rules. Today there are elaborated more than half drafts from the national standards.

Worldwide experience has proved that accounting reform assume harmonization of financial report. The IPSASB states that the allocation of resources by the government is inadequate if it is supported by poor quality financial information.

Based on this, we have chosen to compare Moldovan public financial reporting and international requirements for preparation of them, in order to give recommendations at phase of reformation budgetary accounting.

## 2. Literature review

The global tendency regarding reform of public sector financial reporting has led growing of the international literature on harmonizing public sector accounting. In the process of research we have analyzed more papers dedicated to the importance and impact of financial reporting of public sector reform.

Christiaens *et al*, (2010) recognized that many countries consider that implementation of IPSAS would increase comparability of financial reports at nationally and internationally level. The study of Samuel (2020) shows that the adoption of IPSAS enhances accountability and transparency of managements by providing timely and clear annual financial reports. The results of research by Lubis *et al*, (2016) showed that the implementation of government accounting standard and accounting information system positively affect the quality of financial reports.

Cuadrado-Ballesteros *et al*, (2021), have examined the benefits of the IPSAS reporting framework with an emphasis on accountability and government effectiveness. The authors investigated 33 Organisation for Economic Cooperation and Development (OECD) countries from 2010 to 2014. Their research shown that governments which have implemented public sector accounting reforms (through the adoption of IPSAS) have a higher level of governance quality, and that there is a positive influence of IPSAS adoption on the level of accountability, government effectiveness, regulation quality, the rule of law, and on controlling corruption.

Taking into account the Geiger (1990) affirmation that “progressive harmonization of accounting rules could greatly reduce costs occasioned by the presentation of information by divergent accounting systems, because it will facilitate mutual recognition of financial statements from one country to another” we will present the recommendation for development of Moldovan financial reports of public sector for the phase of reforming budgetary accounting.

In the research process we analyzed the most the national accounting framework in budgetary system the order of the Ministry of Finance no.216/28.12.2015 on the approval of the Chart of Accounts in the budgetary system and of the Methodological Rules on accounting and financial reporting in the budgetary system (OMF 216, 2015) and international requirements of IPSAS 1 “Presentation of financial statements” and IPSAS 2 “Cash flow statements” regarding to preparation of financial reports.

An analogical analysis was performed by the Romanian researchers, who researched the adoption of IPSAS and the preparation of financial reports in Romania in accordance with them (Cretu *et al*, 2011).

### 3. Research methodology

The research methodology was based on the detailed analysis of the domestic and international normative framework, on the use of the deductive and analytical approach to the theoretical concepts of the IPSAS financial reports and the method of their formation. Due to the logical synthesis, some fundamental recommendations were given, according to our consideration, and a draft component of financial reports was elaborated, which are aligned with the IPSAS requirements and at the same time maintain the specific characteristics of the Republic of Moldova.

Based on idea of Cretu *et al*, 2011, that public financial reports should be simple and clear, with fewer forms, containing strictly necessary indicators with high informational content, we will juxtapose the structure and contents of financial reports from Moldovan accounting framework and international requirements (IPSASB, 2021).

### 4. Findings

Adapting IPSAS to the specificities of the public sector accounting in the Republic of Moldova is an extremely difficult activity, which requires a lot of patience and accuracy.

As mentioned, the Republic of Moldova is concerned with reforming the accounting of the budget sector by aligning with IPSAS. Thus, a significant part of that reform is to amend or, if necessary, develop financial reporting requirements that should be converged with international ones. For achieving of this goal, it requires reading and understanding the accounting of international standards for the budgetary sector in order to harmonize the most efficient financial reporting at international level. Taking into account the fact that the budgetary institutions operate on the basis of the approved annual budget law, the budgetary system of the Republic of Moldova is more concerned on budgetary reporting, showing the amount of executed allocations and the efficiency of their execution. Therefore, the interest applied in financial reporting domain will urge the necessary decisions to be taken to ensure the future financing of the institution, the proper use of public assets, as well as the application of their action measures.

A comparison was made regarding to components of financial reports presented in the national accounting framework (OMF 216, 2015) and in IPSAS 1 (table no.1).

*Table no. 1. Comparison of the components of financial reports based on the national normative framework and international standards.*

<b>Financial reports according to OMF no.216, 2015</b>	<b>Financial reports according to IPSAS 1</b>
Balance sheet	Statement of financial position
Income and expenditure report	Statement of financial performance
Cash flow report	Cash flow statement
Report on the execution of the budget	Information regarding to comparison of budget and actual amounts
	Statement of changes in net assets/equity
Narrative report on the execution of the budgets of the budgetary authorities / institutions	Notes

*Source:* The author’s own processing, based on OMF no.216, 2015 and IPSAS 1.

For the first, we observe a difference in the name of the financial reports. But international standards do not forbid this difference. It provides alternatives and states that the Statement of financial position may also be called the balance sheet or the Statement of assets and liabilities. Secondly, the difference in the component of the compared financial reports is almost identical, except for the Statement of changes in net assets/equity, which is required by IPSAS 1.

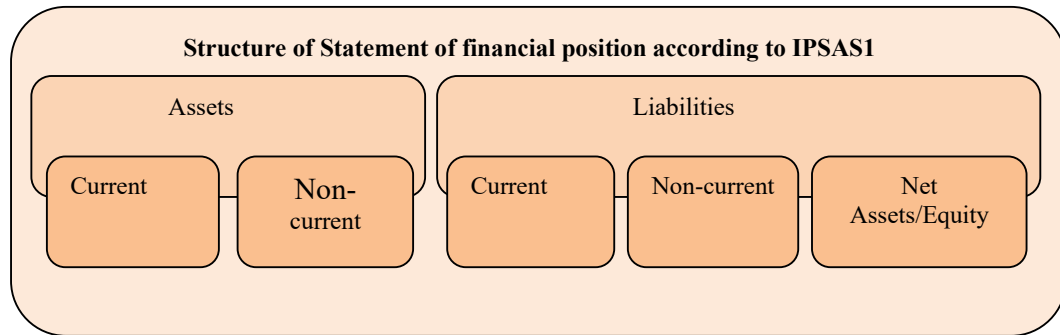
In order to have a clearer view on the level of convergence of national and international financial reports and to estimate the level of their transformation in the future, a comparative analysis of the content of each report will be provided below.



### Statement of financial position

According to IPSAS 1, the institutions must present current and non-current assets and current and non-current liabilities as separate classification (fig.no.1). For some institutions, such as financial institutions, presenting assets and liabilities in order of increasing or decreasing liquidity provides reliable and more relevant information than presenting them as current / non-current assets, since the entity does not supply goods or services within a well-defined operating cycle. The need for a mixed presentation may arise when an entity has various operations.

Figure no. 1. The classification of Statement of financial position elements according to IPSAS 1.



Source: The author’s own processing, based on IPSAS 1.

At least a statement of financial position should include elements that represent:

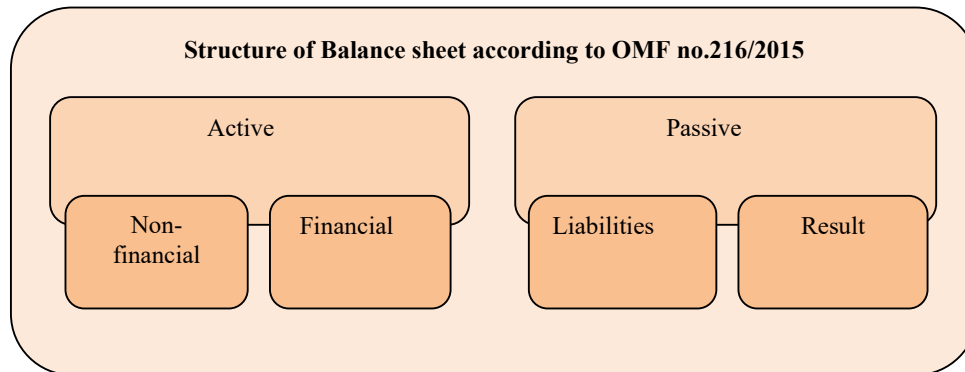
- tangible assets;
- investment property;
- intangible assets;
- financial assets;
- reserves;
- amounts to be reimbursed for non-exchange transactions (taxes and transfers);
- amounts to be received on exchange transactions;
- cash and cash equivalents;
- amounts payable on taxes and transfers;
- amounts payable on exchange transactions;
- financial liabilities;
- minority interest (uncontrolled interest), presented in net assets / equity;
- net assets / equity

Appendix B to IPSAS 1 (IPSAB, 2021) proposes the form for the Statement of financial position of a public sector entity. The lines in the report are arranged in decreasing order of liquidity. The balance sheet is built in accordance with the requirements of the standard. Thus, receivables and payables are structured taking into account the requirements for reflecting all types of debts - long-term and short-term.

According to rules from accounting requirements of Republic of Moldova, *Balance sheet* - is a summary accounting document which presents the financial position of the budgetary institution, the assets, liabilities, receivables, liabilities and value of its assets at the end of the reporting period, as well as in other situations provided by law.

Based on the structure of the balance sheet of budgetary institutions shown in the order of the Ministry of Finance no.216/2015 on the approval of the Chart of Accounts in the budgetary system and of the Methodological Rules on accounting and financial reporting in the budgetary system, balance sheet elements are classified as follows (fig.no.2).

Figure no.2. The classification of elements of balance sheet used by budgetary institutions in accordance with the current orders of the Ministry of Finance of Republic of Moldova.



Source: The author's own processing, based on OMF no.216/2015.

It should be noted that the specificity of Moldovan budget accounting is the division of all assets into financial and non-financial. This classification is adopted in a unified Chart of accounts in the budgetary system, approved in order no.216/2015. Such structure of balance sheet asset is a feature of Moldovan accounting, due to the last reforming in budgetary accounting from 2016 year. We will specify that the 2016 reform consisted not only in the application of the unified chart of accounts for all levels of governance, but also in the correspondence of the accounts with the classification from MGFS 2001, which influenced the classification of assets in financial and non-financial.

It is juxtaposed the form of balance sheet in two analyzed documents and the following differences are distinguished:

- the elements of the balance sheet, both in assets and liabilities, are arranged in a chaotic manner and do not correspond to the criterion of increasing / decreasing liquidity like in IPSAS,
- the assets in the balance sheet are classified according to the financial and non-financial criteria and are not grouped in current / non-current. Liabilities are not classified current/non-current too,
- in the passive of the balance sheet, after the Liabilities compartment follows the Results compartment (and not Net Assets / Equity, as provided in IPSAS 1). IPSAS 1 stipulates that equity consists of paid-in capital, being the cumulative total of contributions from owners at the reporting date minus distributions to owners. Thus, IPSAS 1 treats the notion of capital in the sense of the own source / owners of the institution's financing. Due to its legal status, the budgetary institutions in the Republic of Moldova do not form their own capital, but are fully financed by the government. Therefore, the use of the term "Equity" in the passive part is considered inappropriate.

Taking into account the fact that the way of classifying the elements from the national balance sheet is based on the structure of the current Chart of Accounts and is classified in financial and non-financial, as well as the fact that their classification according to IPSAS 1 in current /non-current and based on liquidity is also relevant and provides reliable information, all types of classifications were considered to form a draft of balance sheet analogous to that of IPSAS (table no.2).

Table no. 2. The draft of Balance sheet report, take in account requirements of national framework and IPSAS 1.

Name of the indicators	Prior year	Current year
<b>Non-current nonfinancial assets</b>		
Fixed assets	X	X
Amortization of fixed assets and intangible assets	X	X
Nonproductive assets	X	X
Values	X	X
<b>Non-current financial assets</b>	X	X
Internal receivables	X	X
Internal loans	X	X
Recredited loans	X	X
External receivables	X	X
external loans	X	X
<b>Current non-financial assets</b>	X	X
Inventories	X	X
Production in progress	X	X
Commodities		
State material reserves	X	X
<b>Current financial assets</b>	X	X
Internal receivables	X	X
Internal loans	X	X
Recredited loans	X	X
External receivables	X	X
external loans	X	X
Internal receivables	X	X
Internal loans	X	X
Cash flow	X	X
<b>Total assets</b>		
<b>Non-current liabilities</b>	X	X
Internal liabilities	X	X
Internal loans	X	X
Recredited loans	X	X
External liabilities	X	X
External loans	X	X
<b>Current liabilities</b>	X	X
Internal liabilities	X	X
Internal loans	X	X
Recredited loans	X	X
External liabilities	X	X
External loans	X	X
<b>Result/Net assets</b>	X	X
The result of cash execution of budgets	X	X
The financial result of the budgetary institution	X	X
<b>Total passive</b>		

Source: The author's own processing.

Taking into account the fact that the budgetary institutions of the Republic of Moldova, due to its legal status, do not form their own capital and do not distribute dividends, it is recommended do not introduce information related to contributions from owners and distribution of dividends in presented draft of report.

The proposed format of the Balance Sheet for budgetary institutions makes the opportunity to adapt the classification of the assets of the Republic of Moldova to the requirements of IPSAS. The task is solved by presenting the assets as financial and non-financial in each group of non-current and current assets. The division of assets is based on a detailed study of the economic essence of

financial and non-financial assets. The use of the methodology for classifying balance sheet elements, taking into account compliance with liquidity, has made the opportunity to build balance sheet elements in order of increasing liquidity.

### Statement of financial performance

Public sector performance represents performance in a particular area or all areas of a budgetary institution, measured either in absolute terms or relative to performance in previous periods (Handler, 2005).

The financial performance statement is the base for accounting, the preparation of financial and budgetary reports, both at the level of the administrative unit and in the central accounting system and is used as a base for allocating budgetary funds and choosing a financing approach.

In the past, in the accounting of the budgetary system, the Report on the execution of the budget was the main one. As expectations for the quality of services and the transparency of government activities have increased, there is a need to prevalence the presentation of information, chancing the emphasis from clearness and legality to efficiency and performance, as well as deciphering costs and revenues.

Thus, the Financial performance report reflects the operational level of activity and management of budgetary expenditure. Together with the IPSAS principles, this approach forms the basis of a new budget accounting model, which improves public finance management and presents the budget in a more complete and transparent way. At the same time, in budgetary institutions, the main priority should remain not profit, but the balance between expenditure and revenue. This means that the expenditure pursued at one level or another, in one institution or another, must be comparable. Comparing expenditures with revenues generated by the activities of different departments allows the calculation of net expenditures. Those costs can be compared with non-monetary indicators that reflect the quality of services provided or other characteristics, or can be used to define goals and objectives. By comparing expenses, objectives and results, information on management efficiency can be obtained.

IPSAS provides two alternative for reflecting information in the Financial Performance Statement: classification by the nature of expenditure and by destination (function). The method of classification by nature of expenditure provides for costs related to depreciation, procurement of goods and services, transport costs, employee benefits, subsidies and transfers.

It should be noted that the structure of the Financial Performance Statements would be more relevant to content the expenditure based on the classification by nature. Regarding the presentation of budgetary expenditures by destination or function, such as expenditures in the field of health, labor, education, defense, etc., they are aggregated in the budgetary reports on budget execution.

IPSAS 1 establishes the model for the Financial performance report (table no.3).

*Table no. 3. The content of Financial performance statement based on IPSAS 1, according to classification by nature.*

Name of the indicators	Prior year	Current year
<b>Revenue</b>		
Taxes	X	X
Fees, fines, penalties, and licenses	X	X
Revenue from exchange transactions	X	X
Transfers from other government entities	X	X
Other revenue	X	X
<b>Total Revenue</b>	X	X
<b>Expenses</b>		
Wages, salaries, and employee benefits	(X)	(X)
Social benefits		
Grants and other transfer payments	(X)	(X)
Supplies and consumables used	(X)	(X)

Depreciation and amortization expense	(X)	(X)
Impairment of property, plant, and equipment	(X)	(X)
Other expenses	(X)	(X)
Finance costs	(X)	(X)
<b>Total Expenses</b>	(X)	(X)
Share of surplus of associates	X	X
<b>Surplus/(deficit) for the period</b>	X	X
Attributable to:	(X)	X
Owners of the controlling entity	(X)	X
Non-controlling interest	(X)	X

Source: The author’s own processing, based on IPSAS 1.

The OMF no.216/2015 establishes the next Financial performance report approved for budgetary institutions (table no.4).

Table no. 4. The Income and expenditure report approved by OMF no.216/2015.

Name of the indicators	Current year
<b>Income</b>	
Taxes and fees	
Mandatory insurance contributions and premiums	
Grants received	
Other incomes	
Transfers received within the national public budget	
<b>Expenditure</b>	
Staff expenditure	
Goods and services	
Depreciation expenses	
Interest	
Subsidies	
Grants awarded	
Social benefits	
Other expenses	
Transfers granted within the national public budget	
<b>The result of the current year</b>	

Source: The author’s own processing, based on OMF no.216/2015.

Following the juxtaposition of the last two tables, it is observed that the Moldovan report does not contain the column compared to the previous year and also does not contain the expenses regarding share of surplus of associates and owners of the controlling entity.

Taking into account the fact that the budgetary institutions of the Republic of Moldova, due to its legal status, do not form their own capital and do not distribute dividends, it is recommended, do not complete discussed report in the process of harmonization the information about share of surplus of associates and owners of the controlling entity.

### Cash flow report

Cash flow report contains information on the execution of funds, including by types of activity: operational, investment, financial.

In comparison with other financial reports, the Cash Flow Report is prepared by the cash method.

The requirements for the preparation of the Report are described in IPSAS 2 “Statements of Cash Flows”.

The information in this report is useful to help users forecast (a) future cash needs, (b) its capacity to generate cash flows in the future, and (c) its capacity to finance changes in the scope and nature of its activities. The cash flow report is also an instrument through which an institution can discharge its cash inflows and outflows accounting during the reporting period.

That report, used with other financial statements, provides information that allows users to assess changes in an institution's net assets, its financial structure (including its liquidity and solvency), and the institution's ability to influence the value and timing of cash flows in order to adapt to ever-changing circumstances and opportunities. This information also increases the comparability of the reporting of operating results between different entities and institutions, as it eliminates the effects of using different accounting treatments for the same transactions and other events.

The forms of the Report on the cash flow from IPSAS 2 and OMF no.216/2015 were extracted. The content of these reports was analyzed and compared and it was concluded that the harmonization of this report will not require fundamental changes. The report on the cash flow of the Republic of Moldova has a structured content analogical to that of the IPSAS 2.

Only not substantial changes will be required:

- to extract the items State material reserves, Material stocks, Production in progress, Goods from the Investment activity compartment and enter them in the Operations activity compartment,
- to include in the Moldovan report information on cash equivalents, as required by international standards,
- to enter a column on the balance from the previous year.

#### **Report on the execution of the budget**

Budget Execution Report (Information comparing budget values with actual values) - includes information on approved / specified budget, execution of cash and cash revenues and expenditures, non-financial and financial assets, budget debts and cash balances, total receivables and payables, including overdue receivables and overdue debts (arrears).

Considering that budgetary institutions operate on the basis of a budget approved by law, IPSAS 1 encourages the inclusion in the set of financial reports of information on the value of the approved budget and the actual value of its execution. It provides information on whether the funding has been obtained and used in accordance with the approved budget. More data and comparisons related to the execution of the budget are regulated by IPSAS 24 “Presentation of budget information in the financial statements” (IPSASB, 2021).

IPSAS 1 does not provide a specific form for the Budget Execution Report. Analyzing the respective Report in the Republic of Moldova, which is in force and prepared regularly at the presentation of the financial reports, it is found that it contains the colony with the approved budget, the colony with the executed budget, the colony with actual expenditures and other colonies reflecting receivables and liabilities from report. Thus, it can be stated that the report on the execution of the budget in force is a report corresponding to the requirements of IPSAS 1 and it is not necessary to make any changes to it.

#### **Report of changes in net assets/equity**

The information from table no.1 clearly shows us that Report of changes in net assets/equity is not found in the components of financial reports of the budgetary system of the Republic of Moldova.

IPSAS 1 mentions that the Report of changes in net assets/equity is a fundamental one, which should reflect information compared to the previous year:

- (a) the surplus or deficit for the period;
- (b) each element of income and expense for the period is recognized in net assets / equity and the total of those elements;
- (c) the total income and expenses for the period (calculated as the sum of (a) and (b)); and
- (d) for each component of net assets / equity presented separately, the effects of changes in accounting policies and corrections of recognized errors;
- (e) the sum of transactions with owners acting in their capacity as owners, presenting separately the distributions to the owner (dividends);

(f) the balance of surpluses or deficits at the beginning of the period and at the reporting date, as well as changes during the period; and

(g) to the measure that the components of net assets / equity are presented separately, a reconciliation between the carrying amount of each component of net assets / equity at the beginning and end of the period, showing each change separately.

Take into account that the budgetary institutions in the Republic of Moldova, due to its legal status, do not form their own capital and do not distribute dividends, it is recommended, when preparing the draft report on changes in net assets / equity, to exclude information related to owners and distribution of dividends. At the same time, it is considered that the use of the term “equity” is inappropriate and the name of the analyzed report should remain the Report of changes in net assets. It is recommended that the draft Report to contain information compared to the previous period for the following elements:

- the financial result of the budgetary institution,
- correction of the results of previous years,
- changes in accounting policies,
- net income recognized directly from net assets,
- the amount of financing from the budget, take in account that all expenditure of the budgetary institutions is made on the basis of budgetary allocations.

#### **Narrative report on the execution of the budgets of the budgetary authorities / institutions**

Narrative report on the execution of the budgets of the budgetary authorities / institutions (Notes) - is a narrative description, which reflects the information on the execution of budgets of budgetary authorities / institutions, the factors that influenced the execution of budgets, and reveals in detail the information in financial reports.

According to IPSAS 1, the Notes must reflect:

- the basis of measurement used in drawing up the financial statements,
- additional and relevant information to understand the financial statements,
- important information, from the management's point of view, which is not contained in the financial statements. When deciding the need to present a particular accounting policy, management considers how the presentation would help users understand how transactions, other events and conditions are reflected in the financial statements.

According to the Republic of Moldova accounting framework, the requirements for Narrative Report are approved by the internal order and should contain more information on the full description of the reports and include:

- general description of the execution of the budgets of the budgetary authorities / institutions
- description of the information on the implementation of grants awarded from the budget directly by their beneficiaries
- description of the information from the balance sheet
- description of receivables and debts, formed in the budgetary authorities / institutions
- description of the information to be consolidated
- description of performance by programs / subprograms and quotas
- additional information.

Analyzing the IPSAS regulations, it is found that, when preparing the narrative report, it is applied the judgments accountant. Generally, it is relied on that the self-employed institution must decide whether one piece of information is useful to be presented to users.

Therefore, the advantage of drawing up the narrative report at the discretion of the leader is the flexibility to reflect the information. The institution may reflect activity-specific information, the size and composition of services, future actions, etc. The disadvantage is the risk of drawing up too compressed a report, which would complicate the analysis and understanding of information by users.

In order to avoid this ambiguity, it is proposed to maintain the current requirements, approved in the Republic of Moldova, for the preparation of the narrative report.

Harmonization of Moldovan public financial reporting in the context of IPSAS requirements will help solve the following tasks:

- improving the analytical situation of the financial position, drawn up in a strict order of increasing liquidity;
  - compliance with IPSAS 1 balance sheet requirements;
  - the inclusion in the statement of financial position of the "Net Assets" sub-fund will allow a logical reflection of both the operational result of the institution's activities and the institution's financing;
  - old terminology in reports will be replaced by current terminology;
  - the inclusion of a Statement of changes in net assets in the reporting for the budget sector will ensure the comparability (coherence) of the balance sheet;
  - reporting will become easy to understand for all categories of users.
- The application of IPSAS is meant to bring the financial reporting of the budgetary system in the Republic of Moldova to a new level.

## 5. Conclusions

In the above research, the Moldovan budget financial reports were faced with those in IPSAS 1 and IPSAS 2 (IPSASB, 2021). Their structure and content were analyzed in detail and in conclusion we should state that for the adoption of IPSAS, the Moldovan public financial reporting will not undergo fundamental changes.

This situation is affected by the latest budget accounting reform implemented in 2016. The reform was based not only on the development of a Single Chart of Accounts for all levels of governments, but on the correspondence of its accounts with the GFSM, 2001 classification also. At the same time in accordance with GFSM, 2001 have been elaborated and implemented financial reports for the public sector. Considering that the financial reports in GFSM, 2001 are close to those in IPSAS and are also required at the level of international reporting, we should conclude that the budgetary financial reporting in Republic of Moldova has already a degree of convergence with the requirements of IPSAS financial reporting and the requirements of international organizations.

Governments, including public institutions in certain fields, have an accounting system taking into account the specifics of each, while IPSAS has unique general requirements for all public institutions, without particularities of each of them (Ristea *et al*, 2010).

Relying on research of Polzer T. *et al*, 2021, about deviations of national accounting rules from IPSAS and their reasons, we state that the harmonization of the Moldovan budgetary financial reporting should admit the divergence with IPSAS, due to they not treat all transactions that occur in specific budgetary institutions.

However, the deviations of the financial reporting requirements analyzed in the paper need to be taken into account at the stage of public sector reform of the Republic of Moldova (OMF 159.2016). According to the results of the analyzed international literature it was found to focus on the following:

- adoption of IPSAS requirements usually takes for more than 10 years,
- formation and training of a team of national organizations of local experts, who will be in charge only of the field of IPSAS,
- receiving of technical assistance from international experts on correct understanding of the language of IPSAS.

We rely on that the results and recommendations obtained will ensure the understanding of future changes in the financial reporting system and will provide an image on which nuances should be pay attention for the future harmonization of them.



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## Transfer Pricing Rules: National and International Approach

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### Abstract

*The need to regulate transfer pricing is a subject of international importance due to the needs developed by international corporations. The Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations made a opinion paper on the transfer pricing system used by transnational companies as early as 1979, and in 1995 made a guidelines on transfer pricing for tax administrations and transnational companies. In the European Union, these operations have become widespread and generate significant losses of tax revenue, leading to an acute need for legislation to normalize these practices. In order to help countries where this issue is frequently encountered, the European Union has come up with a real solution, namely to adopt a common consolidated corporate income tax base.*

**Key words:** transfer price, tax administration, OCDE, report, income tax

**J.E.L. classification:** M41, M21, F38

### 1. Introduction

An exceptionally convoluted subsystem of the retail economy, cost come up as a style of economic evaluation, in fiscal statement, of the expenses of materials. It is the outcome of the force of a multitude of changing, varied and often antithetical factors: the value of the commodity; the purchasing power of the currency; the demand-supply ratio existing on the market; the economic integrity assisted by the countries of the world (Nitu, 2003).

The concept of *transfer pricing* originates from the United States (19th-20th century) and represents a fair share of tax. This concept developed because of diverse tax, on the same way that states assessed costs set at the territorial level (varying in bulk from state to state) and the federated state demanded from the single tax set. (Ciumag, 2006).

The moving the value is the cost at which a person's relocation of goods - tangible and intangible (e.g. trademarks) - and services to an connected person (Licu, 2008).

Transfer pricing rules apply to all concerns between related persons, whether transfers of goods or intellectual property rights, provision of services or other types of proceedings. Under these rules, affairs betwixt linked society must be carried out in conformity with the arm's length principle, which underlies the whole transfer pricing analysis and is reflected in Article 9 of the Model Double Taxation Convention as well as in national law (Luca, 2019).

### 2. Literature review

Transfer pricing is an increasingly important issue for multinational companies in determining tax planning. Today, around 60% of world trade is between related persons. With so many multinationals operating across borders, tax authorities in each country are becoming increasingly

attentive to the level of taxes that multinationals pay in each jurisdiction, corresponding to the economic activity in each country.

This means that these firms have to charge arm's length amounts in transactions between related persons, respecting the arm's length objectives as defined by the Organisation for Economic Co-operation and Development (OECD, 1995). Otherwise, multinationals could artificially changeover earnings from a high-tax country to a low-tax country by changing the prices of goods and services between related persons.

The International Transfer Pricing Rules, published by the OECD, set out three rules that a deal must meet in order to decrease under transfer pricing values:

- Existence of a cross-border transaction;
- The transaction is between two related entities;
- The transaction must relate to a good, a service or anything of economic value.

The international principle accepted by OECD affiliate states and other countries for determining transfer prices is the "arm's length principle". It is exposed in Article 9(9). (1) of the OECD Model Convention:

Where two undertakings are linked in their economical partnership by agreed terms or conditions or by charges which vary from the above mentioned which would have been agreed among independent undertakings, revenue which, but for those terms or surroundings, would have been built by one of the undertakings, but could not in fact have been made by reason of those terms or conditions, may be comprehended in the assets of that undertaking and charged consequently (OECD, 2008).

The arm's length rule is based on the premise that, in uncontrolled transactions, it is market forces that shape the conditions and terms of the transaction, reflecting the correct price. In controlled transactions, it is the control of ownership that dictates the price. The arm's length principle seeks to eliminate the effect of common ownership on price by requiring the parties to trade as independent parties, who are at arm's length from each other, rather than as closely related parties (Balan, 2004).

Often, however, market conditions cannot be fully captured because transactions of a related person nature may not be concluded if they were independent companies, and this is because of the very subject matter of the transaction.

Transfer pricing can influence the profitability of the affiliated company, its cash flow, the performance indicators of that company and the group's investment decisions or business model.

There are situations where these prices deviate from the market value principle, as intra-group pricing is a way for group companies to reallocate profits or losses according to centrally determined policies. Such profit reallocations have a direct impact on the tax position in each country in which the group in question operates through its subsidiaries (Botezatu, 2019).

In practice, a profit manipulation operation through transfer pricing would have the following structure:

- A taxpayer C in a jurisdiction pays more than necessary on a purchase from parent company M.
- At the same time, taxpayer C receives inadequate compensation for a good supplied to parent company M.

Taxpayer C, however, is located in a jurisdiction with a high tax rate, while the parent company is located in a jurisdiction with a lower tax rate. It is clearly to the benefit of the multinational group as a whole to direct its profits to places where they are taxed less. From the point of view of the host country of taxpayer C, however, this represents a tax loss by taxing less of the profits that were earned in its territory and which, by virtue of tax sovereignty, it was entitled to tax.

Internationally, these repeated practices by multinational companies have led to efforts to define and regulate the phenomenon. The leading international document on this issue is the "Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrators", issued by the OECD in 1995. It has had three additions since then: in 1996 a chapter on industrial property, in 1997 a chapter on intra-group services, and in 1999 a chapter on cost contribution arrangements (cost contribution arrangements - these are unincorporated forms of collaboration based on a contract, whereby the parties assume risks and obligations of participation in exchange for the right to exploit the outcome of that contract; they are usually used in research and development).

But these OECD Guidelines are not a convention. They are intended as a practical guide rather than a set of strict rules. The very name of the Guidelines underlines the fact that the OECD has left it up to countries to incorporate them into national legislation.

The Directives are largely based on the "OECD Model Double Taxation Convention", a convention adopted by most of the world's countries as a model for their bilateral double taxation treaties.

Transfer pricing is a relatively new phenomenon in Romania. It was first reported by Prime Minister Adrian Năstase in 2002. According to the Prime Minister, steps were needed to ensure that taxes and corporate taxes in Romania are not only levied on SMEs (Balan, 2004).

It should be noted that immediately after these observations, the Corporate Income Tax Law (Law 414/2002) was adopted, which provided, for the first time in national legislation, for the regulation of the market price in transactions between associated enterprises.

### **3. Research methodology**

In this article we will analyse national and international information on the transfer pricing dossier. In this respect, in order to achieve the main objective, i.e. the comparative analysis of the legislative provisions on the transfer pricing file, we will use the comparative method of the legislative texts and the information available at international level.

The qualitative method will be the basis for the analysis of the transfer pricing file and after which we will formulate relevant conclusions and come up with recommendations and assessments for the adaptation of the autochthonous legislation in terms of possible improvements in the way the transfer pricing file is analysed. These proposals can be easily implemented thanks to the countless examples found in the literature, both practical and theoretical. This can bring additional clarifications to the legislation already existing in Romania as well as practically, through the methods applied for the analysis of the transfer pricing file abroad.

### **4. Findings**

#### **4.1. Importance of transfer pricing**

In today's background of business internationalisation, where more than 60 percent of global trade in services and raw materials takes place between entities of the identical association, transfer pricing is the last update.

Transfer pricing turn into an progressively important issue for multinationals operating in Romania. Intra-group transaction pricing policy can take essential consequence on tax costs (penalties, double taxation) as well as on the benefits and competing improvement entities of all sizes with international activities.

Transfer prices are these prices debited in intra-group affairs and must normally reproduced the market rate of the raw materials or services being interchanged, i.e. they should be conducted under the similar auspices as affairs between independent people. And up to know, in many cases, prices charged between related persons (Fiscal code) diverge against the market value assumption, adopting alike fees, allowing them to distribute their revenue or losses like to the principles followed centrally, with a explicit impact on the fiscal environment of each country. Furthermore, tax advisor bord have an interest in the taxation of real income earned by local entities from transactions with their related persons, with the legitimacy to make adjustments where payments in intra-group affairs do not follow the market value rule.

In recent years, Romanian transfer pricing legislation has undergone continuous development and is now aligned with the Organisation for Economic Cooperation and Development (OECD) transfer pricing rules and European Union (EU) standards regarding documentation requirements. Recently, the content of the transfer pricing file to be prepared by Romanian residents go through transactions with associated persons has been approved. It is interesting to note that the file must contain, among other things, information on transactions between all related persons within the EU, even if the Romanian taxpayer is not a direct party (Luca, 2008).

Transfer pricing is not an exact science. Therefore, whenever someone tries to regulate the market price of a good or service, using different methods, they will always obtain a spectrum of amount within which the prices charged in intra-group transactions will drop.

In theory, the expenses used in intra-group concerns are a simple and convenient way for companies in a group to reallocate profits or losses according to centrally pursued objectives. If group companies are located in different countries, then group decisions can influence the tax position in each country where the group operates (PriceWaterHuseCoopers).

It is important that each company involved in related party transactions is able to document that the transfer prices charged are at market value.

#### **4.2. International transfer pricing rules**

Repeated transfer pricing practices by transnational corporations have led to efforts to define and regulate the phenomenon. As early as 1979, the OECD produced an opinion on the transfer pricing instrument used by international companies and in 1995 it thought up advices on transfer pricing for both tax administrations and transnational companies.

It is not only the OECD that is concerned about transfer pricing. The EU Commission has also become active in the area of transfer pricing. As such, the Commission has set up a Joint Transfer Pricing Forum and an Arbitration Convention, just two examples of the Commission's continued and sustained effort in this area. The latest actions are the Code of Conduct (EU Code 2005) on transfer pricing evidence for affiliated persons in the European Union and the Commission's proposal on implementing methods for leading pricing accord. The Code of Conduct is a position paper, which was endorsed in the Council of the European Union in June 2006 and is awaiting ratification by each Member State, proposing a template for standardized documentation for related companies operating in the European area. The stated aim is to minimize companies' efforts in preparing transfer pricing documentation and to simplify the task of tax inspectors who will check intra-group transactions.

The argument of transfer pricing is grow into more and more crucial in the globalised economy, as many firms develop their economic activity apart from their home country borders, trading goods and services between the group. The OECD's recommended transfer pricing rules set out the following requirements that a commercial buying must meet in order to fall under transfer pricing rules:

- the presence of a cross-border transaction;
- the agreement is between two related legal entity;
- the commercial contract concerns a good, service.

As transfer pricing can keep goals other than cost evasion, tax advisory board should not naturally consider that cross-border firms are undertaking to shape the revenue, specially as in some situations it is very challenging to determine the market price precisely. The OECD's Committee on Fiscal Affairs created a determined regulations to decrease the risk of misconception or abuse of the tariff of certain affairs within companies, building the so-called arm's length principle. The OECD Model Tax Convention clarifying the meaning of this principle: where circumstances exist or are prescribed between the commercial and financial relationships between two similar firms which differ from those which would have been made between independent firms, then any earnings which would be made by one of the firms in the hooky of these surroundings may be comprehended in the payable profits of that firm and taxed correspondingly (OCDE, 2010). This attempts to adjust collective revenue by relating intra-group affairs to the rules that would have governed relationships among independent firms in equal transactions. The arm's length principle puts associated and independent firms on an equal foothold in terms of tax, escaping the formation of advantages and disadvantages that could mangle the ambitious position of each category of entity. The application of the principle has demonstrated adequate in positions where correlations can be made with equal transactions betwixt other independent entities. There are many positions where the application of this doctrine is laborious: for example, in the case of worldwide groups active in the manufacture of highly specialised goods.

Paragraph 2.1 of the OECD Guidelines lists traditional methods of transaction analysis and transactional methods as possible methods of calculating transfer prices. According to paragraph 2.2 of the OECD Guidelines, the picking of a transfer pricing approach is constantly aimed at discovering

the most convenient method for a particular cross-border intra-group transaction. The most fitting method is the one that reckon all the strengths and weaknesses of the methods recognised by the OECD (OCDE, 2010).

To determine the most appropriate method, the OECD Guidelines recommend that taxpayers consider;

- Availability of reliable information;
- The scale of analogy between transactions between related parties and transactions between independent parties; and
- The correctness of correlations improvement that may be necessary to eliminate material discrepancy among them.

The methods for pinning down transfer prices established on transaction study are: (OCDE, 2010)

The Comparable Uncontrolled Price (CUP) method is gleaned from comparing the payment of the purchase under consideration with the payment charged by other autonomous entities of the transaction when same products or services are sold.

For the transmission of goods, products, commodities or services between related entities, the market rate is that expense which would have been stated by independent entities down circumstances prevailing in commercially proportionate markets for the transmission of identical or similar goods or commodities, in equipollent quantities, at the same point in the manufacturing and sharing chain and under proportionate delivery or payment terms. In this respect, the following may be used to establish market value:

- analogy of payment agreed between connected entities with prices planed between self-reliant entities for same transactions (internal price comparison);
- analogy of payment agreed between connected entities for equal affairs (external price comparison).

The Resale Price (RP) method whereby the market payment is settled as stated by the resale amount of manufactures and services to self-reliant entities less marketing expenses and a profit quota.

This technique is enforced in accordance with the amount at which a produce botched from an affiliated person is resold to an autonomous entity. This amount is then shortened by a corresponding gross margin characterizing the amount from which the last seller in the group will attempt to cover its selling and other operating expenses on a transaction basis and make a corresponding benefit.

Following points should be borne in mind:

- circumstances relating to the time period betwixt original asset and resale, along with those relating to market changes in expenditure, swap rates and inflation;
- circumstances relating the condition and degree of wear and tear of the furnishings which are the subject of the transaction, counting adjustments brought about by mechanical progress in a field;
- the absolute right of the reseller to hawk assured goods or rights which could effect the decision on a amount margin change.

The cost-plus approach (Cost Plus - C+) is based, for the determination of the normal market price, on increasing the main amount by a rate of earnings comparable to the taxpayer's field of movement. The starting point is the costs of the producer or service income producer.

Where goods or services are relocated over a larger number of related entities, this method is to be applied separately for each stage, taking into account the specific role and activities of each related company.

Methods established on profit analysis are (OCDE, 2010).

The Profit Split (PS) method involves adjusting the net earning margin earned by a man on one or more affairs with related entities and estimating that margin established on the matched earned by the similar person on agreements with independent entities or on the limit earned on equal activities by self-reliant entities.

This approach involves comparing certain financial indicators obtained by affiliated organisations with the similar index obtained by autonomous organisations engaged in the same field.

The Transactional Net Margin (TNMM) method is used when affairs between affiliated organisations are so intertwined that it is not desirable to identify proportionate transactions (OCDE, 2010).

This manner involves estimating the profit earned by the connected organisations from one or more transactions and dividing these profits between the affiliated organisations in proportion to the earnings that would have been earned by the autonomous organisations. Profit sharing must be achieved by a convenient estimate of the revenue realised and the amount incurred as a result of one or more sales by each organisation. Profits should be common so as to show the activities accomplished, risks simulated and belongings used by each of the related parties.

Aiming to determine the higher fitting transfer pricing method, the following elements shall in principle be taken into account:

- the method which higher closely approximates the assets in which freely competitive prices are established in commercially comparable markets;
- the method for which information relating to the actual activity carried out by affiliated organisations convoluted in agreements subject to open market is available;
- the degree of rigor with which adjustments can be made to bring about analogy;
- the circumstances of the particular case;
- the actions actually committed by the different affiliated entities;
- the approach used requisite correspond to the given market chances; and
- the taxpayer's business;
- the documentation which can be made available by the resident.

The means of the personal case to hold taken into account in examining the market price are: the category, condition, condition and degree of oddity of the goods, commodities and services transferred; the market surroundings in which the goods, commodities or services are used, involved, treated, handled or sold to separate organisation; the activities carried out and the phases in the production and distribution chain of the entities mulled; the provisions have in the transfer contracts relating to agreements, payment terms, deductions, guarantees granted, assumption of risk; the special circumstances of competition.

Where proportionate undisciplined transactions can be dogged, the price comparison method is the most explicit and continuous way of applying the arm's length principle. Tax governments in most countries also find the cost comparison method to be the most viable way of pricing sales between linked organisations. The use of debatable profit methods must be limited to notable situations where data are not available or insufficient to practice one of the classical transfer pricing methods. Until the US reform, there was international consensus on transfer pricing rules. On the one hand, OECD recommendations are relatively faithfully applied by OECD member countries, with the exception of the US, with indirect regulatory power and contributing to the harmonisation of international practices in this area. On the other hand, the US transfer pricing reform has provoked reactions among OECD member countries, which have had to adapt their regulatory framework to the new data, moving closer (Australia, Canada, New Zealand) or further away from the US model (Japan, France, UK). Under these circumstances, European countries have not reacted in a coordinated manner to the US reform, particularly as regards the APA, so that tax harmonisation in Europe is still a challenge (Nitu, 2003).

"The issue of transfer pricing is a complex one for both tax authorities and multinational companies, as non-compliance with the market value principle can affect the tax burden at group level" (Luciu, 2019). Thus, tax administrations around the world are showing an increasing interest in acting to prevent multinationals from artificially shifting profits from a high-tax country to a low-tax country by changing the prices charged for goods and services transactions between individuals within the same group. In order to solve this problem, the concept that the price of transactions between related persons should be the market price has been introduced at international level, and this concept has also been adopted in Romanian legislation (Condor, 1996).

### 4.3. National transfer pricing rules

In 2002, Romanian regulations containing references to analogous parties and transfer pricing were advertised for the first time, as a first stride towards adjusting Romanian legislation with foreign rules (Law 414, 2002). In 2003-2004, the EBRD assessed the Romanian legislation on corporate governance against the *Principles of Corporate Governance* published by the OECD, the result showing that the Romanian regulations in this area has a small level of consent with the OECD. Among the major problems identified in this assessment were insufficient regulation of related party transactions and the lack of specific approval procedures for larger transactions (Tiron Tudor, 2019).

In Romania, the issue of transfer pricing has been addressed with more interest since 2004 with the introduction of transfer pricing methods in the Tax Code.

The recommended methods to be applied for recalculating the price of transactions taken from the OECD guide are:

- cost comparison;
- the cost-plus;
- the resale cost;
- any other method recognised in the transfer pricing guidelines issued by the Organisation for Economic Co-operation and Development (Tiron Tudor, 2006).

These were followed by the introduction of the obligation to have a file documenting the prices charged, (Fiscal code) and in 2008 the content of the file is determined by order of the National Tax Administration Agency (Law 222/2008).

In 2010, clarifications were introduced regarding the obligation to submit documentation for transactions between Romanian affiliated entities.

Transfer pricing is a relatively new concept in Romanian law. The market value principle was first introduced in 1994. But the real recognition came only ten years later, in 2004, entering into force of the Tax Code (Law 571/2003).

Currently the transfer pricing legislation is provided by the Tax Code - art. 7 and art.11, the Tax Procedure Code - art. 42 and art. 79, Decision no. 529/2007 on Advance Pricing Agreements and Advance Tax Solution, Order 222/2008 - Contents of the transfer pricing file.

At present, the vast majority of Romanian organisations do not have solid, standardised documentation on transfer pricing. Just entities that are part of international associations have some elements of transfer pricing documentation. In the absence of methodological rules, the OECD guidelines should form the basis for the improvement of standard transfer pricing documentation.

The National Tax Administration Agency, concerned with improving tax control activity, has developed a transfer pricing control guide for tax inspectors, on the recommendation of the Directorate-General for Taxation of the European Commission.

In this regard, Dutch experts, beneficiaries of the "AMADEUS" database, which contains standardized information on more than 7 million taxpayers in Europe (including 450,000 in Romania), have provided ANAF with a list of 350 large Romanian taxpayers at high risk of transfer pricing problems. A trial version of this database has also been made available to ANAF to analyse the possibilities for use in risk analysis (Tiron Tudor, 2006).

The O.G. no.35/2006 makes it compulsory for taxpayers who carry out transactions with connected people to draw up a Transfer Pricing File; the file must be submitted at the demand of the adequate tax authority, within the limit set by the latter. The fulfilled of the transfer pricing case will be approved by form of the President of the National Tax Administration Agency.

According to Article 11 of the Tax Code "in a transaction between Romanian persons and related non-resident persons, as well as between related Romanian persons, the tax authorities may adjust the amount of income or expenditure of either person to reflect the market price of the goods or services provided in the transaction". It systematically sets out the explanation of connected people, the market value principle and the approach for define transfer prices.



## 5. Conclusions

Transfer pricing as a whole is not a properly rules like all the other fiscal rules and therefore relies on the professional judgement of company specialists on the flip side, and the professional judgement of tax authorities on the other, to provide full cooperation and understanding of the situation in which a company conducts related party transactions, with the ultimate aim of providing a fair assessment of whether the transfer prices charged in these transactions are in line with the market value principle.

Transfer pricing is both convenience and a threat, and its impact on the business of related parties is compelling. Tackling such a broad area can gain companies through useful asset such as knowledge of related party transactions and identification of opportunities to allocate income and expenses, in-depth understanding of the business model and optimisation possibilities that might otherwise be overlooked.

In my view, the transfer pricing regime is the high point of creativity in tax law, as it is the linking element between tax rules in different national markets. The big problem, however, is not the transfer of capital between jurisdictions, but the particular prices and conditions under which these transactions are carried out. Transfers often do not comply with the free market principle, thus distorting the tax base and consequently the taxes due. Such transactions trigger the intervention of the tax authorities, which may review the transactions in order to determine the fair taxes that should be payable by each State.

In conclusion, it can be said that transfer pricing is not only a complex and sensitive area, but also a dynamic one, which is continually updated by the competent bodies in order to keep pace with the changing realities of the globalised economy and to eliminate the negative effects that its intrinsic characteristics can have on society as a whole.

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- \* \* \* *Romania's Tax Code*
- \* \* \* *Law no. 414/2002 on the Corporate tax law*, Official Monitor no. 456/27.06.2002.
- \* \* \* *Law no. 571/2003 on the Fiscal Code*, Official Monitor no. 927/23.12.2003.

- \* \* \* *Order no. 222/2008 from 8<sup>th</sup> of February 2008 regarding the content of the transfer pricing file*
- \* \* \* *EU Joint Transfer Pricing Forum Activity Report in the field of Documentation – SEC(2005)1477*
- \* \* \* *OECD Guidelines 2010*

# Study on the Correlation of Capital Market and Macroeconomic Indicators of Romania

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## Abstract

*This paper analyzes the capital market and the evolution of Romania's economic growth, examining the correlation between the main indicators of the two economic and financial mechanisms. The purpose of this paper is to examine the relationship between financial development and economic growth in the period 2000-2020, using indicators for the development of the stock market sector and the macroeconomic environment. Most of the existing studies on this topic address the markets of developed economies, but we believe that the degree of correlation may differ in the case of less developed countries. This paper tries to bring its contribution to the specialized literature by studying the indicators in the case of Romania, during the period when this developing market aspires to the status of an emerging market and in the context in which this promotion took place in 2020.*

**Key words:** capital market, macroeconomy, correlations

**J.E.L. classification:** E60, F62, G10

## 1. Introduction

The link between the activity of financial markets and especially of capital markets and the evolution of macroeconomic indicators is a subject of continuous interest of the academic environment. Both the theoretical literature and empirical studies support differing viewpoints when trying to draw an analogy of the two sectors. It is found a different behavior, depending on the analyzed country, the level of its economic development, as well as the period of time analyzed and the international context.

Through this paper, the main indicators of the capital market and the macroeconomic ones for Romania are analyzed, in the period 2000-2020, in the context in which the time interval includes the transition period from a post-communist economy to an emerging market, passing through the economic and essential political steps – accession to NATO and then to the EU, as well as through legal alignment efforts, economic, financial and not least social to capitalist and European standards and values.

## 2. Literature review

Most academia shares the view of the classic Schumpeter, stating that production and economic growth boost the impact of services provided by well-developed financial institutions, and the interaction of innovations in both the financial and economic sectors provides a boost to economic growth (Schumpeter, 1911).

On the other side, some researchers share the contrary view of the interdependence between economic growth and the evolution of the financial market, this current being based on Robinson's statements, according to which " finance plays a minor role in economic growth; rather it is determined by growth" (Robinson, 1952)

With the development of technological means, interstate communication and cooperation, as well as the expansion of the phenomenon in integration, the correlation between macroeconomics and stock markets is approached by scientific studies in more complex forms. On the one hand, the diversity of the indicators involved in these correlations and on the other hand, the calculation methodologies develop new estimation methods and increasingly complex conclusions.

The literature includes comparative studies of general indicators. We recall here the work carried out by Barakat, Elgazzar and Hanafy that refers to the market index, the interest rate, the consumer price index, the exchange rate against the USD, the money supply, concluding by a close long-term link between all these indicators (Barakat et. al, 2015). On the other hand, in the study conducted for South Africa, which analyzes the evolution of gross domestic product and growth index of the JSE FTSE, Mpofu concludes from the results obtained that the degree of correlation of the two indicators is not significant enough to be considered a financial market prediction tool, share prices reflecting rather the investor's expectations for the future profit, and only indirectly without economic growth (Mpofu, 2014). Following the same vision, MSCI Barra Research prepared in 2010 a comparative study between gross domestic product and net profit per share, based on which it observed links between the two indicators, but with the mention that the empirical analysis of the alleged link is limited, recalling that the phenomenon of cyclicity of economic and financial evolution cannot be ignored.

We note that the literature of the last two decades is developing increasingly niche studies, comparing groups of similar markets - for example, parallel analysis of emerging markets (Geller, 2010; Winful, 2017; Goldman Sachs, 2021), Est African Economic and Monetary Union (WAEMU) (Zonon, 2021), Southeast Asian Nations (ASEAN) (Haini, 2019) or comparisons of the major economic powers - the US versus the Eurozone or China vs. the USA.

Also, in comparing the evolution of financial markets against economic indicators, recent works detail certain economic sectors or price evolutions, starting from hypotheses of more complex researchers, in which the values of macroeconomic indicators or the values of stock indices depend on indicators with which they are not in a direct connection, but still they are influenced. The most obvious interrelationships refer to the banking sector, recalling here the paper of Abuseridze in which he affirms an interdependence between the competition of the banking sector, financial stability and economic growth (Abuseridze, 2021). Indicators such as currency exchange (Moagăr-Poladian et al., 2019; Luwihono et al., 2021), domestic production, money supply (Camilleri et al., 2019), interest rates (Davis, 2020), the price of energy (Li and Leung, 2021) are introduced in scientific research, starting from the assumption that they represent factors of influence on economic growth and stock market indicators. Moreover, in the specialized literature we find on this topic works that include socio-human or demographic indicators, exemplifying through human capital (Cristescu et al., 2021) or the life insurance market (Dash et al., 2020).

### 3. Research methodology

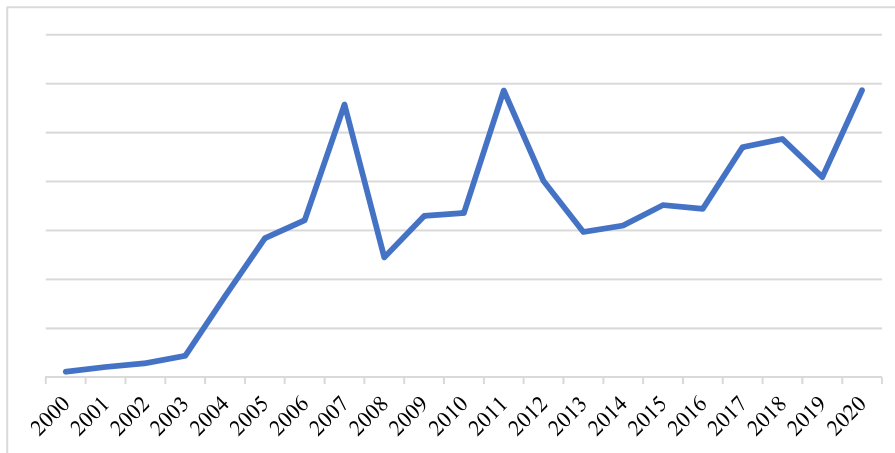
The present study uses as a methodology the descriptive analysis, in order to compare the evolution of macroeconomic and capital markets indicators. For this study, we select the reference period 2000-2020. The descriptive analysis is based on official statistical data, from which linear graphical representations have resulted, in order to highlight the evolution in time of the indicators.

- Indicators of the Romanian stock market:
  - Total value of the shares traded (US\$)
  - Market capitalization of listed domestic companies (% of GDP)
  - Local companies listed on the stock exchange
  - Shares traded, in relation to the turnover of domestic shares (%)
- Macroeconomic indicators:
  - GDP per Capita (US\$)
  - Evolution of GDP (% annually)
  - Consumer Price Index (% annually)
  - Foreign direct investment, net inflows (US\$)
  - Current account balance (US\$)

#### 4. Findings

Regarding the total value of the shares traded on the Romanian stock market in the time interval 2000-2020, analyzing as reference moments the beginning and final points of the analysis, we note that the value ascension of the stock exchange transactions recorded a special jump. We note that since 2003, the value of the traded shares has seen a sharp increase, culminating in the year of accession to the European Union. It is noted that its dramatic decrease during the financial crisis period was recovered by 2011, followed by a decrease, but not as sudden as the previous one. In recent years, the total value of the traded shares has registered a significant and constant increase, reaching at the end of the analyzed time interval the maximum value.

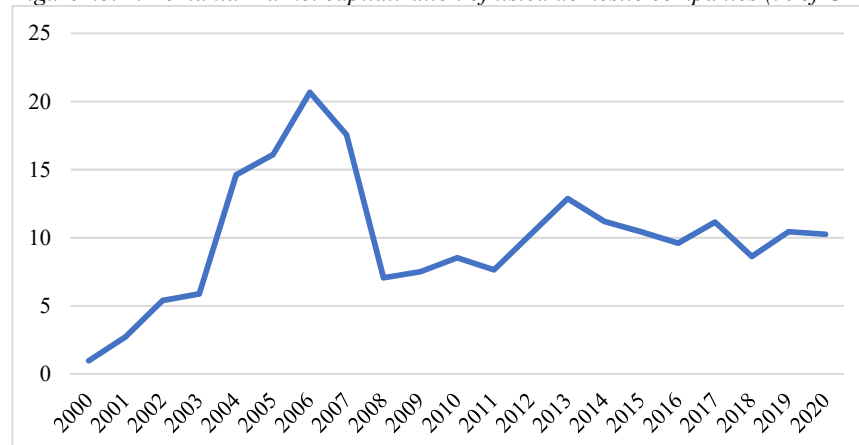
Figure no. 1. Romania Stocks traded, total value (current US\$)



Source: Author processing, data from [www.worldbank.org](http://www.worldbank.org)

The market capitalization of the Bucharest Stock Exchange, an indicator analyzed in percentage relation to the gross domestic product, recorded with constant evolution, which made the capital market of the last years a stable financial entity. During the period of positional evolution of the international financial markets, which coincided with the pre-accession period to the EU, the market capitalization registered a justified ascent, an increase that suddenly returned in the period 2007-2008 to the level of 2003. The subsequent evolution was balanced, demonstrating a stability of the capital market.

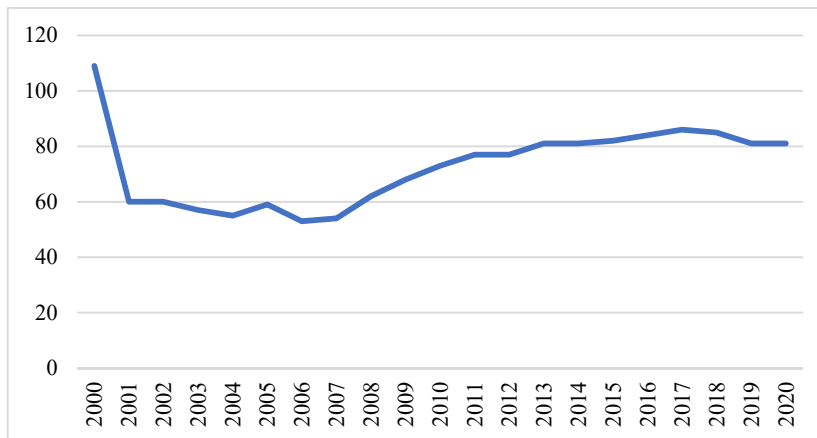
Figure no. 2. Romania Market capitalization of listed domestic companies (% of GDP)



Source: Author processing, data from [www.worldbank.org](http://www.worldbank.org)

Regarding the number of domestic companies listed on the stock exchange, we note that this indicator does not follow a trend similar to that of the capitalization values of the stock exchange. There is a steady increase in the EU post-accession year, followed by a capping of this indicator. We interpret this result as a reserved composition of the Romanian entrepreneurship towards the capital market. From our point of view, despite the positive evolution and the constant stock market, the outside environment in Romania still presents a reluctance to list companies. This prudence can have its motivation in a feeling of distrust of the business environment, but also in the retention towards the transparency of the business and the fulfillment of the specific conditions of listing on the stock exchange. Even if financing through bond issues is often a feasible alternative to the bank loan, we note that this option is unfortunately too little known in Romania, this fact being confirmed by the constant number of local companies listed on the stock exchange.

Figure no. 3. Romania Listed domestic companies, total



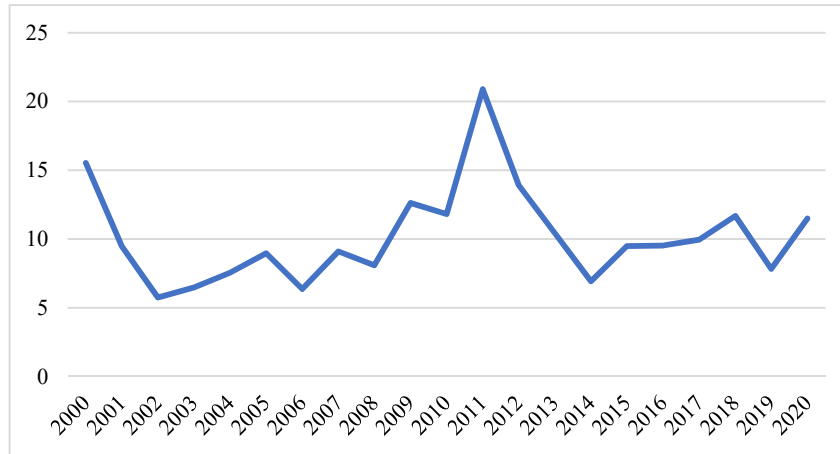
Source: Author processing, data from [www.worldbank.org](http://www.worldbank.org)

Analyzing the ratio between the traded shares and the turnover of domestic shares, we observe the same upward trend during the years 2007-2011, but in recent years, the ratio is balanced by the turnover of domestic shares. At the end of the analyzed period, we note that, despite the special events of 2020, the Bucharest Stock Exchange did not register considerable decreases, as a result of which we can consider that the projects dedicated to the expansion of investor communications have worked.

In our opinion, this indicator may be more relevant than the number of companies, given that a market may have a small number of companies listed on the stock exchange, but it can hold a significant capitalization, especially in highly developed countries. We believe that in recent years, important steps have been taken in terms of the technology and transparency of stock exchange operations, but it is necessary to cumulate them with the encouragement of large international companies to invest in the Romanian market.

We estimate that the promotion of the Romanian market to the emerging market level in 2020 is only the first step towards creating a more efficient capital market, with a significant improvement in the liquidity level and with an increasing representation percentage in the gross domestic product. We also consider that "Made in Romania", another important project initiated by the Bucharest Stock Exchange whose purpose is to develop a digital platform for the management of stock exchange mechanisms through issuance of shares and bonds, is a new tool to attract investors, by educating and guiding Romanian entrepreneurs in order to sustainably develop the local business environment.

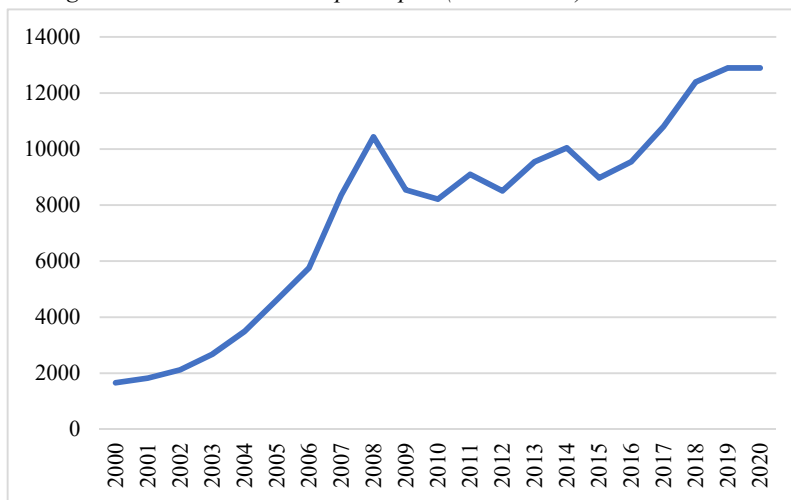
Figure no. 4. Romania Stocks traded, turnover ratio of domestic shares (%)



Source: Author processing, data from [www.worldbank.org](http://www.worldbank.org)

As far as the macroeconomic indicators are concerned, we are primarily looking at the gross domestic product per capita, noting an obviously favorable development. Except for the period of economic crisis of 2008-2010, as well as the years 2019-2020 of crisis caused by the Covid-19 pandemic, periods in which Romania’s macroeconomic indicators have seen a decrease, as well as the other states, the indicators for quantifying the gross domestic product demonstrate the economic growth of Romania. The value analysis shows the general positive trend of GDP, the two involutions being evident in the analysis of GDP evolution in relation to the values recorded in previous years.

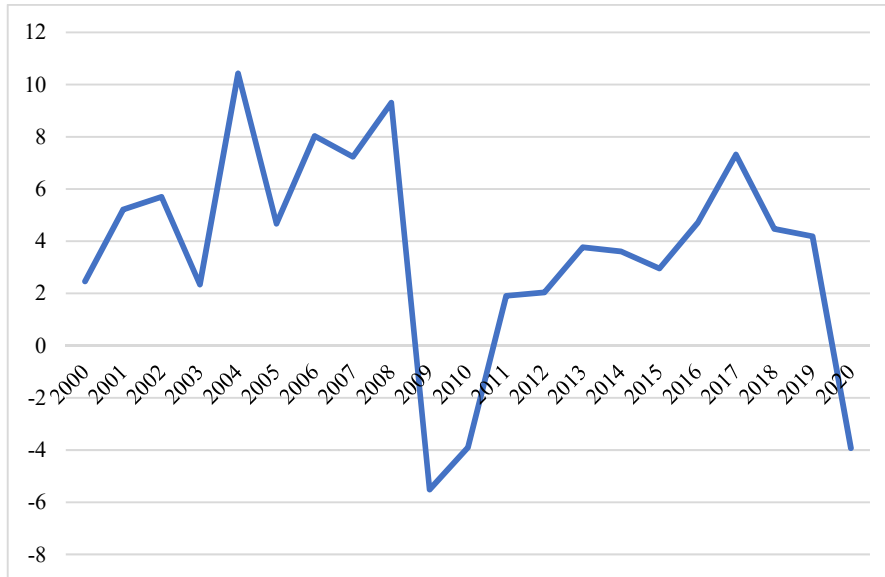
Figure no. 5. Romania GDP per capita (current US\$)



Source: Author processing, data from [www.worldbank.org](http://www.worldbank.org)

We look at gross domestic product both in the form of GDP per capita and in terms of percentage growth. As expected, at a relatively constant population, those indicators correlate. Thus, GDP per capita experienced a significant and constant growth in the period 2000-2007, the evolution of GDP in this time interval experienced fluctuations between 2 and 10%. Since 2015, we notice an increase in indicators that we translate into a positive evolution of the economy.

Figure no. 6. GDP growth in Romania (annual %)

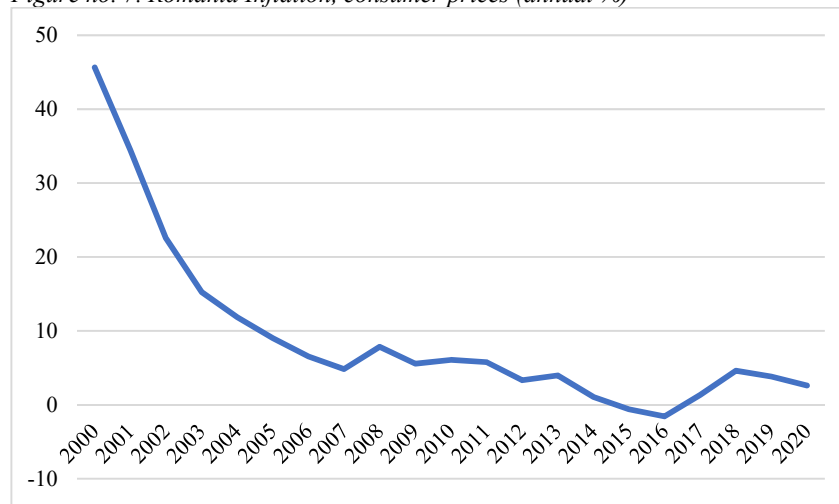


Source: Author processing, data from [www.worldbank.org](http://www.worldbank.org)

We analyze the consumer price index, being considered the most used macroeconomic indicator by the business environment, used for the adjustment of the contractual clauses, as well as for the estimation and macro regulation of the economic and financial markets. Analyzing the consumer price index of Romania in the last 20 years, we note that the inflationary trend is decreasing, another positive argument regarding the economic stability and the creation of a stable framework for the business environment and investors.

We also note that the evolution of foreign direct investment correlates with the other macroeconomic indicators. We note that the figures recorded by this indicator confirm that foreign investments are much more sensitive to the international business environment. Thus, the volume of foreign investments made in the years before accession to the European Union demonstrates the openness to integration at international level and anticipates the maximum recorded in 2007-2008. After the sharp drop during the economic crisis, foreign investments were much more weighted, while registering an obvious positive evolution. Unfortunately, however, the Covid-19 crisis has diminished the interest of investors at the level of 2009.

Figure no. 7. Romania Inflation, consumer prices (annual %)

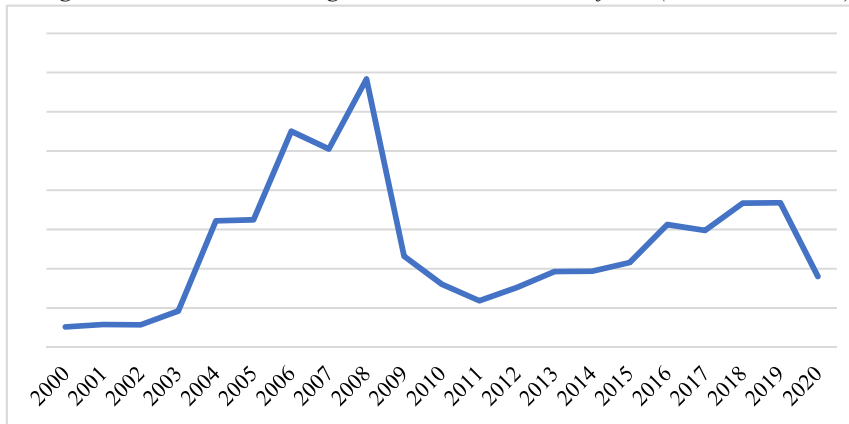


Source: Author processing, data from [www.worldbank.org](http://www.worldbank.org)



Interpreting the evolution of foreign investments (FDI), I note that the values recorded in the years prior to Romania's accession to the European Union have increased significantly. The post-crisis recovery was relatively constant between 2011 and 2019, but far from reaching the maximum values of the years 2007-2008. As expected, the Covid-19 health crisis has led to a significant drop in the FDI index. As a result, we can conclude that foreign investments are closely correlated with the economic condition at national level, and negative events significantly impact the interest of foreign investors. From our point of view, investors' sentiment plays a very important role and with immediate effects on the behavior of the investment market, which is also confirmed by the attached graphic representation. Also, it should be mentioned that the processing industry represents one third of the total value of FDI (the largest share being recorded in the industry of means of transport, followed by the processing of crude oil and chemical products), about 20% being located in constructions and real estate transactions, noting that this structure was relatively similar in the analyzed period of time.

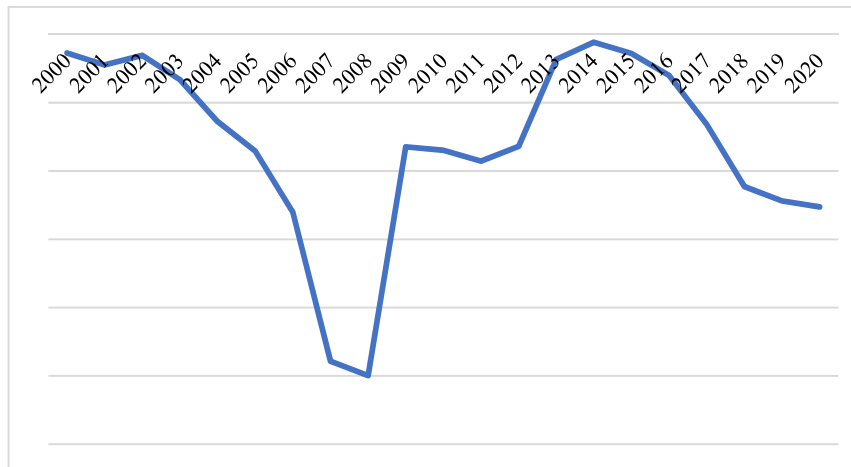
Figure no. 8. Romania Foreign direct investment, net inflows (BoP, current US\$)



Source: Author processing, data from [www.worldbank.org](http://www.worldbank.org)

The current account balance has recorded negative annual values in the last 20 years. In the years 2000-2003 and 2013-2016, the registered deficit had minimum values, the most unfavorable evolution being correlated with the negative evolutions of the macroeconomic indicators. The current account balance improved substantially between 2013 and 2016. After reaching a minimum in 2008, the current account deficit decreased significantly in two stages: in 2009 there was considerable progress, mainly due to the lower rate of imports. A second improvement was between 2012 and 2013; from our point of view, this positive evolution was determined by the increase of exports and at the same time by stable imports, as well as by a decrease in the deficit in terms of primary incomes.

Figure no. 8. Romania Foreign direct investment, net inflows (BoP, current US\$)



Source: Author processing, data from [www.worldbank.org](http://www.worldbank.org)

The trend of increasing the current account deficit started in 2015, which we consider to be a result of the deterioration of the balance of goods, that continued in the following years. Despite a positive evolution of the capital account surplus, the increase in the current account deficit was also significant in 2018. The deficient pace eased in 2019, when primary incomes reduced their deficit, being positively influenced by the compensation of employees and the subsidies received from the European Union, while the secondary incomes recorded a consolidation of the surplus, determined by the increase in remittances of Romanian workers from abroad.

## 5. Conclusions

Analyzing the capital market and macroeconomic indicators, it is noticed that the values recorded by them are correlated only to a certain extent. It is noted that the main events, such as Romania's accession to the EU and the financial crisis, affected all indicators, but the degree of impact and especially the recovery times differ.

We conclude that the macroeconomic indicators are less flexible to the changes of the economic and financial market, in times of crisis the economic sector being more stable than the financial one. On the other hand, we find that the capital market is affected almost instantly by the negative events that occur, but the recovery is carried out more quickly.

We must mention that the reaction of the governments through the economic policies undertaken, as well as the involvement of the National Bank of Romania in the key moments of inflection of the financial market, have determined decisively the evolution of the indicators. Thus, we consider that a synchronization of the governmental apparatus with the National Bank of Romania (BNR) and the other institutions involved is essential in correlating the economic evolution as a whole, as well as in maintaining a stability of the business environment. Here we exemplify the moments when large amounts of capital took place, when fiscal policy was pro-cyclical, which amplified the vulnerabilities associated with the reversal of the current account that occurred in the period 2004-2008. In theory, the policies of the BNR can diminish the negative effects or, on the contrary, to amplify the vulnerability of the market. At such times, the negative impact is intensified because the cyclical components of the gross domestic product, the large infusion of capital and the increase in budget expenditures can mutually join each other.

In conclusion, we note that the collaborations between the financial and macroeconomic indicators of Romania in the period 2000-2020 are limited by the behaviors specific to each index, the influence factors differing. Therefore, we consider that trying to identify an exact typology regarding the correlation of the two types of indicators is very difficult, all the more so as the economic and financial policies, as well as the temperament of investors are unpredictable in the long run.

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ISSN-L 2393-3119  
ISSN 2393-3127